



STATE OF MICHIGAN  
DEPARTMENT OF NATURAL RESOURCES

Number 97-4

December 22, 1997

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Waters of Lakes Michigan, Huron, Erie, and  
Superior, April 1, 1994 - March 31, 1995**

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**MICHIGAN DEPARTMENT OF NATURAL RESOURCES  
FISHERIES DIVISION**

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This publication is available in alternative fomats.



*Printed under authority of Michigan Department of Natural Resources  
Total number of copies printed 200 — Total cost \$1,150.76 — Cost per copy \$5.75*

**Sportfishing Catch and Effort from the Michigan Waters  
of Lakes Michigan, Huron, Erie, and Superior,  
April 1, 1994 - March 31, 1995**

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and  
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*Abstract.*—Sportfishing catch and effort were sampled on lakes Michigan, Huron, Erie, and Superior from April 1, 1994 through March 31, 1995. The objective of the creel monitoring program is to obtain a continuous record of sport catch, catch rates, and catch composition for the Great Lakes and important anadromous river fisheries. Over 85,000 anglers were interviewed at the completion of their fishing trips. Catch and effort estimates were calculated by month for all areas sampled. It was estimated that anglers spent 6.2 million angler hours in all areas of the Michigan waters of the Great Lakes that were surveyed. Total harvest was estimated to be over 5.3 million fish. Yellow perch were the most abundant species in the sport catch in most sample areas. Great Lakes sport anglers harvested an estimated 4.5 million yellow perch, 317,000 walleye, 75,000 chinook salmon, 59,000 brown trout, 58,000 lake trout, 31,000 coho salmon, and 31,000 rainbow trout.

Michigan's Great Lakes sport fishery has been monitored with a statewide contact creel survey program since 1983. The objective of the program is to obtain a continuous record of sport catch, catch rates, and catch composition for the Great Lakes and important anadromous river fisheries.

A fundamental requirement for sound management of the Great Lakes fisheries is knowledge of the response of fish stocks to fishing and the contributions of various fish stocks to the fisheries. Success and future value of the Great Lakes and anadromous stream fisheries depends on long-term consequences of current management. It is essential that management decisions be based on a sound

empirical knowledge of the history, current status, and dynamics of fish communities.

Fishing statistics are needed for stock assessment and to facilitate stock identification. Coupled with fish marking studies, these kinds of data can identify Great Lakes and anadromous fish stocks and determine their distribution, movements, and contribution to various sport fisheries. Data collected from this program have been used to develop, test, and improve decision models which help discern management strategies for Great Lakes fish communities and fisheries.

For example, the catch and effort estimates for yellow perch and walleye from Lake Erie are an important component of interagency harvest

quota calculations. The Michigan data are used jointly with creel estimates from Ontario, Canada, New York, and Ohio on an annual basis in an effort to prevent over harvest of these two important species.

### **Study Area and Methods**

Michigan Department of Natural Resources (MDNR) Fisheries Division personnel interviewed over 85,000 anglers at the end of their fishing trips during the 1994 license year, April 1, 1994 through March 31, 1995. Approximately 77,500 of these anglers were contacted during the April through October open-water season. A total of 7,500 anglers were interviewed during the winter ice fishing season, January through March 1995.

During the 1994 open-water season, creel surveys were conducted at 23 important ports and angling areas on Lake Michigan from New Buffalo to Harbor Springs and on Green Bay from Menominee to the Bays de Noc (Figure 1). Lake Huron creel surveys were conducted at 15 sites from Lexington to Rogers City (Figure 2). A creel survey, focused on the boat fishery, was conducted on Lake Erie from Point Mouillee to the Michigan-Ohio state line (Figure 3). Seven areas were sampled on western and central Lake Superior during the 1994 open-water season, from Black River Harbor to Munising Bay (Figure 4).

Winter ice fisheries were sampled on lakes Michigan, Huron and Superior. On Lake Michigan, Menominee and Little Bay de Noc were surveyed (Figure 1). On Lake Huron, Saginaw Bay was surveyed (Figure 2). On Lake Superior, Keweenaw Bay, Marquette and Munising Bay were sampled (Figure 4).

The creel survey used in Michigan is based on a stratified design using simple random sampling within strata. Strata included port fished by month, by weekday-weekend (holiday), and by mode of fishing. Catch and effort estimates were made for each stratum and then combined to give monthly and seasonal figures. Each work schedule was specifically tailored for the area being sampled. Both weekend days and three randomly selected weekdays were sampled each week. The entire

angling day from dawn to 1 hour past dusk was covered. This was accomplished by breaking each day into two 8-hour work shifts, then randomly selecting the actual shift to be worked. When an individual was responsible for sampling more than one area, the port or fishing areas were also randomly selected for each day.

Two types of data were collected for each area sampled: angler party interviews for catch rates and angler (or boat) counts for effort. An angler party was defined as one or more anglers who fished together. Angler parties were interviewed at the completion of their fishing trips at various boat launching ramps, marinas, piers, and along the shoreline. Anglers were queried as to their mode of fishing (i.e., boat, shore, pier, open ice, or shanty ice), where they fished, how long they fished, what they fished for, the numbers (by species) of fish they kept, and the number of fishing trips they made or intended to make that day. Additional data were collected on each angler in the party such as age and sex, zip code or county of residence, and the types of angling method used (casting, still fishing, trolling, etc.). These data were recorded on an angler interview form by census personnel (Figure 5).

Fishing effort was determined through instantaneous and interval counts of anglers or boats in a given area. Instantaneous counts were used when all boats or anglers in a sample area could be observed from a given point at one time. Interval counts were used when the sample area was too large to be observed from one point. In this case, the number of boats or anglers passing the observation point during a 30-minute period was used to determine the number of fishermen in the entire sampling area. All counts of boat trailers, pier anglers, shore anglers, open-ice anglers, and ice shanties were instantaneous. However, both instantaneous and interval boat counts were made depending on the sampling area. The type and number of boating access points within the sample area determined the type of boat count used. Interval counts were used in cases where boat access to the open lake was limited to harbor areas where all boats exited through defined channels.

Most fishing effort counts were done from the ground by creel clerks at randomly selected times. Instantaneous counts made from

airplanes of boats, pier, and shore anglers were used only when ground counts were not feasible, such as areas with many access points or restricted visibility. Air flights were used to make fishing effort counts on Saginaw Bay and Lake Erie. Local flight service companies were contracted to make aerial counts. Five flights were made each week at randomly selected starting times—one each weekend day, and one on each of three randomly selected week days. All effort counts, whether accomplished from the ground or air, were recorded on count data forms by census clerks or contract pilots (Figure 6).

Newly hired, seasonal creel clerks were trained on-site by permanent fisheries technicians at the beginning of the field season. Count and interview data forms, completed by both seasonal and permanent personnel, were reviewed throughout the field season at Charlevoix Fisheries Research Station prior to computer entry. The software used for data entry employed range checks on various data fields for each count or interview record that was keyed. In addition, a module of the creel catch estimate software performed a final check of the data before catch estimates were made.

Catch and effort estimates were made for each port or fishing area by month. Standard mathematical formulas for creel census (Ryckman 1981) were used to calculate all estimates. Three measures of fishing effort were calculated: angler hours, angler trips, and angler days. An angler trip is one completed fishing excursion. An angler day is composed of one or more fishing excursions during a 24-hour period. Error bounds for all catch and effort estimates in this report are defined as two standard errors of the mean (2 times the square root of the variance, divided by the number of observations for an estimate) and approximate true 70-95% confidence limits, depending on sample size. Error bounds for all mean length and weight data are 95% confidence limits.

Statistical significance in the analysis comparing lake-wide or port estimates between years is based on two standard error limits. Information from the previous year is contained in Rakoczy and Svoboda (1995a). Also, prior to 1 August 1989, the charter boat mode of fishing was included as part of this study. As a result of

legislation in Michigan during 1989, charter boat operators are required to report their clients catch and angling effort monthly to MDNR. After 1989, charter boats were no longer covered by this study. However, in order to make valid year-to-year comparisons, catch and effort reported by charter fishermen were added to the catch and effort estimates generated by this study. All charter boat data used in this report for year-to-year comparisons are from Rakoczy and Rogers (1991a, b), Rakoczy (1992a), Rakoczy and Svoboda (1993), Rakoczy and Svoboda (1994) and Rakoczy and Svoboda (1995b).

Comparisons of results over the entire data series (1985-94) have been made difficult due to constrained budgets during 1989-91. During those years sampling at a number of ports and fishing areas were discontinued. Since 1992, most of these ports and areas were added back into the annual sampling scheduled. In order to follow trends in the fishery for salmonines and make year to year comparisons on lakes Michigan and Huron “index ports” were selected based on their importance to the lake-wide salmonid harvest during years when all Michigan ports were sampled and their consistency of being sampled each year.

Scientific and common names of fish species observed during this study are contained in Table 1. Detailed catch estimates by month, species, and sample area are contained in the appendices.

## Results

### *Lake Michigan*

Anglers spent an estimated 2,255,189 ( $\pm 125,938$ ) hours fishing the Michigan waters of Lake Michigan at the 23 areas surveyed during the 15 March through 31 October 1994 open-water season (Table 2). The number of hours fished converts to an estimated 564,311 ( $\pm 27,726$ ) individual angler trips or 521,108 ( $\pm 24,766$ ) angler days. Total angling effort by mode of fishing was 82% boat, 13% pier, and 5% shore.

Total angler effort in 1994 at 10 major areas that have been continuously sampled since 1985

declined by 28% as compared to the same period in 1993 and was the lowest estimate for the ten year data series (Table 3). South Haven had the greatest amount of angler activity in 1994 of all the 23 survey sites, with an estimated 262,459 ( $\pm 60,737$ ) angler hours (Appendix 3).

The average length of a Lake Michigan fishing trip (all modes of fishing) was 4.0 hours. Anglers made approximately 1.1 fishing trips per day. The length of a fishing trip varied by angling mode. Boat trips were the longest in duration, averaging 4.5 hours. Pier and shore trips each averaged 2.6 hours.

Anglers caught an estimated 2,221,314 ( $\pm 500,219$ ) fish comprising 27 species during 1994 (Table 2). The bulk of this catch (89%) came from the boat fishery, while pier and shore anglers harvested 9% and 2% of the total catch, respectively (Tables 4, 5, and 6).

The yellow perch was the most numerous species in the catch, making up 89% of all the fish harvested. An estimated 1,975,916 ( $\pm 499,605$ ) yellow perch were harvested by all modes (non-charter) of sportfishing (Table 2). During 1994, 23% of all Lake Michigan angler parties interviewed said their target species was yellow perch. The largest perch catch (1,414,005  $\pm 493,791$  fish) of all areas sampled in 1994 occurred at South Haven.

Yellow perch catch rates at seven Lake Michigan sample areas combined, excluding South Haven which was recently added to the sampling schedule, decreased significantly (-31%) in 1994 compared to 1993 (Table 7). The greatest catch rate for yellow perch during 1994 was 5.388 ( $\pm 2.257$ ) fish per angler hour at South Haven (Appendix 3). The catch rate for yellow perch at South Haven increased 42% in 1994 as compared to 1993. The greatest changes in catch rates for yellow perch in 1994 compared to 1993 occurred at Manistee (-78%), Ludington (-71%), and West Grand Traverse Bay (-68%) (Table 7).

Although yellow perch are important to the Lake Michigan sport fishery, many anglers (31%) seek the various species of salmonines. The Lake Michigan catch of salmonines in the study area was estimated at 146,896 ( $\pm 13,072$ ) fish. The vast majority of this harvest (86%) came from the boat fishery (non-charter) (Table 4). The catch of salmonines was composed of

32% brown trout, 23% lake trout, 16% chinook salmon, 15% rainbow trout and 13% coho salmon. During 1985-86, chinook salmon dominated the catch of salmonines, making up from 57-59% of the harvest (Rakoczy and Lockwood 1988; Rakoczy and Rogers 1987). As abundance of chinook salmon declined in Lake Michigan, rainbow trout became a larger component of the sport catch. Rainbow trout dominated the sport harvest of salmonines during 1992. During the past two seasons brown trout was the dominant salmonine in the sport catch.

The total harvest of salmonines (charter and non-charter) at nine important Lake Michigan fishing areas (index ports) combined decreased by 29% in 1994 compared to 1993 (Table 8). Catch rates for all salmonines combined in 1994 was 10.94 ( $\pm 0.99$ ) fish per 100 angler hours compared to 10.83 ( $\pm 0.64$ ) in 1993 (Table 9). Although the overall catch rate for salmonines at these nine ports did not change significantly compared to last year, there were some major differences in the harvest and catch rates of individual species.

The brown trout was the most abundant salmonine in the sport catch. An estimated 46,358 ( $\pm 11,067$ ) brown trout were harvested from all Lake Michigan ports sampled during 1994 (Table 2). The average size of brown trout in the Lake Michigan sport harvest was 19.97 ( $\pm 0.37$ ) inches or 4.13 ( $\pm 0.31$ ) pounds. The brown trout harvest and catch rate increased by 48% and 100%, respectively, at the nine index ports during 1994 compared to the previous year (Tables 8 and 9). The catch rate for brown trout (2.02  $\pm 0.80$  fish per 100 angler hours) in 1994 was the greatest point estimate for the ten year data series. The sport harvest and catch rate for brown trout has been trending upward during the past two seasons.

A total of 33,132 ( $\pm 4,009$ ) lake trout were harvested from all the ports sampled during 1994 (Table 2). Biological data collected from the sport fishery during 1994 indicated that creel lake trout averaged 25.80 ( $\pm 0.20$ ) inches in length and weighed 6.71 ( $\pm 0.27$ ) pounds. The harvest of lake trout at nine index ports decreased by 19% during 1994 compared to 1993, while the catch rate increased 24% during the same period (Tables 8 and 9). The decreased

harvest of lake trout was caused by a 26% decline in angler effort at the nine index ports during 1994 as compared to 1993.

Chinook salmon have historically been one of the most important salmonines in the Lake Michigan sport fishery in terms of numbers and weight of fish harvested (Rakoczy and Rogers 1991c). An estimated 23,157 ( $\pm 2,926$ ) chinook salmon were creel by anglers during 1994 at all sample areas combined (Table 2). The mean size of chinook in the sport catch during 1994 was 24.26 ( $\pm 0.67$ ) inches or 8.01 ( $\pm 0.66$ ) pounds. The harvest of chinook in 1994 at the nine index ports decreased by 25% compared to 1993 and was the smallest harvest since 1985 (Table 8). The harvest of chinook salmon has been trending downward since 1987. Catch rates for chinook at these nine areas combined were virtually unchanged during 1994 compared to 1993 (Table 9).

Biological data collected from the sport fishery since 1985 indicate that the age distribution of chinook salmon in the sport catch has changed markedly. In 1985-86, age-0.3 and age-0.4 chinook salmon combined made up 53-71% of the sport catch at the nine index ports (Table 10). During the past four seasons (1991-94), these same age groups have only accounted for 25-34% of the sport catch. Although the percentage of age-0.1 and age-0.2 chinook salmon in the sport catch has increased since the mid-1980s, their estimated harvest in numbers has not (Table 10). The return of chinook salmon by year class (effort adjusted) at the nine index ports has declined since the mid-1980s (Table 11). The effort adjusted return (per 1,000 fish stocked) of the 1984-85 year classes of chinook salmon throughout their life span in the lake was 20.19 and 20.46, respectively (Table 11). The return of the last two year classes (1989-90) that have completed their life cycle in Lake Michigan was 6.74 and 6.47, respectively. This represents a decline of approximately 70% during the seven-year period. Decreased survival of Lake Michigan chinook salmon has been attributed to bacterial kidney disease (Nelson and Hnath 1990).

The 1994 rainbow trout harvest was estimated at 22,527 ( $\pm 3,106$ ) fish. Fifty-five percent of the harvest was taken during June, July, and August (Table 2). This was consistent

with data collected during the past six years. The mean size of rainbow trout in the Lake Michigan sport catch during 1994 was 24.10 ( $\pm 0.39$ ) inches or 5.46 ( $\pm 0.26$ ) pounds. In general, the catch and catch rate for rainbow trout during 1986-92 was trending upward at the nine index ports (Tables 8 and 9). However, the 1993-94 harvest and catch rate of rainbow at these index ports has declined significantly compared to the peak years of 1991-92.

An estimated 19,434 ( $\pm 3,695$ ) coho salmon were harvested in all survey areas combined in 1994 (Table 2). The average size of coho harvested by the sport fishery was 19.38 ( $\pm 0.46$ ) inches and 3.45 ( $\pm 0.29$ ) pounds. The catch and catch rate for coho at the nine index ports combined decreased significantly by 65% and 53%, respectively, compared to 1993 (Tables 8 and 9). Historically (1985-92), catch rates for coho salmon varied greatly from year to year. The catch rate noted for 1994 (1.32  $\pm 0.26$  fish per 100 angler hours) was the lowest point estimate during the ten year data series (Table 9).

#### *Lake Huron*

A total of 15 sportfishing areas were surveyed on Lake Huron during the April through October, 1994 open-water season. During 1994, Lake Huron anglers spent an estimated 2,197,800 ( $\pm 124,090$ ) hours fishing at all areas combined (Table 12). An estimated 496,119 ( $\pm 29,377$ ) angler trips were made during the season or 427,056 ( $\pm 24,133$ ) angler days. Angler effort during 1994 increased (+4%) slightly compared to the previous year.

Angler effort by mode of fishing was 87% boat, 7% shore and 6% pier (Tables 13, 14, and 15). The average length of a Lake Huron fishing trip (all modes of fishing) was 4.4 hours. Anglers made approximately 1.2 fishing trips per day. Boat trips were the longest in duration, averaging 5.1 hours. Pier and shore trips averaged 2.7 and 2.1 hours, respectively.

The waters of Saginaw Bay had the greatest concentration of fishing effort (63%) on Lake Huron. Anglers spent an estimated 1,392,854 ( $\pm 114,638$ ) hours, 328,086 ( $\pm 27,649$ ) trips, or 278,689 ( $\pm 22,653$ ) days fishing Saginaw Bay

(Table 16). Total angler effort increased slightly (5%) on Saginaw Bay during 1994 compared to 1993 (Table 17).

Lake Huron anglers harvested an estimated 1,636,654 ( $\pm 214,578$ ) fish comprising 29 species (Table 12). Anglers fishing from boats harvested 83% of all fish. During 1994, 18% of all anglers interviewed on Lake Huron responded that their target species was yellow perch and 51% were seeking the various species of salmonines. The percentage of anglers seeking yellow perch on Lake Huron in 1994 was unchanged compared to 1993. On Saginaw Bay, 41% of all anglers interviewed responded that they were fishing for yellow perch while 22% were fishing for walleye.

Yellow perch dominated the sport catch on Lake Huron, making up 88% of all fish harvested. An estimated 1,444,396 ( $\pm 213,905$ ) yellow perch were taken by all modes of fishing. The average size of yellow perch kept by Lake Huron anglers in 1994 was 8.07 ( $\pm 0.07$ ) inches. Most (99%) of these yellow perch were taken by anglers fishing in Saginaw Bay (Table 16). The 1994 harvest of yellow perch from Saginaw Bay (1,434,841  $\pm$  213,852) increased significantly by 94% compared to 1993 (Table 17). The average size of yellow perch kept by Saginaw Bay anglers was 7.93 ( $\pm 0.05$ ) inches. The catch rate (1.025  $\pm$  0.175 fish per hour) for Saginaw Bay yellow perch in 1994 also increased (+86%) significantly compared to 1993. The difference however, was not significant compared to the 1986-93 average (0.955  $\pm$  0.465).

Walleye are an important species to the Lake Huron sport fishery. An estimated 71,843 ( $\pm 11,988$ ) walleye were harvested from all areas surveyed (Table 12). Ninety-two percent of the walleye harvest came from Saginaw Bay (Table 16). The mean size of walleye taken by the Saginaw Bay sport fishery was 21.76 ( $\pm 0.28$ ) inches and 4.04 ( $\pm 0.16$ ) pounds. The 1994 harvest (68,170  $\pm$  11,907) and catch rate (0.049  $\pm$  0.009) for Saginaw Bay walleye decreased significantly (46% and 48% respectively) as compared to 1993 (Table 17). However, the 1994 harvest and catch rate was not significantly changed from the 1986-93 average harvest of 75,725 ( $\pm 17,142$ ) fish or catch rate of 0.054 ( $\pm 0.013$ ) fish per hour.

In addition to yellow perch and walleye, Lake Huron anglers also harvested an estimated 80,808 ( $\pm 6,395$ ) salmonines (Table 12). Although the catch of salmonines was composed of eight species, one species, chinook salmon, dominated (61%) the catch.

The mean size of chinook salmon harvested by Lake Huron anglers during 1994 was 29.15 ( $\pm 0.44$ ) inches and 10.76 ( $\pm 0.40$ ) pounds. The estimated harvest of chinook salmon (53,775  $\pm$  4,308) and the catch rate (4.71  $\pm$  0.38 fish per 100 angler hours) at nine Lake Huron index ports during 1994 increased slightly compared to 1993 (Tables 18 and 19).

Lake Huron anglers (charter and non-charter) harvested an estimated 11,568 ( $\pm 4,212$ ) lake trout from the index ports (Table 18). The mean size of lake trout in the sport catch was 23.08 ( $\pm 0.37$ ) inches and 4.52 ( $\pm 0.24$ ) pounds. The 1994 lake trout harvest and catch rate increased (77% and 73% respectively) compared to 1993 (Tables 18 and 19).

During 1994, an estimated 9,507 ( $\pm 1,6447$ ) brown trout and 6,971 ( $\pm 1,219$ ) rainbow trout were harvested by Lake Huron anglers at the nine index ports (Table 18). The mean size of brown trout in the Lake Huron sport catch was 20.34 ( $\pm 0.35$ ) inches and 4.53 ( $\pm 0.25$ ) pounds, while rainbow were 25.17 ( $\pm 0.48$ ) inches and 6.05 ( $\pm 0.34$ ) pounds.

The harvest and catch rate of brown trout increased 27% and 17%, respectively, compared to 1993 (Tables 18 and 19). The harvest and catch rate of rainbow at the index ports increased slightly during 1994 as compared to the previous season. In general, the harvests and catch rates for these two salmonines has been trending upward during the 1990s compared to 1988 (Tables 18 and 19).

### *Lake Erie*

Approximately 30 miles of Lake Erie shoreline, from Point Mouillee to the Michigan-Ohio state line, were surveyed in 1994. Anglers spent an estimated 968,254 ( $\pm 139,623$ ) hours fishing from boats in the survey area (Table 20). A total of 174,765 ( $\pm 24,899$ ) angler trips or 173,799 ( $\pm 24,809$ ) angler days were spent in the area. Total angler effort increased (8%) slightly



in 1994 compared to 1993 (Table 21). Angler effort has been trending upward since 1991. The average length of a boat fishing trip on Lake Erie was 5.5 hours. The average angler made 1.0 trips per day.

Boat anglers harvested an estimated 529,577 ( $\pm 76,538$ ) fish comprising 16 species (Table 20). Sixty-four percent of all Lake Erie anglers interviewed responded that they were fishing for walleye, while 14% said they were seeking yellow perch. Walleye made up 35% of the total catch with an estimated harvest of 185,160 ( $\pm 36,667$ ) fish (Table 20). The mean size of walleye in the catch was 17.97 ( $\pm 0.32$ ) inches or 2.03 ( $\pm 0.13$ ) pounds. The walleye harvest in 1994 declined by 20% compared to 1993 (Table 21). The majority of the 1994 walleye harvest (96%) was taken during May through July (Table 20). The catch rate for walleye (0.213  $\pm 0.047$ ) in 1994 did not change significantly compared to 1993 (Table 21).

Lake Erie anglers harvested an estimated 233,585 ( $\pm 64,150$ ) yellow perch during 1994 (Table 20). The mean total length of yellow perch kept by Lake Erie anglers was 8.51 ( $\pm 0.10$ ) inches. The yellow perch harvest and catch rate during April through October 1994 decreased significantly by 48% and 52%, respectively, compared to the same period in 1993 (Table 21).

In addition to yellow perch and walleye, an estimated 46,226 ( $\pm 16,582$ ) white bass, 29,375 ( $\pm 8,405$ ) channel catfish, and 13,743 ( $\pm 4,322$ ) white perch were harvested by Lake Erie anglers. The channel catfish harvest is probably underestimated due to the fact that most fishing for this species occurs throughout the night. No creel sampling took place during the period 1 hour after dusk to 6 a.m.

### *Lake Superior*

Anglers spent an estimated 133,263 ( $\pm 5,536$ ) hours fishing the seven survey areas on western and central Lake Superior (Table 22). This translates to 32,746 ( $\pm 1,458$ ) individual angler trips, or 32,719 ( $\pm 2,183$ ) angler days. Angler effort declined significantly by 35% compared to 1993. Marquette had the greatest amount of angler activity of all Lake Superior

sample areas, accounting for 40% of the total effort. The average length of a Lake Superior fishing trip (all modes of fishing) was 4.1 hours and anglers made 1.0 fishing trips per day.

Lake Superior anglers harvested an estimated 30,571 ( $\pm 2,410$ ) fish comprising 17 species (Table 22). Most anglers (76%) interviewed on Lake Superior said they were fishing for the various species of salmonines. Lake trout (lean) made up 53% of the salmonine harvest. The remainder of the salmonine catch was made up mainly of coho salmon (25%), siscowet lake trout (10%) and chinook salmon (6%). In addition small numbers of rainbow trout, Atlantic salmon, splake, brown trout, and pink salmon were harvested.

The lake trout harvest for all survey areas combined was estimated at 13,811 ( $\pm 1,332$ ) fish (Table 22). This represented a 42% decline compared to 1993. Lake trout averaged 24.09 ( $\pm 0.31$ ) inches and 5.08 ( $\pm 0.21$ ) pounds. The catch rate for lake trout at all survey areas combined in 1994 was 10.36 ( $\pm 1.09$ ) fish per 100 angler hours compared to 11.62 ( $\pm 1.26$ ) for these same areas in 1993. In addition to (lean) lake trout, 2,527 ( $\pm 622$ ) siscowet lake trout (fat trout) were harvested. Mean size of siscowet lake trout was 21.97 ( $\pm 0.64$ ) inches and 4.10 ( $\pm 0.42$ ) pounds.

Lake Superior anglers also caught an estimated 6,705 ( $\pm 1,164$ ) coho salmon and 1,501 ( $\pm 359$ ) chinook salmon in 1994 (Table 22). The 1994 catch and catch rate for coho salmon increased by 16% and 78%, respectively compared to 1993. The increase in the coho catch rate was significant. The 1994 chinook salmon catch and catch rate decreased by 51% and 24%, respectively as compared to 1993.

### *Winter Ice Fisheries*

Catch and sportfishing effort were surveyed on various areas of lakes Superior, Huron and Michigan during the winter months of 1995. The Saginaw Bay ice fishery is the largest and most important ice fishery, in terms of catch and effort, on Michigan's waters of the Great Lakes (Rakoczy and Rogers 1988). During 1995, anglers spent an estimated 414,325 ( $\pm 43,591$ ) hours fishing the Bay's waters (Table 23). This

amounted to an estimated 110,769 ( $\pm 11,915$ ) angler trips, or 93,759 ( $\pm 10,425$ ) angler days. The average length of an ice fishing trip on Saginaw Bay was 3.7 hours and anglers made an average of 1.2 trips per day.

Sport catch and effort for winter ice fisheries are largely dependent upon the duration of safe ice conditions each season. Mild winter conditions limited angler access to the ice on Saginaw Bay during 1988 and 1991. In 1984 and 1987, angler effort was twice the levels noted for 1988 and 1991. During those winters, solid ice conditions existed during the entire survey period (January-March) (Rakoczy 1992b). Angler effort for the Saginaw Bay ice fishery during 1995 decreased slightly compared to 1994 (Table 24).

Saginaw Bay ice anglers caught an estimated 828,182 ( $\pm 174,903$ ) fish representing 8 species (Table 23). Sixty-nine percent of the angler parties interviewed on Saginaw Bay during the 1995 ice fishery responded that they were fishing for yellow perch, while 12% indicated that they were fishing for walleye. This was in contrast with 1994 when 47% of the angler parties were seeking walleye. The percentage of angler parties responding that their target species was either yellow perch or walleye has vacillated during past several winters. The target species of anglers during the winter ice fishery on Saginaw Bay appear to correspond to their success rate (catch rate) or anticipated success rate for yellow perch or walleye. For example, during 1992, 85% of the angler parties said they were fishing for yellow perch. Catch rates for yellow perch were above average that season. Last year, when 47% of the anglers were seeking walleye, catch rates for walleye were well above their long term average.

Yellow perch made up 99% of all fish harvested on Saginaw Bay (Table 23). The average size of yellow perch kept by Saginaw Bay ice anglers was 8.16 ( $\pm 0.09$ ) inches. The total harvest of yellow perch in 1995 increased (34%) compared to 1994 (Table 24). The increase in harvest was due to a 55% increase in catch rates for yellow perch as compared to 1994. The area from Sebewaing to Sand Point had the greatest estimated harvest (335,511  $\pm 108,657$ ), while the Au Gres area had the

greatest estimated catch rate (2.613  $\pm 1.042$  fish per angler hour) for yellow perch of all the Saginaw Bay survey sites during January through March.

The 1995 walleye harvest from Saginaw Bay was estimated at 4,094 ( $\pm 1,633$ ) fish. Walleye harvested through the ice on the Bay averaged 23.31 ( $\pm 0.51$ ) inches and 5.10 ( $\pm 0.35$ ) pounds. The winter walleye harvest and catch rate declined significantly by 79% and 76% respectively, compared to 1994 (Table 24). Poor winter ice conditions off-shore during 1995 hampered fishermen's access to mid-winter walleye fishing areas.

Little Bay de Noc is the largest winter ice fishery on Lake Michigan. Angler effort for the 1995 winter ice fishery was estimated at 129,064 ( $\pm 15,512$ ) hours. Angler effort declined by 16% compared to 1994 (Table 25). Anglers harvested an estimated 30,464 ( $\pm 6,844$ ) yellow perch and 6,611 ( $\pm 2,443$ ) walleye from Little Bay de Noc. The mean size of yellow perch kept by Little Bay de Noc ice anglers was 8.65 ( $\pm 0.32$ ) inches. Too few walleye were sampled during the ice season to calculate a valid mean size.

Catch rates for yellow perch and walleye during 1995 increased by 26% and 183% as compared to 1994. The catch rate of 0.051 ( $\pm 0.020$ ) fish per hour was one of the best success rates for walleye during the past ten winter seasons.

The Menominee River and Harbor areas were also surveyed on Lake Michigan during the winter months of 1995. The level of fishing effort declined by 91% at the Menominee Harbor area compared to the previous year due to unstable ice conditions. The sport harvest therefore, was minimal.

Three areas were surveyed on Lake Superior during the winter of 1995, Keweenaw Bay, Marquette, and Munising Bay. On Keweenaw Bay anglers spent an estimated 39,135 ( $\pm 17,733$ ) hours fishing through the ice (Table 26). Unstable ice conditions during 1995 contributed to a significant decrease (60%) in angler effort compared to 1994.

Keweenaw Bay anglers caught an estimated 2,211 ( $\pm 893$ ) coho salmon, 810 ( $\pm 531$ ) siscowet lake trout and 384 ( $\pm 293$ ) lean lake trout during the winter of 1995. Siscowet lake trout, also

known as fat trout, made up 68% of the total lake trout catch (fat and lean trout) on Keweenaw Bay in 1995 (Table 26). The catch and catch rate of all three of these salmonines decreased significantly on Keweenaw Bay during the winter of 1995 compared to 1994.

The winter ice fishery at Munising Bay ( $11,678 \pm 2,156$  hours) also declined (-50%) in angler effort compared to the 1994 season. Ice anglers on Munising Bay harvested an estimated 2,760 ( $\pm 1,720$ ) lake whitefish and 134 ( $\pm 86$ ) coho salmon among 7 species which were observed in the catch. At Marquette, ice fishing effort was estimated at 3,849 ( $\pm 942$ ) angler hours and the catch consisted mainly of coho salmon ( $803 \pm 275$ ).

### **Summary**

During the 1994 license year anglers spent an estimated 6.2 million angler hours fishing in the Michigan waters of the Great Lakes that were surveyed. This accounted for an estimated 1.4 million individual fishing trips and 1.3 million angler days. Total catch was estimated to be over 5.3 million fish. Yellow perch were the most abundant species in the sport catch in most sample areas. The yellow perch catch for all areas surveyed was estimated at 4.5 million fish. In addition to yellow perch, sport anglers harvested an estimated 317,000 walleye, 75,000 chinook salmon, 59,000 brown trout, 58,000 lake trout, 31,000 coho salmon, and 31,000 rainbow trout.

The catch of Lake Michigan salmonines was composed of 32% brown trout, 23% lake trout, 16% chinook salmon, 15% rainbow trout, and 13% coho salmon. Since the inception of the creel survey program in 1985, 1993-94 was the first time period which brown trout dominated the catch of Lake Michigan salmonines for two consecutive seasons. The total harvest of salmonines (charter and non-charter) at nine important Lake Michigan fishing areas (index

ports) combined decreased by 29% in 1994 compared to 1993. The catch rate for all salmonines combined in 1994 was 10.94 ( $\pm 0.99$ ) fish per 100 angler hours compared to 10.83 ( $\pm 0.64$ ) in 1993.

The waters of Saginaw Bay had the greatest concentration of fishing effort (66%) on Lake Huron. Angler effort on Saginaw Bay during 1994 increased slightly (5%) compared to 1993. The 1994 harvest and catch rate of yellow perch from Saginaw Bay increased significantly by 94% and 86%, respectively, compared to 1993. The harvest (-46%) and catch rate (-48%) of walleye from Saginaw Bay decreased significantly during 1994 as compared to 1993. The Lake Huron catch of salmonines was dominated by one species, chinook salmon (61%). The 1994 lake trout harvest and catch rate increased by 77% and 73% respectively, on Lake Huron compared to the previous year.

The 1994 walleye catch rate on Lake Erie did not change significantly compared to 1993. The 1994 Lake Erie yellow perch harvest (-48%) and catch rate (-52%) decreased significantly compared to 1993.

Winter ice fisheries were surveyed at various areas on lakes Superior, Michigan, and Huron. The Saginaw Bay winter fishery is the most important in terms of angler effort (414,000 angler hours). Yellow perch made up 99% (828,000) of all fish harvested by Saginaw Bay ice anglers.

### **Acknowledgments**

The authors wish to thank the staffs of the fisheries districts and research stations who participated in the census program. These field units did the day to day work of angler interviews, fishing pressure counts, and supervision of seasonal workers. Evelyn Davis keyed the data. Special thanks to Kelley Smith who wrote the computer programs for the calculation of the catch and effort estimates.

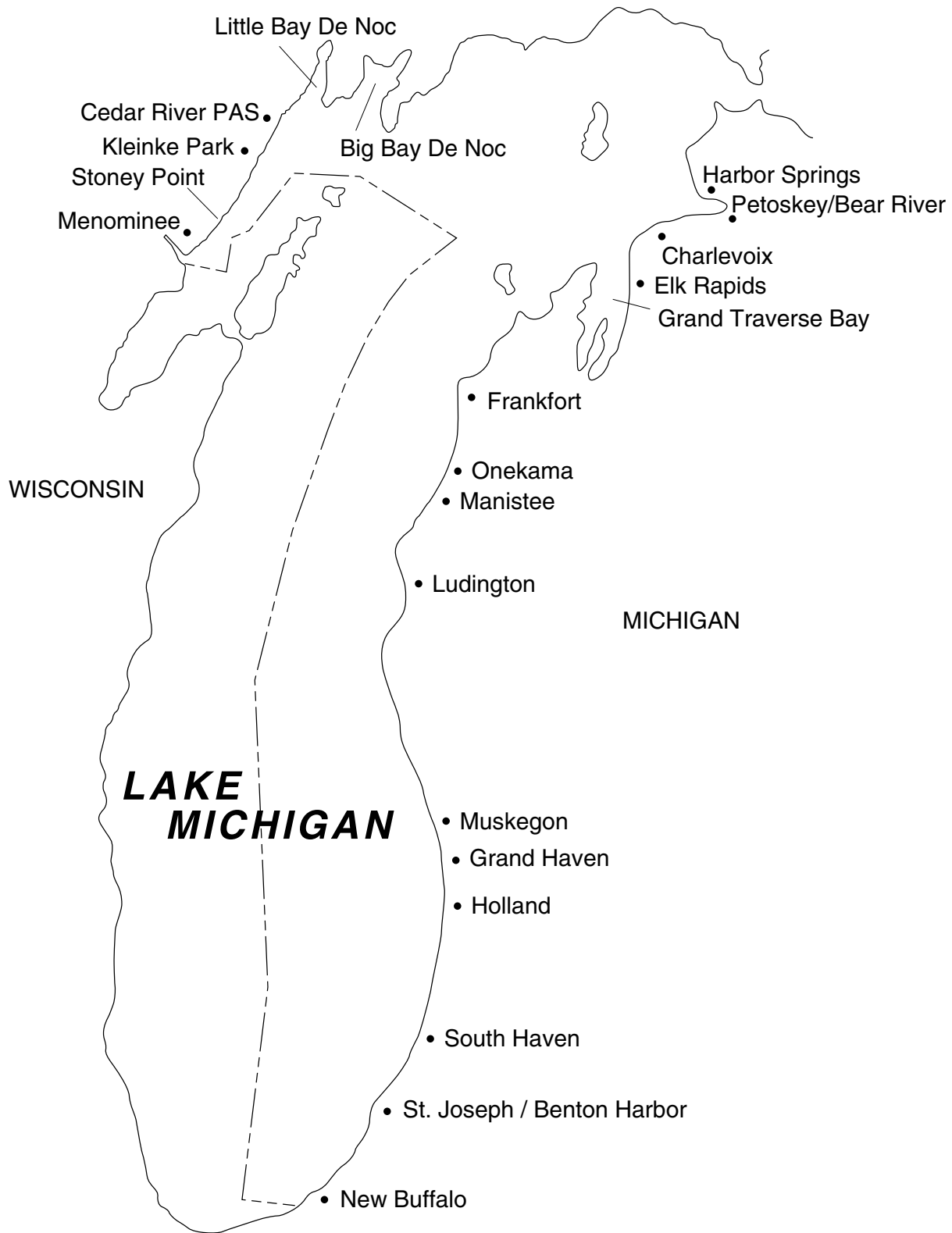


Figure 1.—Lake Michigan survey area.



Figure 2.-Lake Huron survey area.



Figure 3.—Lake Superior survey area.

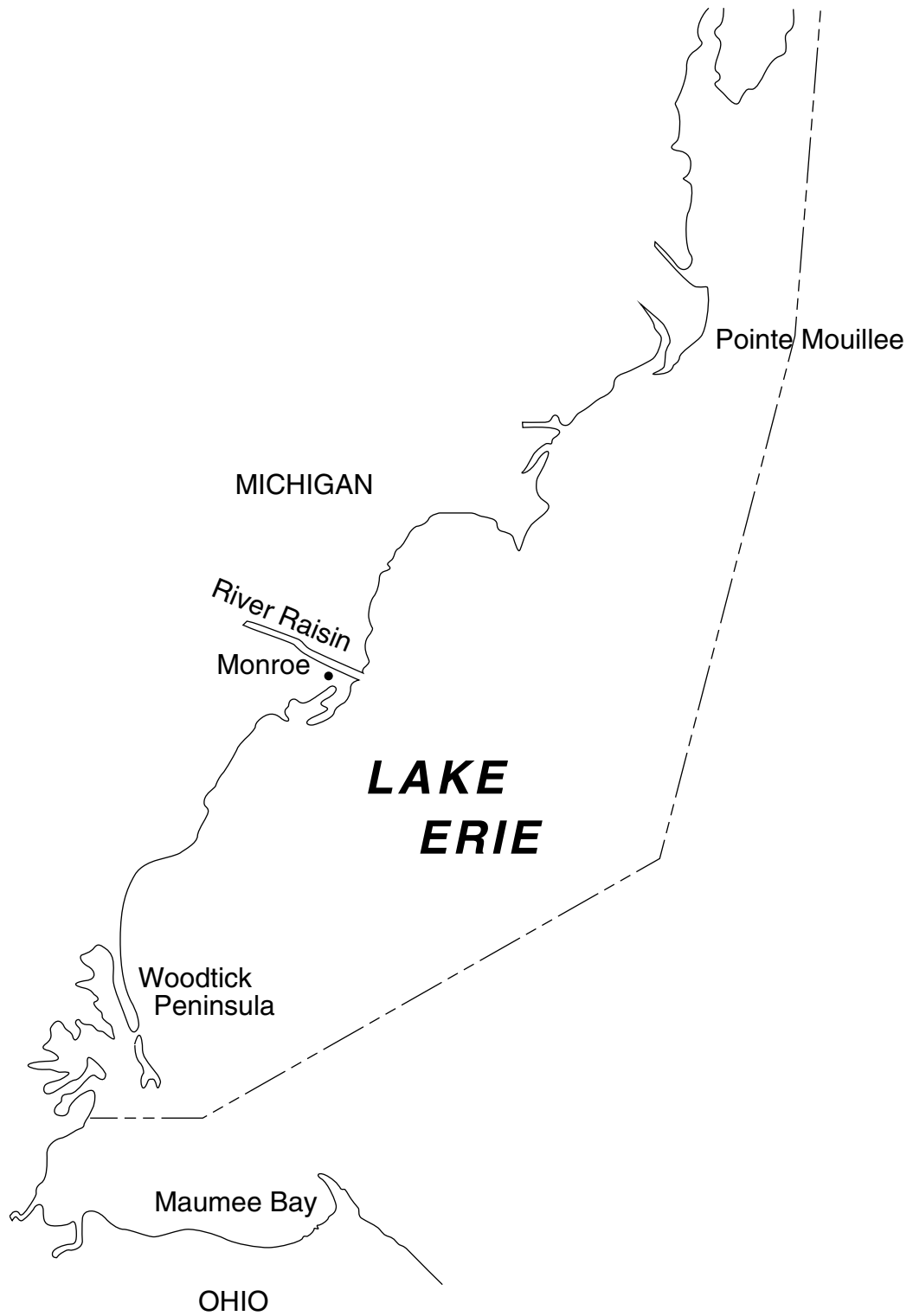


Figure 4.-Lake Erie survey area.

## ANGLER PARTY INTERVIEW FORM

Project # : [ ] [ ] [ ] [ ] [ ] [ ]

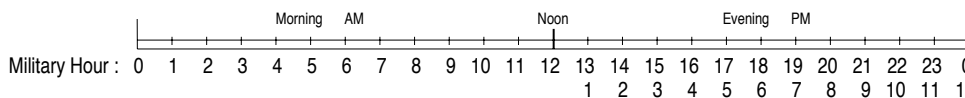
Unit : [ ] [ ]      Soc. Sec. # : [ ] [ ] [ ] - [ ] [ ] - [ ] [ ] [ ]      Date : [ ] [ ] / [ ] [ ] / [ ] [ ]      Seq # : [ ] [ ] [ ] [ ]

Interview site : [ ] [ ] [ ] [ ]      Site Name : \_\_\_\_\_

Fishing : [ ] [ ] [ ] [ ]      Site Name : \_\_\_\_\_

Fishery type		Mode of fishing		
<input type="checkbox"/> Gt Lk	<input type="checkbox"/> Anad	<input type="checkbox"/> Boat	<input type="checkbox"/> Shore	<input type="checkbox"/> Open ice
<input type="checkbox"/> In Lk	<input type="checkbox"/> In St	<input type="checkbox"/> Charter	<input type="checkbox"/> Non - f. shore	<input type="checkbox"/> Non - f. open ice
		<input type="checkbox"/> Non - f. boat	<input type="checkbox"/> Pier / dock	<input type="checkbox"/> Shanty ice
			<input type="checkbox"/> Non - f. pier / dock	

Start date : [ ] [ ] / [ ] [ ] / [ ] [ ]      Day of week : [ ]      End time : [ ] [ ] [ ] [ ]  
 1 = Monday      5 = Friday      Start time : [ ] [ ] [ ] [ ]  
 2 = Tuesday      6 = Saturday      Hrs fished : [ ] [ ] [ ] [ ]  
 3 = Wednesday      7 = Sunday  
 4 = Thursday      8 = Holiday      Comp. trip :  Y     N



Ang #	ler	tps	Sex	Age	Zip code	Residence (county / state)	Cnty code	Fishing methods								
								cast	stil	trol	fly	drif	spea	dip	snag	jig
1	[ ]	[ ]	[ ]	[ ]	[ ] [ ] [ ] [ ]	[ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
2	[ ]	[ ]	[ ]	[ ]	[ ] [ ] [ ] [ ]	[ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
3	[ ]	[ ]	[ ]	[ ]	[ ] [ ] [ ] [ ]	[ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
4	[ ]	[ ]	[ ]	[ ]	[ ] [ ] [ ] [ ]	[ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
5	[ ]	[ ]	[ ]	[ ]	[ ] [ ] [ ] [ ]	[ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
6	[ ]	[ ]	[ ]	[ ]	[ ] [ ] [ ] [ ]	[ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
7	[ ]	[ ]	[ ]	[ ]	[ ] [ ] [ ] [ ]	[ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
8	[ ]	[ ]	[ ]	[ ]	[ ] [ ] [ ] [ ]	[ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

Use this side      or      use this side, not both !

Target sp. : \_\_\_\_\_     Anything     Salmon     Trout     Salmon & Trout     Walleye & Perch  
 code : [ ] [ ] [ ]     Bass     Panfish     Bass & Bluegill     Pike & Bass     Pike & Perch

### Catch data

Code	Species	# kept	Code	Species	# kept	Code	Species	# kept
ATL	Atlantic salmon	[ ] [ ] [ ]	MUS	Muskellunge	[ ] [ ] [ ]	BUF	Buffalo (spp)	[ ] [ ] [ ]
BKT	Brook trout	[ ] [ ] [ ]	TMU	Tiger musky	[ ] [ ] [ ]	LNS	Longnose sucker	[ ] [ ] [ ]
BNT	Brown trout	[ ] [ ] [ ]	BCR	Black crappie	[ ] [ ] [ ]	QIL	Quillback	[ ] [ ] [ ]
CHS	Chinook salmon	[ ] [ ] [ ]	BLG	Bluegill	[ ] [ ] [ ]	RHS	Redhorse (spp)	[ ] [ ] [ ]
COH	Coho salmon	[ ] [ ] [ ]	GSF	Green sunfish	[ ] [ ] [ ]	CWS	White sucker	[ ] [ ] [ ]
LHR	Lake herring	[ ] [ ] [ ]	LMB	Largemouth bass	[ ] [ ] [ ]	BOW	Bowfin	[ ] [ ] [ ]
LAT	Lake trout	[ ] [ ] [ ]	LSF	Longear sunfish	[ ] [ ] [ ]	BUR	Burbot	[ ] [ ] [ ]
LWF	Lake whitefish	[ ] [ ] [ ]	OSF	Orange sunfish	[ ] [ ] [ ]	DRU	Freshwater drum	[ ] [ ] [ ]
PKS	Pink salmon	[ ] [ ] [ ]	PSF	Pumpkinseed	[ ] [ ] [ ]	GAR	Gar (spp)	[ ] [ ] [ ]
RBT	Rainbow trout	[ ] [ ] [ ]	RSF	Redear sunfish	[ ] [ ] [ ]	GZS	Gizzard shad	[ ] [ ] [ ]
RWF	Round whitefish	[ ] [ ] [ ]	RKB	Rockbass	[ ] [ ] [ ]	MOO	Mooneye	[ ] [ ] [ ]
SPL	Splake	[ ] [ ] [ ]	SMB	Smallmouth bass	[ ] [ ] [ ]	STR	Sturgeon	[ ] [ ] [ ]
SMT	Rainbow smelt	[ ] [ ] [ ]	WAR	Warmouth	[ ] [ ] [ ]	OTH	Other	[ ] [ ] [ ]
SAU	Sauger	[ ] [ ] [ ]	WCR	White crappie	[ ] [ ] [ ]	[ ] [ ]	[ ] [ ] [ ]	[ ] [ ] [ ]
WAE	Walleye	[ ] [ ] [ ]	BLB	Black bullhead	[ ] [ ] [ ]	[ ] [ ]	[ ] [ ] [ ]	[ ] [ ] [ ]
YEP	Yellow perch	[ ] [ ] [ ]	BRB	Brown bullhead	[ ] [ ] [ ]	[ ] [ ]	[ ] [ ] [ ]	[ ] [ ] [ ]
WHB	White bass	[ ] [ ] [ ]	CCF	Channel catfish	[ ] [ ] [ ]	[ ] [ ]	[ ] [ ] [ ]	[ ] [ ] [ ]
WHP	White perch	[ ] [ ] [ ]	YLB	Yellow bullhead	[ ] [ ] [ ]	[ ] [ ]	[ ] [ ] [ ]	[ ] [ ] [ ]
NOP	Northern pike	[ ] [ ] [ ]	CAR	Carp	[ ] [ ] [ ]	[ ] [ ]	[ ] [ ] [ ]	[ ] [ ] [ ]

Figure 5.—Angler party interview form.



**SHORE AND BOAT COUNT FORM**

Project # :          Unit :        Soc. Sec. # :  -  -          Seq # :

Date	Wk Day	Lake	Site	Site Name	Begin Hour	Mo de	Count	Ty pe	Durat (Min)	Mo de	Count	Ty pe	Durat (Min)
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Great Lakes : ER = Erie      HU = Huron      MI = Michigan      SC = St. Clair      SU = Superior

Day of Week : 1 = Mon    2 = Tues    3 = Wed    4 = Thur    5 = Fri    6 = Sat    7 = Sun    8 = Holiday

Military Hour : 0   1   2   3   4   5   6   7   8   9   10   11   12   13   14   15   16   17   18   19   20   21   22   23   0

Morning
AM
Noon
Evening
PM

Mode of Fishing : 1 = Boat      2 = Shore      3 = Charter      Type of Count : 1 = Interval  
 4 = Ice (open)    5 = Pier / dock    6 = Ice (shanty)      4 = Instantaneous  
 7 = Trailer      8 = Car

Figure 6.-Shore and boat count form.

Table 1.–List of common and scientific names of fish observed in study.

<b>Common name</b>	<b>Scientific Name</b>
Rainbow smelt	<i>Osmerus mordax</i>
Northern pike	<i>Esox lucius</i>
Yellow bullhead	<i>Ameirus natalis</i>
Brown bullhead	<i>Amerius nebulosus</i> <sup>3</sup>
Channel catfish	<i>Ictalurus punctatus</i>
Burbot	<i>Lota lota</i>
White perch	<i>Morone americana</i>
White bass	<i>Morone chrysops</i>
Freshwater drum	<i>Aplodinotus grunniens</i>
Lake herring	<i>Coregonus artedii</i>
Lake whitefish	<i>Coregonus clupeaformis</i>
Round whitefish	<i>Prosopium cylindraceum</i>
Chinook salmon	<i>Oncorhynchus tshawytscha</i>
Coho salmon	<i>Oncorhynchus kisutch</i>
Pink salmon	<i>Oncorhynchus gorbuscha</i>
Rainbow trout	<i>Oncorhynchus mykiss</i>
Atlantic salmon	<i>Salmo salar</i>
Brown trout	<i>Salmo trutta</i>
Brook trout	<i>Salvelinus fontinalis</i>
Lake trout	<i>Salvelinus namaycush</i>
Splake	<i>S. fontinalis x S. namaycush</i>
White sucker	<i>Catostomus commersoni</i>
Redhorses	<i>Moxostoma</i> spp.
Rock bass	<i>Ambloplites rupestris</i>
Pumpkinseed	<i>Lepomis gibbosus</i>
Bluegill	<i>Lepomis macrochirus</i>
Smallmouth bass	<i>Micropterus dolomieu</i>
Largemouth bass	<i>Micropterus salmoides</i>
Black crappie	<i>Pomoxis nigromaculatus</i>
Yellow perch	<i>Perca flavescens</i>
Walleye	<i>Stizostedion vitreum</i>

Table 2.—Estimated catch per hour, number caught, and effort (angler hours, trips, and days) for Lake Michigan, by all modes (non-charter) of sportfishing, at all survey areas combined (23), 1994. Bounds on the error of estimation in parentheses.

Species	Catch per hour	Month								Season
		Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	
Pink salmon	0.0000 (0.0000)	0 (0)	0 (0)	0 (0)	0 (0)	23 (38)	0 (0)	51 (81)	0 (0)	74 (89)
Coho salmon	0.0086 (0.0017)	3,847 (1,428)	6,059 (2,096)	1,306 (764)	336 (233)	417 (297)	2,379 (774)	4,768 (2,417)	322 (239)	19,434 (3,695)
Chinook salmon	0.0103 (0.0014)	21 (30)	970 (645)	3,604 (1,489)	3,308 (1,098)	2,834 (746)	7,348 (1,777)	4,448 (960)	624 (294)	23,157 (2,926)
Rainbow trout	0.0100 (0.0015)	87 (96)	2,616 (961)	3,187 (1,579)	4,509 (1,511)	3,412 (1,259)	4,506 (1,259)	1,691 (585)	2,519 (652)	22,527 (3,106)
Atlantic salmon	0.0000 (0.0000)	0 (0)	67 (158)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	67 (158)
Brown trout	0.0206 (0.0051)	268 (218)	23,697 (10,603)	7,002 (1,935)	2,565 (1,290)	5,342 (1,426)	2,953 (854)	2,245 (1,089)	2,286 (813)	46,358 (11,067)
Brook trout	0.0000 (0.0000)	0 (0)	43 (80)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	43 (80)
Lake trout	0.0147 (0.0020)	0 (0)	41 (88)	5,445 (1,707)	8,700 (2,238)	11,188 (2,314)	6,890 (1,624)	860 (389)	8 (17)	33,132 (4,009)
Splake	0.0009 (0.0003)	0 (0)	1,473 (604)	240 (185)	0 (0)	254 (163)	111 (106)	22 (37)	4 (8)	2,104 (662)

Table 2.—Continued.

Species	Catch per hour	Month								Season	
		Mar	Apr	May	Jun	Jul	Aug	Sep	Oct		
Rainbow smelt	0.0000 (0.0000)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	25 (53)	25 (53)
Northern pike	0.0009 (0.0004)	0 (0)	0 (0)	234 (168)	146 (175)	473 (613)	391 (300)	414 (264)	295 (389)		1,953 (864)
White sucker	0.0084 (0.0086)	10 (15)	15,391 (18,130)	3,424 (6,939)	39 (78)	0 (0)	0 (0)	0 (0)	0 (0)	25 (53)	18,889 (19,413)
Brown bullhead	0.0000 (0.0000)	0 (0)	0 (0)	0 (0)	0 (0)	27 (38)	0 (0)	0 (0)	0 (0)	0 (0)	27 (38)
Channel catfish	0.0007 (0.0003)	0 (0)	5 (10)	141 (131)	421 (324)	420 (286)	166 (188)	375 (520)	57 (96)		1,585 (720)
Rockbass	0.0007 (0.0004)	0 (0)	0 (0)	234 (290)	698 (535)	268 (333)	248 (383)	16 (32)	28 (57)		1,492 (795)
Pumpkinseed	0.0002 (0.0002)	0 (0)	0 (0)	221 (338)	87 (183)	70 (119)	43 (88)	0 (0)	0 (0)		421 (412)
Bluegill	0.0012 (0.0008)	0 (0)	0 (0)	168 (167)	1,536 (1,555)	773 (954)	119 (202)	65 (132)	0 (0)		2,661 (1,848)
Lake herring	0.0001 (0.0001)	0 (0)	127 (231)	141 (143)	21 (42)	0 (0)	0 (0)	0 (0)	7 (14)		296 (275)
Smallmouth bass	0.0050 (0.0016)	0 (0)	0 (0)	727 (631)	4,780 (2,883)	3,400 (1,496)	840 (761)	646 (502)	905 (745)		11,298 (3,512)

Table 2.—Continued.

Species	Catch per hour	Month								Season
		Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	
Largemouth bass	0.0000 (0.0000)	0 (0)	0 (0)	0 (0)	14 (29)	14 (28)	0 (0)	0 (0)	0 (0)	28 (40)
Black crappie	0.0000 (0.0000)	0 (0)	58 (116)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	58 (116)
Yellow perch	0.8762 (0.2269)	6,100 (3,124)	801,500 (404,779)	399,037 (271,428)	274,987 (52,233)	216,154 (59,099)	84,201 (35,987)	173,440 (65,865)	20,497 (14,905)	1,975,916 (499,605)
Walleye	0.0215 (0.0031)	0 (0)	2,111 (668)	18,934 (4,569)	6,855 (1,965)	9,055 (2,733)	5,841 (2,383)	2,999 (1,304)	2,716 (1,381)	48,511 (6,476)
Freshwater drum	0.0012 (0.0007)	0 (0)	0 (0)	109 (87)	1,443 (1,294)	985 (701)	90 (148)	0 (0)	0 (0)	2,627 (1,482)
Lake whitefish	0.0019 (0.0006)	0 (0)	34 (51)	1,674 (822)	1,164 (958)	68 (108)	169 (197)	0 (0)	1,082 (531)	4,191 (1,389)
Round whitefish	0.0015 (0.0006)	0 (0)	581 (363)	84 (92)	233 (280)	45 (113)	389 (591)	303 (408)	1,784 (976)	3,419 (1,304)
Burbot	0.0003 (0.0002)	0 (0)	72 (148)	485 (540)	112 (137)	0 (0)	111 (159)	0 (0)	0 (0)	780 (598)
Other	0.0001 (0.0001)	0 (0)	6 (12)	36 (48)	13 (20)	0 (0)	97 (197)	81 (85)	8 (16)	241 (222)

Table 2.—Continued.

Species	Catch per hour	Month								Season
		Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	
Total	0.9850 (0.2285)	10,333 (3,443)	854,851 (405,332)	446,433 (271,580)	311,967 (52,500)	255,222 (59,279)	116,892 (36,205)	192,424 (65,948)	33,192 (15,075)	2,221,314 (500,219)
Angler hours		11,419 (2,184)	341,751 (86,871)	318,395 (42,050)	388,669 (35,912)	440,147 (47,688)	372,029 (39,281)	270,203 (35,766)	112,576 (12,438)	2,255,189 (125,938)
Angler trips		4,089 (777)	96,811 (19,935)	77,678 (8,488)	95,312 (7,737)	109,248 (10,517)	88,285 (8,059)	61,825 (7,327)	31,063 (3,099)	564,311 (27,726)
Angler days		4,089 (777)	87,490 (17,207)	73,713 (8,254)	90,336 (7,463)	102,489 (9,593)	79,207 (7,197)	55,632 (6,364)	28,152 (2,923)	521,108 (24,766)

Table 3.—Estimated angler (charter and non-charter) effort (hours) at ten Lake Michigan survey areas, April through October, 1985-94. Bounds on the error of estimation in parentheses.

Area	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
New Buffalo	270,897 (45,486)	481,717 (151,319)	151,089 (92,752)	268,490 (72,843)	229,668 (85,620)	120,676 (30,285)	117,750 (84,716)	113,046 (44,127)	112,192 (26,645)	58,997 (12,732)
St. Joseph	834,003 (116,076)	607,060 (128,426)	369,500 (93,567)	424,635 (75,266)	440,627 (57,896)	292,064 (49,378)	388,867 (46,759)	322,592 (47,081)	349,064 (46,500)	244,422 (33,233)
Grand Haven	586,641 (66,939)	700,543 (152,499)	759,713 (145,251)	428,996 (121,822)	225,797 (37,108)	246,367 (44,054)	241,264 (40,106)	146,989 (16,517)	172,984 (22,363)	206,300 (23,970)
Muskegon	508,738 (114,646)	319,636 (53,425)	340,095 (73,750)	230,296 (58,704)	164,664 (35,554)	143,895 (38,653)	103,767 (31,851)	174,407 (32,796)	96,331 (28,743)	105,204 (17,494)
Ludington	714,442 (151,419)	833,763 (258,924)	614,485 (169,613)	376,995 (117,169)	442,578 <sup>d</sup> (85,069)	287,517 (47,285)	304,735 (70,738)	324,365 (60,353)	382,025 (46,097)	191,209 (34,158)
Manistee	629,126 (96,422)	681,144 (141,842)	509,415 (125,973)	435,687 (102,153)	283,544 (51,078)	222,637 (54,872)	235,056 (45,281)	239,396 (56,783)	287,855 (39,842)	164,596 (34,614)
Frankfort	322,122 (49,044)	593,406 (192,736)	547,140 (193,979)	262,501 (58,305)	365,263 (176,322)	279,720 (80,854)	250,786 (63,228)	252,712 (53,490)	265,410 (55,658)	247,524 (79,357)
Grand Traverse Bay <sup>a</sup>	466,505 (26,749)	335,002 (24,912)	284,478 (22,721)	262,402 (17,127)	260,728 (20,770)	191,900 (11,149)	223,139 (12,211)	191,459 (8,828)	180,178 (8,928)	80,375 (7,865)
Charlevoix	155,168 (35,350)	100,014 (24,447)	90,043 (12,480)	62,287 <sup>c</sup> (12,761)	64,042 <sup>c</sup> (12,003)	65,906 <sup>c</sup> (11,442)	48,529 <sup>c</sup> (8,453)	57,028 <sup>c</sup> (5,676)	63,130 <sup>c</sup> (6,536)	39,835 <sup>c</sup> (4,070)
Little Bay de Noc <sup>b</sup>	158,157 (21,126)	239,073 (21,787)	154,421 (16,300)	157,723 (19,726)	237,044 <sup>d</sup> (67,741)	316,145 (36,008)	377,499 (32,508)	251,902 (35,557)	254,097 (22,941)	227,386 (23,265)
Total	4,645,799 (264,969)	4,891,358 (437,609)	3,820,379 (356,508)	2,922,773 (240,138)	2,713,955 (243,796)	2,166,827 (141,867)	2,351,392 (155,934)	2,073,896 (128,898)	2,163,266 (107,969)	1,565,848 (106,908)

<sup>a</sup> Includes the east and west arms of Grand Traverse Bay and the port of Elk Rapids.

<sup>b</sup> Includes the Ford River access site.

<sup>c</sup> May through September.

<sup>d</sup> May through October.

Table 4.—Estimated catch per hour, number caught, and effort (angler hours, trips, and days) for the Lake Michigan boat fishery (non-charter) at all survey areas combined (23), 1994. Bounds on the error of estimation in parentheses.

Species	Catch per hour	Month								Season
		Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	
Pink salmon	0.0000 (0.0000)	0 (0)	0 (0)	0 (0)	0 (0)	23 (38)	0 (0)	36 (75)	0 (0)	59 (84)
Coho salmon	0.0082 (0.0020)	815 (876)	5,151 (2,064)	1,280 (763)	323 (233)	417 (297)	2,369 (774)	4,669 (2,416)	74 (72)	15,098 (3,492)
Chinook salmon	0.0120 (0.0018)	4 (11)	769 (628)	3,586 (1,489)	3,308 (1,098)	2,830 (746)	7,244 (1,775)	4,143 (943)	284 (209)	22,168 (2,908)
Rainbow trout	0.0094 (0.0017)	27 (62)	976 (577)	2,515 (1,536)	4,292 (1,496)	3,298 (1,255)	3,644 (1,158)	1,544 (566)	981 (488)	17,277 (2,900)
Atlantic salmon	0.0000 (0.0000)	0 (0)	67 (158)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	67 (158)
Brown trout	0.0199 (0.0061)	15 (38)	20,547 (10,562)	5,680 (1,884)	1,897 (1,215)	4,997 (1,398)	2,344 (777)	856 (373)	262 (304)	36,598 (10,926)
Brook trout	0.0000 (0.0000)	0 (0)	43 (80)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	43 (80)
Lake trout	0.0179 (0.0025)	0 (0)	41 (88)	5,399 (1,706)	8,687 (2,238)	11,185 (2,314)	6,890 (1,624)	860 (389)	0 (0)	33,062 (4,009)
Splake	0.0010 (0.0003)	0 (0)	1,263 (498)	240 (185)	0 (0)	254 (163)	111 (106)	22 (37)	0 (0)	1,890 (567)
Northern pike	0.0010 (0.0005)	0 (0)	0 (0)	229 (168)	135 (174)	473 (613)	379 (298)	414 (264)	295 (389)	1,925 (863)



Table 4.—Continued.

Species	Catch per hour	Month								Season
		Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	
White sucker	0.0003 (0.0003)	0 (0)	595 (689)	0 (0)	39 (78)	0 (0)	0 (0)	0 (0)	0 (0)	634 (693)
Brown bullhead	0.0000 (0.0000)	0 (0)	0 (0)	0 (0)	0 (0)	27 (38)	0 (0)	0 (0)	0 (0)	27 (38)
Channel catfish	0.0004 (0.0003)	0 (0)	0 (0)	19 (38)	153 (156)	169 (152)	92 (111)	282 (513)	57 (96)	772 (578)
Rockbass	0.0004 (0.0003)	0 (0)	0 (0)	164 (271)	153 (203)	268 (333)	121 (254)	16 (32)	28 (57)	750 (543)
Pumpkinseed	0.0001 (0.0001)	0 (0)	0 (0)	221 (338)	0 (0)	0 (0)	43 (88)	0 (0)	0 (0)	264 (349)
Bluegill	0.0001 (0.0001)	0 (0)	0 (0)	119 (152)	3 (6)	0 (0)	106 (200)	0 (0)	0 (0)	228 (251)
Lake herring	0.0001 (0.0001)	0 (0)	0 (0)	141 (143)	21 (42)	0 (0)	0 (0)	0 (0)	7 (14)	169 (150)
Smallmouth bass	0.0054 (0.0019)	0 (0)	0 (0)	727 (631)	3,947 (2,818)	3,168 (1,485)	711 (748)	510 (419)	880 (743)	9,943 (3,440)
Largemouth bass	0.0000 (0.0000)	0 (0)	0 (0)	0 (0)	14 (29)	0 (0)	0 (0)	0 (0)	0 (0)	14 (29)
Black crappie	0.0000 (0.0000)	0 (0)	58 (116)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	58 (116)

Table 4.—Continued.

Species	Catch per hour	Month								Season
		Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	
Yellow perch	0.9727 (0.2787)	0 (0)	759,975 (404,531)	382,254 (271,199)	179,439 (49,362)	199,783 (58,833)	79,767 (35,923)	171,183 (65,852)	20,115 (14,900)	1,792,516 (498,940)
Walleye	0.0220 (0.0036)	0 (0)	1,756 (548)	18,178 (4,537)	5,051 (1,709)	5,514 (2,081)	4,651 (2,311)	2,876 (1,297)	2,589 (1,374)	40,615 (6,087)
Freshwater drum	0.0004 (0.0005)	0 (0)	0 (0)	0 (0)	463 (839)	196 (177)	70 (142)	0 (0)	0 (0)	729 (869)
Lake whitefish	0.0023 (0.0008)	0 (0)	18 (37)	1,674 (822)	1,164 (958)	68 (108)	169 (197)	0 (0)	1,077 (531)	4,170 (1,388)
Round whitefish	0.0007 (0.0005)	0 (0)	53 (109)	53 (67)	233 (280)	45 (113)	389 (591)	303 (408)	223 (315)	1,299 (850)
Burbot	0.0003 (0.0003)	0 (0)	72 (148)	341 (505)	88 (129)	0 (0)	111 (159)	0 (0)	0 (0)	612 (565)
Total	1.0750 (0.2806)	861 (879)	791,384 (404,676)	422,820 (271,261)	209,410 (49,591)	232,715 (58,974)	109,211 (36,130)	187,714 (65,926)	26,872 (15,012)	1,980,987 (499,159)
Angler hours		1,441 (1,392)	249,343 (86,651)	272,835 (41,846)	314,698 (35,505)	373,696 (47,468)	326,614 (38,928)	233,129 (35,567)	71,108 (12,040)	1,842,864 (125,302)
Angler trips		506 (397)	63,123 (19,747)	58,670 (8,252)	67,290 (7,412)	82,489 (10,313)	69,834 (7,802)	47,679 (7,160)	16,881 (2,822)	406,472 (27,195)
Angler days		506 (397)	58,809 (17,030)	56,590 (8,041)	64,380 (7,149)	78,366 (9,401)	62,555 (6,934)	43,175 (6,196)	16,161 (2,727)	380,542 (24,253)

Table 5.—Estimated catch per hour, number caught, and effort (angler hours, trips, and days) for the Lake Michigan pier fishery at all survey areas combined (13), 1994. Bounds on the error of estimation in parentheses.

Species	Catch per hour	Month								Season
		Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	
Pink salmon	0.0001 (0.0002)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	15 (31)	0 (0)	15 (31)
Coho salmon	0.0143 (0.0042)	3,028 (1,128)	908 (366)	26 (39)	13 (19)	0 (0)	10 (21)	78 (64)	60 (85)	4,123 (1,192)
Chinook salmon	0.0016 (0.0007)	17 (28)	194 (145)	18 (22)	0 (0)	4 (9)	104 (81)	106 (80)	8 (17)	451 (189)
Rainbow trout	0.0076 (0.0021)	57 (73)	349 (189)	33 (32)	204 (208)	114 (101)	751 (467)	82 (67)	611 (193)	2,201 (596)
Brown trout	0.0181 (0.0033)	252 (214)	2,177 (537)	1,165 (370)	668 (432)	313 (275)	344 (279)	72 (67)	226 (258)	5,217 (939)
Lake trout	0.0002 (0.0002)	0 (0)	0 (0)	46 (50)	13 (26)	3 (7)	0 (0)	0 (0)	8 (17)	70 (59)
Splake	0.0002 (0.0004)	0 (0)	48 (97)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	48 (97)
White sucker	0.0000 (0.0000)	10 (15)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	10 (15)
Channel catfish	0.0019 (0.0013)	0 (0)	5 (10)	122 (125)	99 (199)	226 (237)	74 (152)	31 (45)	0 (0)	557 (370)
Rockbass	0.0006 (0.0010)	0 (0)	0 (0)	0 (0)	55 (111)	0 (0)	127 (287)	0 (0)	0 (0)	182 (308)

Table 5.—Continued.

Species	Catch per hour	Month								Season
		Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	
Pumpkinseed	0.0005 (0.0007)	0 (0)	0 (0)	0 (0)	87 (183)	70 (119)	0 (0)	0 (0)	0 (0)	157 (218)
Bluegill	0.0016 (0.0028)	0 (0)	0 (0)	0 (0)	0 (0)	461 (819)	13 (27)	0 (0)	0 (0)	474 (819)
Smallmouth bass	0.0005 (0.0005)	0 (0)	0 (0)	0 (0)	0 (0)	57 (68)	88 (121)	0 (0)	0 (0)	145 (139)
Largemouth bass	0.0000 (0.0000)	0 (0)	0 (0)	0 (0)	0 (0)	14 (28)	0 (0)	0 (0)	0 (0)	14 (28)
Yellow perch	0.6297 (0.0924)	6,100 (3,124)	41,242 (14,162)	15,452 (11,057)	95,073 (17,063)	16,371 (5,605)	4,434 (2,142)	2,257 (1,327)	325 (361)	181,254 (25,722)
Walleye	0.0011 (0.0012)	0 (0)	144 (292)	0 (0)	7 (14)	0 (0)	54 (111)	100 (132)	14 (24)	319 (340)
Freshwater drum	0.0030 (0.0023)	0 (0)	0 (0)	109 (87)	266 (447)	486 (467)	0 (0)	0 (0)	0 (0)	861 (652)
Lake whitefish	0.0001 (0.0002)	0 (0)	16 (35)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	5 (11)	21 (37)
Round whitefish	0.0068 (0.0034)	0 (0)	519 (346)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	1,442 (913)	1,961 (976)
Burbot	0.0006 (0.0007)	0 (0)	0 (0)	144 (192)	24 (47)	0 (0)	0 (0)	0 (0)	0 (0)	168 (198)

Table 5.–Continued.

Species	Catch per hour	Month								Season
		Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	
Other	0.0005 (0.0007)	0 (0)	6 (12)	36 (48)	0 (0)	0 (0)	97 (197)	0 (0)	0 (0)	139 (203)
Total	0.6892 (0.0933)	9,464 (3,329)	45,608 (14,187)	17,151 (11,066)	96,509 (17,078)	18,119 (5,698)	6,096 (2,250)	2,741 (1,342)	2,699 (1,037)	198,387 (25,824)
Angler hours		9,325 (1,651)	67,392 (5,460)	32,858 (3,539)	55,969 (4,322)	47,800 (4,055)	30,237 (4,762)	21,875 (2,597)	22,389 (2,525)	287,845 (10,769)
Angler trips		3,201 (628)	23,967 (2,300)	14,209 (1,769)	20,561 (1,647)	19,150 (1,786)	12,342 (1,741)	9,386 (1,189)	7,951 (1,041)	110,767 (4,499)
Angler days		3,201 (628)	20,655 (2,077)	12,734 (1,646)	18,728 (1,552)	16,957 (1,622)	10,996 (1,659)	8,197 (1,102)	6,567 (829)	98,035 (4,137)

Table 6.—Estimated catch per hour, number caught, and effort (angler hours, trips, and days) for the Lake Michigan shore fishery at all survey areas combined (11), 1994. Bounds on the error of estimation in parentheses.

Species	Catch per hour	Month								Season
		Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0017 (0.0018)	4 (7)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	21 (58)	188 (212)	213 (220)
Chinook salmon	0.0043 (0.0021)	0 (0)	7 (15)	0 (0)	0 (0)	0 (0)	0 (0)	199 (159)	332 (205)	538 (260)
Rainbow trout	0.0245 (0.0076)	3 (6)	1,291 (745)	639 (362)	13 (27)	0 (0)	111 (162)	65 (132)	927 (386)	3,049 (938)
Brown trout	0.0365 (0.0122)	1 (2)	973 (764)	157 (240)	0 (0)	32 (63)	265 (220)	1,317 (1,021)	1,798 (708)	4,543 (1,496)
Splake	0.0013 (0.0026)	0 (0)	162 (328)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	4 (8)	166 (328)
Rainbow smelt	0.0002 (0.0004)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	25 (53)	25 (53)
Northern pike	0.0002 (0.0002)	0 (0)	0 (0)	5 (11)	11 (17)	0 (0)	12 (25)	0 (0)	0 (0)	28 (32)
White sucker	0.1466 (0.1561)	0 (0)	14,796 (18,117)	3,424 (6,939)	0 (0)	0 (0)	0 (0)	0 (0)	25 (53)	18,245 (19,400)
Channel catfish	0.0021 (0.0018)	0 (0)	0 (0)	0 (0)	169 (203)	25 (52)	0 (0)	62 (71)	0 (0)	256 (221)
Rockbass	0.0045 (0.0040)	0 (0)	0 (0)	70 (102)	490 (482)	0 (0)	0 (0)	0 (0)	0 (0)	560 (493)

Table 6.—Continued.

Species	Catch per hour	Month								Season
		Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	
Bluegill	0.0157 (0.0131)	0 (0)	0 (0)	49 (69)	1,533 (1,555)	312 (490)	0 (0)	65 (132)	0 (0)	1,959 (1,637)
Lake herring	0.0010 (0.0018)	0 (0)	127 (231)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	127 (231)
Smallmouth bass	0.0097 (0.0056)	0 (0)	0 (0)	0 (0)	833 (605)	175 (167)	41 (68)	136 (276)	25 (51)	1,210 (691)
Yellow perch	0.0172 (0.0131)	0 (0)	283 (413)	1,331 (1,417)	475 (702)	0 (0)	0 (0)	0 (0)	57 (78)	2,146 (1,636)
Walleye	0.0609 (0.0179)	0 (0)	211 (246)	756 (541)	1,797 (969)	3,541 (1,773)	1,136 (569)	23 (37)	113 (140)	7,577 (2,186)
Freshwater drum	0.0083 (0.0081)	0 (0)	0 (0)	0 (0)	714 (878)	303 (492)	20 (41)	0 (0)	0 (0)	1,037 (1,007)
Round whitefish	0.0013 (0.0013)	0 (0)	9 (19)	31 (64)	0 (0)	0 (0)	0 (0)	0 (0)	119 (139)	159 (154)
Other	0.0008 (0.0007)	0 (0)	0 (0)	0 (0)	13 (20)	0 (0)	0 (0)	81 (85)	8 (16)	102 (89)

Table 6.—Continued.

Species	Catch per hour	Month								Season
		Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	
Total	0.3369 (0.1600)	8 (9)	17,859 (18,159)	6,462 (7,117)	6,048 (2,294)	4,388 (1,913)	1,585 (637)	1,969 (1,094)	3,621 (889)	41,940 (19,792)
Angler hours		653 (325)	25,016 (2,868)	12,702 (2,143)	18,002 (3,219)	18,651 (2,114)	15,178 (2,228)	15,199 (2,732)	19,079 (1,836)	124,480 (6,599)
Angler trips		382 (229)	9,721 (1,476)	4,799 (903)	7,461 (1,486)	7,609 (1,028)	6,109 (1,017)	4,760 (1,004)	6,231 (746)	47,072 (2,985)
Angler days		382 (229)	8,026 (1,325)	4,389 (877)	7,228 (1,477)	7,166 (1,006)	5,656 (982)	4,260 (947)	5,424 (650)	42,531 (2,838)



Table 7.—Estimated yellow perch catch rate (fish per angler hour), number harvested, and angler effort (hours) at selected Lake Michigan ports and fishing areas, April through October, 1990-94. Bounds on the error of estimation in parentheses.

Area	1990		1991		1992		1993		1994	
	Rate	Harvest	Rate	Harvest	Rate	Harvest	Rate	Harvest	Rate	Harvest
St. Joseph	1.409 (0.592)	348,313 (128,800)	0.639 (0.201)	259,949 (62,108)	1.389 (0.578)	439,121 (145,012)	1.239 (0.447)	384,416 (126,039)	0.629 (0.246)	153,717 (48,766)
Grand Haven	0.359 (0.158)	74,151 (28,632)	0.555 (0.339)	133,937 (63,900)	0.401 (0.152)	58,917 (15,439)	0.547 (0.230)	78,364 (30,618)	0.584 (0.211)	120,450 (33,373)
Muskegon	1.460 (0.578)	195,984 (53,233)	0.407 (0.445)	42,274 (39,137)	1.173 (0.515)	204,510 (76,731)	0.360 (0.332)	32,310 (27,905)	0.342 (0.194)	35,985 (18,137)
Ludington	0.516 (0.201)	119,587 (39,674)	0.371 (0.208)	113,002 (40,971)	0.764 (0.366)	247,818 (86,280)	0.468 (0.153)	160,525 (47,738)	0.135 (0.084)	25,817 (12,139)
Manistee	0.182 (0.090)	36,484 (14,952)	0.119 (0.097)	27,969 (19,188)	0.257 (0.151)	61,574 (29,096)	0.082 (0.040)	21,962 (10,214)	0.018 (0.015)	2,961 (2,006)
West Grand Traverse Bay	0.347 (0.154)	31,445 (13,693)	0.120 (0.065)	14,042 (7,227)	0.110 (0.070)	10,827 (6,484)	0.192 (0.161)	16,163 (13,496)	0.061 (0.038)	3,796 (2,186)
Little Bay de Noc	0.357 (0.096)	112,798 (27,533)	0.509 (0.125)	191,480 (44,106)	0.361 (0.130)	90,500 (30,010)	0.070 (0.035)	17,872 (8,710)	0.094 (0.034)	21,228 (8,234)
Total	0.645 (0.118)	918,762 (151,608)	0.443 (0.066)	782,653 (116,261)	0.720 (0.149)	1,113,267 (190,756)	0.436 (0.087)	711,612 (142,279)	0.303 (0.053)	363,954 (63,599)
Angler hours		1,424,918 (111,738)		1,768,583 (114,058)		1,547,100 (108,353)		1,631,065 (88,177)		1,200,335 (70,043)

Table 8.—Estimated sport fishing catch and effort (charter and non-charter) for salmonines at nine Lake Michigan index ports combined (New Buffalo, St. Joseph, Grand Haven, Muskegon, Ludington, Manistee, Frankfort, West Grand Traverse Bay, and Charlevoix) April through October (May through August for lake trout), 1985-94. Bounds on the error of estimation in parentheses.

Species	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
Coho salmon	75,585 (13,667)	107,588 (22,779)	86,876 (19,062)	36,646 (12,950)	75,364 (25,170)	33,229 (5,218)	33,258 (6,440)	39,370 (6,910)	50,757 (5,794)	17,706 (3,228)
Chinook salmon	338,855 (42,266)	404,035 (93,386)	259,718 (58,951)	106,287 (21,557)	80,114 (18,036)	58,022 (7,299)	60,223 (8,260)	37,580 (5,350)	32,560 (3,660)	24,498 (2,558)
Rainbow trout	29,846 (7,932)	23,296 (12,655)	26,981 (6,028)	29,081 (6,999)	29,854 (5,736)	33,725 (4,959)	53,582 (7,446)	50,521 (6,175)	37,752 (4,682)	25,394 (2,789)
Brown trout	33,488 (6,762)	50,897 (15,265)	19,350 (6,197)	16,336 (5,142)	14,430 (4,014)	13,669 (3,124)	16,563 (3,283)	9,254 (2,370)	18,352 (2,850)	27,100 (10,674)
Lake trout	87,620 (15,752)	113,382 (44,421)	79,929 (18,234)	67,955 (12,594)	79,886 (13,014)	51,283 (6,196)	67,123 (7,215)	35,953 (4,310)	45,553 (4,702)	36,791 (3,493)
Salmonines <sup>1</sup>	565,394 (48,270)	699,198 (107,732)	472,854 (65,160)	256,305 (29,435)	279,648 (34,310)	189,928 (12,379)	230,479 (15,099)	172,678 (11,777)	184,974 (9,956)	131,489 (12,283)
Angler hours	4,303,895 (263,743)	3,938,697 (435,727)	3,534,084 (356,012)	2,633,377 (239,188)	2,355,718 (233,999)	1,732,593 (136,970)	1,862,224 (152,309)	1,717,801 (117,981)	1,812,540 (104,200)	1,342,159 (104,319)

<sup>1</sup> Salmonines are defined as the following major species; coho and chinook salmon, rainbow, brown and lake trout.

Table 9.—Estimated catch rates (fish per 100 angler hours) of salmonines by charter and non-charter anglers at nine Lake Michigan index ports combined April through October (May through August for lake trout), 1985-94. Bounds on the error of estimation in parentheses.

Species	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
Coho salmon	1.76 (0.34)	2.73 (0.65)	2.46 (0.59)	1.39 (0.51)	3.20 (1.11)	1.92 (0.34)	1.79 (0.38)	2.29 (0.43)	2.80 (0.36)	1.32 (0.26)
Chinook salmon	7.87 (0.98)	10.26 (2.37)	7.35 (1.67)	4.04 (0.82)	3.40 (0.77)	3.35 (0.42)	3.23 (0.44)	2.19 (0.31)	1.80 (0.20)	1.83 (0.19)
Rainbow trout	0.69 (0.18)	0.59 (0.32)	0.76 (0.17)	1.10 (0.27)	1.27 (0.24)	1.95 (0.29)	2.88 (0.40)	2.94 (0.36)	2.08 (0.26)	1.89 (0.21)
Brown trout	0.78 (0.16)	1.29 (0.39)	0.55 (0.18)	0.62 (0.20)	0.61 (0.17)	0.79 (0.18)	0.89 (0.18)	0.54 (0.14)	1.01 (0.16)	2.02 (0.80)
Lake trout	2.59 (0.50)	3.57 (1.48)	3.03 (0.78)	3.38 (0.72)	4.42 (0.91)	3.90 (0.59)	4.40 (0.64)	2.57 (0.37)	3.14 (0.39)	3.88 (0.45)
Salmonines <sup>1</sup>	13.69 (1.18)	18.44 (2.91)	14.15 (1.95)	10.53 (1.25)	12.90 (1.66)	11.90 (0.87)	13.19 (0.97)	10.53 (0.75)	10.83 (0.64)	10.94 (0.99)

<sup>1</sup> Salmonines are defined as the following major species; coho and chinook salmon, rainbow, brown and lake trout.

Table 10.—Estimated chinook salmon harvest at nine Lake Michigan index ports, number stocked (thousands) by the State of Michigan, return and effort adjusted return per 1,000 fish stocked by age and year class, 1985-94.

Year	Harvest	Age	Percent by age	Harvest by age	Year class	Number stocked	Return	Effort adjusted return <sup>1</sup>
1985	338,855	0.1	13	44,051	1984	3350	13.15	3.06
		0.2	33	111,822	1983	2980	37.52	8.72
		0.3	43	145,708	1982	2580	56.48	13.12
		0.4	10	33,886	1981	2250	15.06	3.50
		0.5	1	3,389	1980	2580	1.31	0.31
1986	404,035	0.1	6	24,242	1985	2260	10.73	2.72
		0.2	23	92,928	1984	3350	27.74	7.04
		0.3	54	218,179	1983	2980	73.21	18.59
		0.4	17	68,686	1982	2580	26.62	6.76
1987	259,718	0.1	14	36,361	1986	2400	15.15	4.29
		0.2	27	70,124	1985	2260	31.03	8.78
		0.3	35	90,901	1984	3350	27.13	7.68
		0.4	23	59,735	1983	2980	20.05	5.67
		0.5	1	2,597	1982	2580	1.01	0.28
1988	106,287	0.1	19	20,195	1987	2430	8.31	3.16
		0.2	25	26,572	1986	2400	11.07	4.20
		0.3	35	37,200	1985	2260	16.46	6.25
		0.4	20	21,257	1984	3350	6.35	2.41
		0.5	1	1,063	1983	2980	0.36	0.14
1989	80,114	0.1	22	17,625	1988	2670	6.60	2.80
		0.2	32	25,636	1987	2430	10.55	4.48
		0.3	28	22,432	1986	2400	9.35	3.97
		0.4	18	14,421	1985	2260	6.38	2.71
1990	58,022	0.1	30	17,407	1989	3778	4.61	2.66
		0.2	36	20,888	1988	2670	7.82	4.51
		0.3	26	15,086	1987	2430	6.21	3.58
		0.4	8	4,642	1986	2400	1.93	1.12
		0.5	<1					
1991	60,223	0.1	36	21,680	1990	3639	5.96	3.20
		0.2	33	19,874	1989	3778	5.26	2.83
		0.3	24	14,454	1988	2670	5.41	2.91
		0.4	6	3,613	1987	2430	1.49	0.80
		0.5	<1					

Table 10.—Continued.

Year	Harvest	Age	Percent by age	Harvest by age	Year class	Number stocked	Return	Effort adjusted return <sup>1</sup>
1992	37,580	0.1	45	16,911	1991	3311	5.11	2.98
		0.2	28	10,522	1990	3639	2.89	1.68
		0.3	20	7,516	1989	3778	1.99	1.16
		0.4	7	2,631	1988	2670	0.99	0.58
1993	32,560	0.1	33	10,745	1992	3412	3.15	1.74
		0.2	33	10,745	1991	3311	3.25	1.79
		0.3	32	10,419	1990	3639	2.86	1.58
		0.4	2	651	1989	3778	0.17	0.09
		0.5	<1					
1994	24,498	0.1	39	9,554	1993	3107	3.07	2.28
		0.2	36	8,819	1992	3412	2.58	1.92
		0.3	24	5,880	1991	3311	1.78	1.33
		0.4	1	245	1990	3639	0.07	<0.01

<sup>1</sup> Return was adjusted by dividing return by angler effort (angler hours) for each year.

Table 11.—Estimated chinook salmon return (effort adjusted) by age and year class to the Lake Michigan sport fishery at nine index ports, 1985-94.

Year class	Age					Total
	0.1	0.2	0.3	0.4	0.5	
1981				3.50		
1982			13.12	6.76	0.28	
1983		8.72	18.59	5.67	0.14	
1984	3.06	7.04	7.68	2.41		20.19
1985	2.72	8.78	6.25	2.71		20.46
1986	4.29	4.20	3.97	1.12		13.58
1987	3.16	4.48	3.58	0.80		12.02
1988	2.80	4.51	2.71	0.57		10.79
1989	2.66	2.83	1.16	0.09		6.74
1990	3.20	1.68	1.58	<0.01		6.47
1991	2.97	1.79	1.33			
1992	1.74	1.92				
1993	2.28					

Table 12.—Estimated catch per hour, number caught, and effort (angler hours, trips, and days) for Lake Huron, by all modes (non-charter) of sportfishing, all survey areas combined (15), 1994. Bounds on the error of estimation in parentheses.

Species	Catch per hour	Month							Season
		Apr	May	Jun	Jul	Aug	Sep	Oct	
Pink salmon	0.0004 (0.0001)	0 (0)	0 (0)	0 (0)	485 (193)	432 (245)	3 (5)	0 (0)	920 (312)
Coho salmon	0.0004 (0.0002)	201 (87)	353 (326)	189 (341)	70 (136)	20 (35)	49 (53)	22 (46)	904 (505)
Chinook salmon	0.0226 (0.0023)	2,025 (591)	4,888 (1,147)	2,100 (1,010)	13,274 (1,875)	8,897 (1,488)	13,551 (2,737)	4,936 (1,381)	49,671 (4,221)
Rainbow trout	0.0030 (0.0006)	497 (305)	1,147 (327)	849 (668)	2,613 (689)	908 (456)	193 (131)	479 (357)	6,686 (1,214)
Atlantic salmon	0.0001 (0.0001)	5 (10)	148 (121)	24 (29)	20 (34)	14 (19)	14 (27)	0 (0)	225 (134)
Brown trout	0.0052 (0.0009)	2,278 (761)	1,404 (900)	512 (237)	3,653 (1,021)	2,047 (794)	1,141 (556)	438 (224)	11,473 (1,865)
Brook trout	0.0000 (0.0000)	6 (11)	0 (0)	0 (0)	3 (6)	0 (0)	0 (0)	0 (0)	9 (13)
Lake trout	0.0050 (0.0020)	0 (0)	2,623 (3,564)	2,370 (1,823)	4,389 (1,151)	1,415 (634)	123 (93)	0 (0)	10,920 (4,214)
Rainbow smelt	0.0000 (0.0000)	0 (0)	55 (113)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	55 (113)
Northern pike	0.0004 (0.0002)	25 (34)	74 (72)	181 (329)	132 (157)	379 (329)	0 (0)	47 (67)	838 (502)
White sucker	0.0001 (0.0001)	295 (316)	14 (29)	0 (0)	0 (0)	0 (0)	0 (0)	17 (31)	326 (319)
Yellow bullhead	0.0001 (0.0002)	0 (0)	0 (0)	33 (71)	129 (262)	0 (0)	0 (0)	0 (0)	162 (271)
Brown bullhead	0.0000 (0.0000)	81 (171)	9 (21)	0 (0)	16 (32)	0 (0)	0 (0)	0 (0)	106 (175)
Channel catfish	0.0084 (0.0031)	115 (208)	2,173 (2,060)	2,736 (3,266)	5,944 (3,178)	4,790 (3,685)	2,676 (2,692)	36 (34)	18,470 (6,774)
White perch	0.0007 (0.0007)	172 (355)	617 (1,362)	0 (0)	344 (379)	90 (100)	253 (301)	151 (227)	1,627 (1,509)
White bass	0.0011 (0.0008)	33 (50)	1,942 (1,620)	185 (220)	216 (214)	0 (0)	0 (0)	0 (0)	2,376 (1,650)
Rockbass	0.0004 (0.0002)	147 (225)	191 (312)	244 (212)	344 (374)	0 (0)	0 (0)	46 (66)	972 (581)
Pumpkinseed	0.0003 (0.0003)	74 (114)	90 (187)	0 (0)	40 (85)	364 (524)	0 (0)	0 (0)	568 (574)

Table 12.—Continued.

Species	Catch per hour	Month							Season
		Apr	May	Jun	Jul	Aug	Sep	Oct	
Bluegill	0.0001 (0.0001)	0 (0)	67 (125)	16 (34)	20 (42)	31 (64)	0 (0)	0 (0)	134 (150)
Lake herring	0.0000 (0.0000)	0 (0)	0 (0)	28 (57)	0 (0)	0 (0)	0 (0)	0 (0)	28 (57)
Smallmouth bass	0.0009 (0.0006)	0 (0)	414 (537)	68 (82)	841 (730)	484 (806)	29 (61)	102 (164)	1,938 (1,228)
Largemouth bass	0.0009 (0.0007)	0 (0)	281 (431)	978 (980)	54 (112)	624 (957)	0 (0)	0 (0)	1,937 (1,440)
Black crappie	0.0002 (0.0002)	183 (248)	157 (257)	14 (38)	0 (0)	18 (38)	0 (0)	10 (21)	382 (362)
Yellow perch	0.6572 (0.1042)	262,657 (85,549)	22,125 (24,067)	44,029 (22,121)	110,157 (36,894)	351,284 (92,402)	549,253 (163,400)	104,891 (27,738)	1,444,396 (213,905)
Walleye	0.0327 (0.0058)	1,494 (605)	6,052 (2,496)	3,200 (1,831)	38,988 (9,761)	20,160 (6,139)	1,336 (775)	613 (442)	71,843 (11,988)
Freshwater drum	0.0026 (0.0013)	0 (0)	737 (1,378)	543 (711)	3,163 (2,265)	646 (405)	664 (460)	35 (49)	5,788 (2,813)
Lake whitefish	0.0000 (0.0000)	28 (42)	0 (0)	0 (0)	0 (0)	4 (9)	0 (0)	0 (0)	32 (43)
Round whitefish	0.0000 (0.0000)	0 (0)	0 (0)	0 (0)	0 (0)	51 (70)	0 (0)	0 (0)	51 (70)
Burbot	0.0000 (0.0000)	0 (0)	3 (6)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	3 (6)
Other	0.0017 (0.0028)	42 (84)	311 (315)	3,046 (6,288)	410 (771)	0 (0)	5 (7)	0 (0)	3,814 (6,343)
Total	0.7447 (0.1063)	270,358 (85,560)	45,875 (24,737)	61,345 (23,442)	185,305 (38,466)	392,658 (92,709)	569,290 (163,449)	111,823 (27,781)	1,636,654 (214,578)
Angler hours		171,672 (28,350)	202,429 (30,912)	179,167 (27,020)	585,164 (73,538)	522,901 (64,008)	418,433 (56,995)	118,034 (12,475)	2,197,800 (124,090)
Angler trips		78,475 (17,404)	49,518 (7,186)	44,157 (6,820)	104,329 (12,689)	101,441 (12,611)	88,712 (11,284)	29,487 (3,821)	496,119 (29,377)
Angler days		54,194 (10,630)	42,663 (6,327)	38,888 (6,158)	97,513 (11,850)	92,428 (11,611)	76,710 (10,322)	24,660 (3,107)	427,056 (24,133)



Table 13.—Estimated catch per hour, number caught, and effort (angler hours, trips, and days) for the Lake Huron boat fishery (non-charter) at all survey areas combined (15), 1994. Bounds on the error of estimation in parentheses.

Species	Catch per hour	Month							Season
		Apr	May	Jun	Jul	Aug	Sep	Oct	
Pink salmon	0.0005 (0.0002)	0 (0)	0 (0)	0 (0)	485 (193)	432 (245)	3 (5)	0 (0)	920 (312)
Coho salmon	0.0005 (0.0003)	180 (84)	353 (326)	189 (341)	70 (136)	20 (35)	49 (53)	22 (46)	883 (504)
Chinook salmon	0.0228 (0.0024)	2,025 (591)	4,888 (1,147)	2,100 (1,010)	13,274 (1,875)	8,853 (1,486)	11,718 (2,340)	891 (391)	43,749 (3,747)
Rainbow trout	0.0030 (0.0006)	165 (141)	845 (276)	823 (667)	2,613 (689)	908 (456)	161 (121)	183 (318)	5,698 (1,157)
Atlantic salmon	0.0001 (0.0001)	5 (10)	148 (121)	24 (29)	20 (34)	14 (19)	14 (27)	0 (0)	225 (134)
Brown trout	0.0054 (0.0010)	2,102 (748)	1,392 (900)	499 (235)	3,564 (1,013)	1,931 (784)	734 (433)	182 (137)	10,404 (1,809)
Brook trout	0.0000 (0.0000)	6 (11)	0 (0)	0 (0)	3 (6)	0 (0)	0 (0)	0 (0)	9 (13)
Lake trout	0.0057 (0.0022)	0 (0)	2,616 (3,564)	2,370 (1,823)	4,389 (1,151)	1,415 (634)	123 (93)	0 (0)	10,913 (4,214)
Northern pike	0.0001 (0.0001)	0 (0)	32 (39)	17 (36)	35 (56)	134 (129)	0 (0)	0 (0)	218 (150)
White sucker	0.0000 (0.0000)	0 (0)	14 (29)	0 (0)	0 (0)	0 (0)	0 (0)	15 (31)	29 (42)
Brown bullhead	0.0000 (0.0000)	0 (0)	0 (0)	0 (0)	16 (32)	0 (0)	0 (0)	0 (0)	16 (32)
Channel catfish	0.0092 (0.0036)	17 (34)	1,962 (2,044)	2,588 (3,260)	5,549 (3,144)	4,790 (3,685)	2,614 (2,690)	29 (32)	17,549 (6,746)
White perch	0.0008 (0.0008)	0 (0)	617 (1,362)	0 (0)	344 (379)	90 (100)	253 (301)	151 (227)	1,455 (1,467)
White bass	0.0012 (0.0008)	33 (50)	1,942 (1,620)	185 (220)	216 (214)	0 (0)	0 (0)	0 (0)	2,376 (1,650)
Rockbass	0.0002 (0.0001)	56 (117)	35 (54)	107 (125)	99 (124)	0 (0)	0 (0)	7 (16)	304 (219)
Pumpkinseed	0.0001 (0.0002)	0 (0)	90 (187)	0 (0)	40 (85)	0 (0)	0 (0)	0 (0)	130 (205)
Bluegill	0.0000 (0.0000)	0 (0)	67 (125)	0 (0)	20 (42)	0 (0)	0 (0)	0 (0)	87 (132)

Table 13.—Continued.

Species	Catch per hour	Month							Season
		Apr	May	Jun	Jul	Aug	Sep	Oct	
Lake herring	0.0000 (0.0000)	0 (0)	0 (0)	28 (57)	0 (0)	0 (0)	0 (0)	0 (0)	28 (57)
Smallmouth bass	0.0009 (0.0006)	0 (0)	414 (537)	67 (82)	600 (589)	484 (806)	29 (61)	102 (164)	1,696 (1,150)
Largemouth bass	0.0010 (0.0007)	0 (0)	274 (431)	978 (980)	54 (112)	624 (957)	0 (0)	0 (0)	1,930 (1,440)
Black crappie	0.0001 (0.0002)	0 (0)	100 (234)	0 (0)	0 (0)	18 (38)	0 (0)	10 (21)	128 (238)
Yellow perch	0.6137 (0.1093)	11,311 (7,268)	17,646 (23,608)	43,237 (22,107)	108,574 (36,866)	351,226 (92,402)	549,159 (163,400)	95,836 (26,982)	1,176,989 (196,020)
Walleye	0.0369 (0.0067)	1,140 (584)	5,634 (2,487)	3,200 (1,831)	38,988 (9,761)	20,160 (6,139)	1,109 (652)	551 (429)	70,782 (11,977)
Freshwater drum	0.0026 (0.0014)	0 (0)	632 (1,365)	196 (278)	2,837 (2,222)	646 (405)	664 (460)	35 (49)	5,010 (2,694)
Lake whitefish	0.0000 (0.0000)	2 (5)	0 (0)	0 (0)	0 (0)	4 (9)	0 (0)	0 (0)	6 (10)
Round whitefish	0.0000 (0.0000)	0 (0)	0 (0)	0 (0)	0 (0)	51 (70)	0 (0)	0 (0)	51 (70)
Burbot	0.0000 (0.0000)	0 (0)	3 (6)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	3 (6)
Other	0.0020 (0.0034)	0 (0)	296 (314)	3,046 (6,288)	410 (771)	0 (0)	5 (7)	0 (0)	3,757 (6,343)
Total	0.7067 (0.1118)	17,042 (7,357)	40,000 (24,285)	59,654 (23,416)	182,200 (38,429)	391,800 (92,707)	566,635 (163,442)	98,014 (26,992)	1,355,345 (196,737)
Angler hours		46,293 (6,779)	183,830 (30,806)	168,701 (26,932)	570,998 (73,501)	517,565 (63,998)	368,264 (56,699)	62,213 (11,230)	1,917,864 (120,662)
Angler trips		10,174 (1,511)	40,003 (6,878)	38,460 (6,654)	99,397 (12,641)	99,576 (12,604)	74,944 (11,066)	13,908 (2,712)	376,462 (23,288)
Angler days		9,463 (1,419)	35,927 (6,153)	35,029 (6,055)	93,128 (11,809)	90,563 (11,603)	66,054 (10,175)	12,519 (2,445)	342,683 (21,451)

Table 14.—Estimated catch per hour, number caught, and effort (angler hours, trips, and days) for the Lake Huron pier fishery at all survey areas combined (7), 1994. Bounds on the error of estimation in parentheses.

Species	Catch per hour	Month							Season
		Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0002 (0.0002)	21 (24)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	21 (24)
Chinook salmon	0.0184 (0.0060)	0 (0)	0 (0)	0 (0)	0 (0)	44 (65)	635 (461)	1,556 (527)	2,235 (703)
Rainbow trout	0.0032 (0.0024)	242 (266)	6 (13)	18 (37)	0 (0)	0 (0)	0 (0)	123 (124)	389 (296)
Brown trout	0.0070 (0.0036)	133 (137)	8 (19)	13 (26)	89 (129)	116 (126)	378 (346)	114 (115)	851 (430)
Rainbow smelt	0.0005 (0.0010)	0 (0)	55 (113)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	55 (113)
Northern pike	0.0037 (0.0029)	18 (30)	42 (61)	5 (10)	97 (147)	245 (303)	0 (0)	47 (67)	454 (350)
Yellow bullhead	0.0013 (0.0022)	0 (0)	0 (0)	33 (71)	129 (262)	0 (0)	0 (0)	0 (0)	162 (271)
Channel catfish	0.0016 (0.0027)	0 (0)	0 (0)	0 (0)	185 (320)	0 (0)	8 (16)	0 (0)	193 (320)
Rockbass	0.0041 (0.0042)	91 (192)	145 (306)	15 (31)	245 (352)	0 (0)	0 (0)	0 (0)	496 (505)
Pumpkinseed	0.0030 (0.0043)	0 (0)	0 (0)	0 (0)	0 (0)	364 (524)	0 (0)	0 (0)	364 (524)
Bluegill	0.0003 (0.0006)	0 (0)	0 (0)	0 (0)	0 (0)	31 (64)	0 (0)	0 (0)	31 (64)
Smallmouth bass	0.0020 (0.0036)	0 (0)	0 (0)	0 (0)	241 (431)	0 (0)	0 (0)	0 (0)	241 (431)
Black crappie	0.0004 (0.0009)	0 (0)	48 (102)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	48 (102)
Yellow perch	0.3015 (0.1079)	29,496 (11,798)	4,442 (4,679)	769 (768)	1,583 (1,418)	58 (84)	31 (65)	328 (512)	36,707 (12,805)
Walleye	0.0023 (0.0035)	25 (40)	0 (0)	0 (0)	0 (0)	0 (0)	197 (414)	62 (105)	284 (429)
Freshwater drum	0.0019 (0.0035)	0 (0)	0 (0)	0 (0)	229 (416)	0 (0)	0 (0)	0 (0)	229 (416)
Lake whitefish	0.0002 (0.0004)	20 (40)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	20 (40)

Table 14.—Continued.

Species	Catch per hour	Month							Season
		Apr	May	Jun	Jul	Aug	Sep	Oct	
Total	0.3514 (0.1095)	30,046 (11,804)	4,746 (4,692)	853 (773)	2,798 (1,644)	858 (631)	1,249 (713)	2,230 (764)	42,780 (12,890)
Angler hours		28,232 (6,550)	9,743 (1,939)	7,175 (1,775)	8,721 (1,526)	5,336 (1,122)	31,145 (5,272)	31,389 (3,613)	121,741 (9,708)
Angler trips		13,358 (3,153)	4,047 (893)	4,563 (1,406)	3,701 (986)	1,865 (426)	8,723 (2,047)	8,370 (1,563)	44,627 (4,528)
Angler days		8,311 (2,047)	2,572 (570)	2,765 (1,000)	3,431 (864)	1,865 (426)	7,505 (1,644)	6,991 (1,243)	33,440 (3,270)

Table 15.—Estimated catch per hour, number caught, and effort (angler hours, trips, and days) for the Lake Huron shore fishery at all survey areas combined (10), 1994. Bounds on the error of estimation in parentheses.

Species	Catch per hour	Month							Season
		Apr	May	Jun	Jul	Aug	Sep	Oct	
Chinook salmon	0.0233 (0.0121)	0 (0)	0 (0)	0 (0)	0 (0)	--- (0)	1,198 (1,342)	2,489 (1,215)	3,687 (1,810)
Rainbow trout	0.0038 (0.0015)	90 (49)	296 (174)	8 (21)	0 (0)	--- (0)	32 (50)	173 (106)	599 (216)
Brown trout	0.0014 (0.0010)	43 (35)	4 (8)	0 (0)	0 (0)	--- (0)	29 (40)	142 (134)	218 (144)
Lake trout	0.0000 (0.0000)	0 (0)	7 (15)	0 (0)	0 (0)	--- (0)	0 (0)	0 (0)	7 (15)
Northern pike	0.0010 (0.0020)	7 (15)	0 (0)	159 (327)	0 (0)	--- (0)	0 (0)	0 (0)	166 (327)
White sucker	0.0019 (0.0020)	295 (316)	0 (0)	0 (0)	0 (0)	--- (0)	0 (0)	2 (4)	297 (316)
Brown bullhead	0.0006 (0.0012)	81 (171)	9 (21)	0 (0)	0 (0)	--- (0)	0 (0)	0 (0)	90 (172)
Channel catfish	0.0046 (0.0034)	98 (205)	211 (263)	148 (197)	210 (332)	--- (0)	54 (110)	7 (13)	728 (522)
White perch	0.0011 (0.0023)	172 (355)	0 (0)	0 (0)	0 (0)	--- (0)	0 (0)	0 (0)	172 (355)
Rockbass	0.0011 (0.0012)	0 (0)	11 (24)	122 (168)	0 (0)	--- (0)	0 (0)	39 (64)	172 (181)
Pumpkinseed	0.0005 (0.0008)	74 (114)	0 (0)	0 (0)	0 (0)	--- (0)	0 (0)	0 (0)	74 (114)
Bluegill	0.0001 (0.0002)	0 (0)	0 (0)	16 (34)	0 (0)	--- (0)	0 (0)	0 (0)	16 (34)
Smallmouth bass	0.0000 (0.0000)	0 (0)	0 (0)	1 (2)	0 (0)	--- (0)	0 (0)	0 (0)	1 (2)
Largemouth bass	0.0000 (0.0000)	0 (0)	7 (16)	0 (0)	0 (0)	--- (0)	0 (0)	0 (0)	7 (16)
Black crappie	0.0013 (0.0016)	183 (248)	9 (26)	14 (38)	0 (0)	--- (0)	0 (0)	0 (0)	206 (252)
Yellow perch	1.4583 (0.5913)	221,850 (84,419)	37 (64)	23 (46)	0 (0)	--- (0)	63 (130)	8,727 (6,413)	230,700 (84,662)
Walleye	0.0049 (0.0019)	329 (152)	418 (220)	0 (0)	0 (0)	--- (0)	30 (60)	0 (0)	777 (274)

Table 15.—Continued.

Species	Catch per hour	Month							Season
		Apr	May	Jun	Jul	Aug	Sep	Oct	
Freshwater drum	0.0035 (0.0045)	0 (0)	105 (189)	347 (654)	97 (137)	--- (0)	0 (0)	0 (0)	549 (694)
Lake whitefish	0.0000 (0.0000)	6 (13)	0 (0)	0 (0)	0 (0)	--- (0)	0 (0)	0 (0)	6 (13)
Other	0.0004 (0.0006)	42 (84)	15 (25)	0 (0)	0 (0)	--- (0)	0 (0)	0 (0)	57 (88)
Total	1.5078 (0.5952)	223,270 (84,421)	1,129 (436)	838 (779)	307 (359)	--- (0)	1,406 (1,356)	11,579 (6,530)	238,529 (84,689)
Angler hours		97,147 (26,737)	8,856 (1,658)	3,291 (1,253)	5,445 (1,770)	--- (0)	19,024 (2,426)	24,432 (4,056)	158,195 (27,288)
Angler trips		54,943 (17,049)	5,468 (1,880)	1,134 (520)	1,231 (469)	--- (0)	5,045 (818)	7,209 (2,192)	75,030 (17,325)
Angler days		36,420 (10,334)	4,164 (1,356)	1,094 (507)	954 (464)	--- (0)	3,151 (548)	5,150 (1,461)	50,933 (10,561)

Table 16.—Estimated catch per hour, number caught, and effort (angler hours, trips, and days) for Saginaw Bay (Port Austin to Tawas), by all modes (non-charter) of sportfishing, 1994. Bounds on the error of estimation in parentheses.

Species	Catch per hour	Month							Season
		Apr	May	Jun	Jul	Aug	Sep	Oct	
Pink salmon	0.0001 (0.0002)	0 (0)	0 (0)	0 (0)	0 (0)	82 (166)	0 (0)	0 (0)	82 (166)
Coho salmon	0.0000 (0.0000)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	12 (26)	22 (46)	34 (53)
Chinook salmon	0.0015 (0.0009)	0 (0)	113 (195)	394 (542)	67 (141)	196 (289)	1,147 (1,047)	196 (181)	2,113 (1,251)
Rainbow trout	0.0007 (0.0005)	145 (208)	80 (159)	366 (538)	220 (331)	133 (196)	0 (0)	41 (54)	985 (713)
Brown trout	0.0018 (0.0007)	452 (414)	252 (340)	26 (54)	548 (441)	996 (656)	213 (345)	29 (57)	2,516 (1,018)
Lake trout	0.0018 (0.0025)	0 (0)	1,674 (3,516)	573 (555)	176 (264)	148 (299)	0 (0)	0 (0)	2,571 (3,582)
Rainbow smelt	0.0000 (0.0000)	0 (0)	55 (113)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	55 (113)
Northern pike	0.0002 (0.0001)	18 (30)	56 (68)	22 (37)	97 (147)	69 (87)	0 (0)	0 (0)	262 (190)
White sucker	0.0002 (0.0002)	295 (316)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	15 (31)	310 (318)
Brown bullhead	0.0001 (0.0002)	81 (171)	9 (21)	0 (0)	16 (32)	0 (0)	0 (0)	0 (0)	106 (175)
Channel catfish	0.0125 (0.0049)	115 (208)	2,173 (2,060)	2,617 (3,260)	5,319 (3,137)	4,632 (3,681)	2,570 (2,689)	29 (32)	17,455 (6,748)
White perch	0.0012 (0.0011)	172 (355)	617 (1,362)	0 (0)	344 (379)	90 (100)	253 (301)	151 (227)	1,627 (1,509)
White bass	0.0017 (0.0012)	33 (50)	1,942 (1,620)	185 (220)	216 (214)	0 (0)	0 (0)	0 (0)	2,376 (1,650)
Rockbass	0.0005 (0.0003)	147 (225)	191 (312)	180 (183)	99 (124)	0 (0)	0 (0)	32 (62)	649 (448)
Pumpkinseed	0.0001 (0.0001)	74 (114)	90 (187)	0 (0)	40 (85)	0 (0)	0 (0)	0 (0)	204 (235)
Bluegill	0.0001 (0.0002)	0 (0)	58 (123)	0 (0)	20 (42)	0 (0)	0 (0)	0 (0)	78 (130)
Lake herring	0.0000 (0.0000)	0 (0)	0 (0)	28 (57)	0 (0)	0 (0)	0 (0)	0 (0)	28 (57)
Smallmouth bass	0.0014 (0.0009)	0 (0)	414 (537)	68 (82)	840 (730)	484 (806)	29 (61)	102 (164)	1,937 (1,228)
Largemouth bass	0.0014 (0.0010)	0 (0)	281 (431)	978 (980)	54 (112)	624 (957)	0 (0)	0 (0)	1,937 (1,440)
Black crappie	0.0003 (0.0003)	183 (248)	157 (257)	14 (38)	0 (0)	18 (38)	0 (0)	10 (21)	382 (362)

Table 16.—Continued.

Species	Catch per hour	Month							Season
		Apr	May	Jun	Jul	Aug	Sep	Oct	
Yellow perch	1.0287 (0.1753)	262,648 (85,549)	21,979 (24,066)	42,689 (22,099)	104,319 (36,702)	348,536 (92,384)	547,812 (163,387)	104,836 (27,738)	1,432,819 (213,852)
Walleye	0.0475 (0.0094)	729 (549)	4,166 (2,442)	3,003 (1,821)	37,926 (9,729)	18,700 (6,067)	1,115 (754)	483 (413)	66,122 (11,907)
Freshwater drum	0.0029 (0.0013)	0 (0)	734 (1,378)	60 (64)	2,009 (923)	535 (378)	664 (460)	35 (49)	4,037 (1,764)
Lake whitefish	0.0000 (0.0000)	26 (42)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	26 (42)
Other	0.0027 (0.0045)	42 (84)	311 (315)	3,046 (6,288)	410 (771)	0 (0)	0 (0)	0 (0)	3,809 (6,343)
Total	1.1075 (0.1789)	265,160 (85,555)	35,352 (24,680)	54,249 (23,320)	152,720 (38,133)	375,243 (92,669)	553,815 (163,416)	105,981 (27,743)	1,542,520 (214,450)
Angler hours		137,959 (27,863)	110,984 (26,306)	124,797 (24,235)	356,762 (70,125)	372,780 (58,068)	235,128 (51,849)	54,444 (10,412)	1,392,854 (114,638)
Angler trips		70,579 (17,371)	29,455 (6,143)	31,659 (6,212)	61,531 (11,851)	71,176 (11,543)	48,676 (10,099)	15,010 (3,275)	328,086 (27,649)
Angler days		46,381 (10,576)	24,444 (5,476)	27,841 (5,786)	57,702 (11,110)	66,215 (10,822)	43,869 (9,513)	12,237 (2,606)	278,689 (22,653)



Table 17.—Estimated yellow perch and walleye catch per hour, number harvested, and angler effort (hours) for Saginaw Bay (Port Austin to Tawas) during April through October, 1983-94. Bounds on the error of estimation in parentheses.

Year	Yellow perch		Walleye		Angler hours
	Catch per hour	Number harvested	Catch per hour	Number harvested	
1983 <sup>1</sup>	2.009 (0.564)	1,459,332 (409,661)	0.003 (0.002)	2,128 (1,450)	726,273 (81,928)
1986	0.907 (0.148)	1,772,696 (289,925)	0.030 (0.013)	59,253 (25,319)	1,954,504 (145,719)
1987	1.301 (0.193)	2,455,239 (329,272)	0.034 (0.007)	63,691 (12,061)	1,882,169 (116,509)
1988 <sup>2</sup>	0.828 (0.191)	1,182,625 (239,915)	0.070 (0.019)	100,129 (25,077)	1,428,189 (155,718)
1989	1.043 (0.184)	1,209,614 (186,292)	0.049 (0.010)	56,337 (10,580)	1,159,775 (95,472)
1991	1.162 (0.249)	1,482,443 (282,231)	0.048 (0.010)	61,028 (10,817)	1,275,439 (114,980)
1992	0.892 (0.129)	1,129,163 (134,539)	0.051 (0.008)	64,477 (8,702)	1,266,174 (100,013)
1993	0.552 (0.091)	738,712 (102,792)	0.094 (0.016)	125,160 (18,357)	1,337,059 (114,179)
1994	1.025 (0.175)	1,434,841 (213,852)	0.049 (0.009)	68,170 (11,907)	1,400,002 (114,638)

<sup>1</sup> Ryckman (1986)

<sup>2</sup> April through September

Table 18.—Estimated sportfishing catch and effort (charter and non-charter) for salmonines at nine Lake Huron ports combined (Rogers City, Rockport, Alpena, Harrisville, Oscoda, Port Austin, Grindstone City/Harbor Beach, Port Sanilac and Lexington), April through October, 1986-88 and 1992-94 (May through August for lake trout). Bounds on the error of estimation in parentheses.

Species	1986	1987	1988 <sup>1</sup>	1992	1993	1994
Coho salmon	6,143 (2,322)	3,216 (1,121)	3,875 (1,200)	768 (283)	985 (249)	909 (495)
Chinook salmon	69,801 (10,369)	75,184 (8,336)	85,102 (9,661)	39,889 (3,544)	47,452 (3,360)	53,775 (4,308)
Rainbow trout	4,247 (6,481)	4,959 (1,320)	1,955 (537)	5,023 (1,098)	6,229 (907)	6,971 (1,219)
Brown trout	8,494 (2,465)	5,903 (1,165)	2,152 (750)	3,000 (531)	7,477 (1,142)	9,507 (1,644)
Lake trout	48,059 (11,330)	40,881 (7,300)	59,930 (35,823)	13,174 (2,691)	6,546 (1,148)	11,568 (4,212)
Salmonines <sup>2</sup>	136,744 (17,010)	130,143 (11,275)	153,014 (37,134)	61,854 (4,623)	68,689 (3,847)	82,730 (6,382)
Angler hours	1,716,728 (157,793)	1,669,510 (115,654)	1,575,453 (148,674)	1,064,804 (70,993)	1,046,961 (63,151)	1,142,357 (75,338)

<sup>1</sup> April through September

<sup>2</sup> Salmonines are defined as the following major species; coho and chinook salmon, rainbow, brown and lake trout.

Table 19.–Catch rates (fish per 100 angler hours) of salmonines by charter and non-charter anglers at nine Lake Huron ports combined (Rogers City, Rockport, Alpena, Harrisville, Oscoda, Port Austin, Grindstone City/Harbor Beach, Port Sanilac and Lexington), April through October, 1986-88 and 1992-94 (May through August for lake trout). Bounds on the error of estimation in parentheses.

Species	1986	1987	1988 <sup>1</sup>	1992	1993	1994
Coho salmon	0.36 (0.14)	0.19 (0.07)	0.25 (0.08)	0.07 (0.03)	0.09 (0.02)	0.08 (0.04)
Chinook salmon	4.07 (0.71)	4.50 (0.50)	5.40 (0.61)	3.75 (0.33)	4.53 (0.32)	4.71 (0.38)
Rainbow trout	0.25 (0.38)	0.30 (0.08)	0.12 (0.03)	0.47 (0.10)	0.59 (0.09)	0.61 (0.11)
Brown trout	0.49 (0.15)	0.35 (0.07)	0.14 (0.05)	0.28 (0.05)	0.71 (0.12)	0.83 (0.14)
Lake trout	4.08 (1.06)	3.77 (0.74)	5.31 (3.24)	1.66 (0.36)	0.84 (0.16)	1.45 (0.54)
Salmonines <sup>2</sup>	9.25 (1.35)	9.11 (0.90)	11.22 (3.03)	6.23 (0.50)	7.68 (0.69)	6.76 (0.39)

<sup>1</sup> April through September

<sup>2</sup> Salmonines are defined as the following major species; coho and chinook salmon, rainbow, brown and lake trout.

Table 20.—Estimated catch per hour, number caught, and effort (angler hours, trips, and days) for the Lake Erie boat fishery (non-charter), 1994. Bounds on the error of estimation in parentheses.

Species	Catch per hour	Month							Season
		Apr	May	Jun	Jul	Aug	Sep	Oct	
Rainbow trout	0.0001 (0.0001)	0 (0)	31 (53)	19 (40)	28 (58)	0 (0)	0 (0)	0 (0)	78 (88)
Northern pike	0.0000 (0.0000)	0 (0)	0 (0)	0 (0)	21 (43)	0 (0)	0 (0)	0 (0)	21 (43)
White sucker	0.0000 (0.0000)	0 (0)	0 (0)	28 (57)	0 (0)	0 (0)	0 (0)	0 (0)	28 (57)
Redhorse	0.0000 (0.0000)	0 (0)	30 (61)	0 (0)	0 (0)	0 (0)	15 (32)	0 (0)	45 (69)
Channel catfish	0.0303 (0.0097)	1,057 (1,141)	4,054 (3,326)	7,489 (4,605)	5,201 (2,765)	5,880 (4,010)	4,046 (3,368)	1,648 (1,417)	29,375 (8,405)
White perch	0.0142 (0.0049)	0 (0)	1,424 (860)	1,010 (516)	6,044 (2,562)	2,335 (2,453)	1,865 (2,017)	1,065 (1,013)	13,743 (4,322)
White bass	0.0477 (0.0184)	825 (1,145)	31,399 (15,293)	7,071 (4,303)	969 (1,238)	94 (135)	2,726 (3,253)	3,142 (3,021)	46,226 (16,582)
Rockbass	0.0013 (0.0006)	0 (0)	17 (23)	40 (70)	519 (423)	120 (124)	455 (342)	62 (58)	1,213 (566)
Pumpkinseed	0.0000 (0.0000)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	39 (87)	39 (87)
Bluegill	0.0016 (0.0017)	0 (0)	30 (61)	0 (0)	165 (194)	175 (302)	811 (1,424)	370 (666)	1,551 (1,614)
Smallmouth bass	0.0012 (0.0007)	0 (0)	89 (96)	36 (47)	376 (270)	152 (179)	426 (516)	110 (110)	1,189 (628)
Largemouth bass	0.0003 (0.0003)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	29 (64)	277 (333)	306 (339)
Black crappie	0.0001 (0.0002)	56 (121)	0 (0)	0 (0)	0 (0)	0 (0)	15 (32)	0 (0)	71 (125)
Yellow perch	0.2412 (0.0748)	12 (26)	5,694 (2,727)	7,730 (2,626)	15,417 (7,110)	36,848 (19,722)	131,916 (58,830)	35,968 (14,158)	233,585 (64,150)
Walleye	0.1912 (0.0468)	2,379 (1,488)	63,206 (28,021)	59,436 (17,410)	55,356 (15,674)	3,989 (2,759)	754 (817)	40 (60)	185,160 (36,667)
Freshwater drum	0.0168 (0.0062)	677 (800)	4,678 (3,562)	5,850 (3,638)	4,064 (1,907)	360 (286)	385 (376)	263 (243)	16,277 (5,521)
Other	0.0007 (0.0004)	42 (91)	228 (192)	211 (318)	46 (93)	33 (48)	25 (54)	85 (93)	670 (411)

Table 20.—Continued.

Species	Catch per hour	Month							Season
		Apr	May	Jun	Jul	Aug	Sep	Oct	
Total	0.5469 (0.1117)	5,048 (2,343)	110,880 (32,420)	88,920 (19,061)	88,206 (17,774)	49,986 (20,467)	143,468 (59,078)	43,069 (14,603)	529,577 (76,538)
Angler hours		28,586 (13,383)	204,849 (80,455)	288,385 (75,045)	255,951 (60,971)	67,036 (36,710)	95,501 (44,911)	27,946 (11,344)	968,254 (139,623)
Angler trips		7,472 (3,643)	37,030 (14,320)	50,537 (12,912)	42,776 (10,179)	12,795 (6,923)	18,580 (8,807)	5,575 (2,412)	174,765 (24,899)
Angler days		7,354 (3,591)	36,859 (14,307)	50,235 (12,890)	42,664 (10,166)	12,622 (6,770)	18,501 (8,762)	5,564 (2,408)	173,799 (24,809)

Table 21.—Estimated yellow perch and walleye catch per hour, number harvested, and angler effort (hours) for the Lake Erie boat fishery (charter and non-charter) during April through October, 1986-94. Bounds on the error of estimation in parentheses.

Year	Yellow perch		Walleye		Angler hours
	Catch per hour	Number harvested	Catch per hour	Number harvested	
1986 <sup>1</sup>	0.399 (0.106)	834,310 (218,909)	0.293 (0.053)	605,666 (110,365)	2,068,779 (252,761)
1987	0.252 (0.160)	619,112 (385,740)	0.367 (0.077)	902,378 (151,024)	2,455,903 (308,709)
1988 <sup>2</sup>	0.073 (0.049)	318,786 (205,749)	0.458 (0.121)	1,996,824 (419,055)	4,362,452 (702,522)
1989	0.386 (0.084)	1,466,442 (242,822)	0.288 (0.068)	1,092,289 (205,068)	3,799,067 (545,688)
1990	0.310 (0.156)	770,507 (368,162)	0.314 (0.071)	780,508 (145,900)	2,482,242 (298,193)
1991 <sup>1</sup>	0.470 (0.129)	378,716 (80,078)	0.164 (0.037)	132,322 (22,873)	805,294 (120,402)
1992	0.306 (0.102)	255,747 (72,114)	0.299 (0.070)	249,713 (44,354)	836,216 (120,008)
1993	0.506 (0.162)	473,580 (126,436)	0.289 (0.066)	270,376 (47,319)	935,249 (134,149)
1994	0.243 (0.075)	246,327 (64,150)	0.213 (0.047)	216,040 (36,667)	1,012,595 (139,623)

<sup>1</sup> May through October

<sup>2</sup> May through September

Table 22.—Estimated catch per hour, number caught, and effort (angler hours, trips, and days) for Lake Superior, by all modes (non-charter) of sportfishing, at all survey areas combined (7), 1994. Bounds on the error of estimation in parentheses.

Species	Catch per hour	Month							Season
		Apr	May	Jun	Jul	Aug	Sep	Oct	
Pink salmon	0.0000 (0.0000)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	6 (14)	0 (0)	6 (14)
Coho salmon	0.0503 (0.0090)	2,303 (552)	2,411 (648)	273 (118)	351 (196)	196 (133)	996 (743)	175 (85)	6,705 (1,164)
Chinook salmon	0.0113 (0.0027)	261 (139)	606 (254)	381 (175)	108 (87)	38 (44)	102 (70)	5 (8)	1,501 (359)
Rainbow trout	0.0055 (0.0030)	208 (130)	430 (374)	29 (25)	0 (0)	12 (20)	32 (40)	19 (31)	730 (400)
Atlantic salmon	0.0002 (0.0003)	8 (17)	0 (0)	0 (0)	20 (40)	0 (0)	0 (0)	0 (0)	28 (43)
Brown trout	0.0013 (0.0009)	18 (20)	86 (86)	29 (46)	3 (6)	0 (0)	41 (72)	2 (4)	179 (123)
Brook trout	0.0000 (0.0000)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	5 (9)	0 (0)	5 (9)
Lake trout	0.1036 (0.0109)	78 (107)	1,081 (288)	3,287 (671)	2,824 (633)	2,945 (572)	2,399 (615)	1,197 (351)	13,811 (1,332)
Splake	0.0061 (0.0030)	82 (71)	525 (377)	0 (0)	0 (0)	0 (0)	23 (41)	181 (111)	811 (401)
Rockbass	0.0001 (0.0002)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	10 (19)	10 (19)
Siscowet	0.0190 (0.0047)	0 (0)	336 (212)	591 (369)	225 (119)	481 (229)	686 (329)	208 (175)	2,527 (622)
Lake herring	0.0007 (0.0005)	36 (30)	56 (64)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	92 (71)
Smallmouth bass	0.0001 (0.0002)	0 (0)	0 (0)	0 (0)	7 (14)	0 (0)	0 (0)	0 (0)	7 (14)
Yellow perch	0.0088 (0.0078)	0 (0)	0 (0)	0 (0)	1,173 (1,041)	0 (0)	0 (0)	0 (0)	1,173 (1,041)
Walleye	0.0075 (0.0041)	3 (6)	587 (492)	361 (233)	48 (52)	0 (0)	0 (0)	0 (0)	999 (547)
Lake whitefish	0.0070 (0.0037)	286 (205)	543 (442)	2 (5)	0 (0)	0 (0)	0 (0)	104 (73)	935 (493)
Round whitefish	0.0075 (0.0032)	294 (261)	77 (96)	0 (0)	0 (0)	0 (0)	0 (0)	631 (326)	1,002 (429)
Other	0.0004 (0.0007)	0 (0)	0 (0)	50 (89)	0 (0)	0 (0)	0 (0)	0 (0)	50 (89)

Table 22.—Continued.

Species	Catch per hour	Month							Season
		Apr	May	Jun	Jul	Aug	Sep	Oct	
Total	0.2294 (0.0204)	3,577 (685)	6,738 (1,163)	5,003 (834)	4,759 (1,245)	3,672 (632)	4,290 (1,026)	2,532 (535)	30,571 (2,410)
Angler hours		15,113 (2,534)	33,015 (2,433)	29,509 (2,721)	22,057 (2,254)	12,238 (1,348)	14,958 (1,768)	6,373 (940)	133,263 (5,536)
Angler trips		4,709 (757)	8,399 (727)	6,364 (606)	4,669 (489)	2,725 (311)	3,684 (461)	2,196 (331)	32,746 (1,458)
Angler days		4,682 (757)	8,399 (727)	6,364 (606)	4,669 (489)	2,725 (311)	3,684 (461)	2,196 (331)	32,719 (1,458)



Table 23.—Estimated catch per hour, number caught, and effort (angler hours, trips, and days) for the Saginaw Bay (Port Austin to Tawas) winter ice fishery, 1995. Bounds on the error of estimation in parentheses.

Species	Catch per hour	Month			Season
		Jan	Feb	Mar	
Rainbow trout	0.0001 (0.0002)	0 (0)	0 (0)	28 (58)	28 (58)
Brown trout	0.0006 (0.0004)	0 (0)	6 (12)	230 (140)	236 (141)
Northern pike	0.0017 (0.0009)	461 (326)	235 (190)	0 (0)	696 (377)
White perch	0.0009 (0.0019)	0 (0)	393 (836)	0 (0)	393 (836)
Rockbass	0.0001 (0.0002)	26 (55)	0 (0)	0 (0)	26 (55)
Yellow perch	1.9854 (0.4710)	254,750 (89,517)	383,652 (137,747)	184,185 (59,998)	822,587 (174,892)
Walleye	0.0099 (0.0041)	44 (84)	1,465 (804)	2,585 (1,419)	4,094 (1,633)
Burbot	0.0003 (0.0004)	69 (140)	16 (33)	37 (79)	122 (164)
Total	1.9989 (0.4716)	255,350 (89,518)	385,767 (137,752)	187,065 (60,015)	828,182 (174,903)
Angler hours		118,480 (23,321)	184,205 (30,872)	111,640 (20,080)	414,325 (43,591)
Angler trips		33,612 (6,842)	43,898 (7,641)	33,259 (6,064)	110,769 (11,915)
Angler days		28,719 (5,911)	39,557 (7,068)	25,483 (4,877)	93,759 (10,425)

Table 24.—Estimated yellow perch and walleye catch per hour, number harvested, and angler effort (hours) for the Saginaw Bay ice fishery, January through March, 1984-95. Bounds on the error of estimation in parentheses.

Year	Yellow perch		Walleye		Angler hours
	Catch per hour	Number harvested	Catch per hour	Number harvested	
1984 <sup>1</sup>	2.454 (0.379)	1,570,402 (219,616)	0.007 (0.011)	4,481 (7,338)	639,887 (75,182)
1987	4.794 (0.832)	3,153,609 (446,851)	0.001 (0.001)	636 (388)	657,770 (65,934)
1988	2.418 (0.549)	675,723 (133,958)	0.017 (0.017)	4,658 (4,617)	279,505 (30,909)
1991	2.765 (0.519)	815,511 (127,974)	0.006 (0.004)	1,702 (1,142)	294,976 (30,401)
1992	2.538 (0.499)	907,676 (157,445)	0.007 (0.003)	2,404 (1,209)	357,651 (33,017)
1993	0.989 (0.187)	308,103 (50,724)	0.045 (0.014)	13,993 (3,997)	311,648 (29,040)
1994	1.281 (0.258)	612,405 (109,313)	0.041 (0.014)	19,597 (6,531)	477,946 (44,323)
1995	1.985 (0.471)	822,587 (174,892)	0.010 (0.004)	4,094 (1,633)	414,325 (43,591)

<sup>1</sup>Ryckman (1986)

Table 25.—Estimated yellow perch and walleye catch per hour, number harvested, and angler effort (hours) for the ice fishery on Little Bay de Noc, January through March, 1986-95. Bounds on the error of estimation in parentheses.

Year	Yellow perch		Walleye		Angler hours
	Catch per hour	Number harvested	Catch per hour	Number harvested	
1986	0.824 (0.216)	226,409 (52,473)	0.020 (0.011)	4,890 (2,565)	274,745 (33,342)
1987 <sup>1</sup>					
1988	0.491 (0.191)	65,290 (22,140)	0.128 (0.076)	11,798 (6,435)	133,107 (25,403)
1989	0.476 (0.149)	87,083 (25,187)	0.036 (0.019)	6,062 (3,048)	182,963 (21,823)
1990	0.902 (0.186)	176,068 (32,411)	0.057 (0.017)	9,448 (2,758)	195,210 (18,176)
1991	0.974 (0.202)	215,532 (39,029)	0.029 (0.012)	5,183 (2,090)	221,355 (22,579)
1992	0.970 (0.212)	249,804 (47,082)	0.021 (0.007)	4,612 (1,447)	257,559 (28,427)
1993	0.144 (0.039)	36,902 (9,224)	0.021 (0.008)	5,275 (2,099)	256,842 (26,099)
1994	0.187 (0.106)	28,711 (16,047)	0.018 (0.009)	2,703 (1,382)	153,218 (15,364)
1995	0.236 (0.060)	30,464 (6,844)	0.051 (0.020)	6,611 (2,443)	129,064 (15,512)

<sup>1</sup> 1987 data not reliable

Table 26.—Estimated catch per hour and number harvested of selected species and angler effort (hours) for the ice fishery on Keweenaw Bay, February through March, 1988-95. Bounds on the error of estimation in parentheses.

Year	Coho salmon		Chinook salmon		Lake trout		Siscowet <sup>1</sup>		Angler hours
	Catch per hour	Number harvested	Catch per hour	Number harvested	Catch per hour	Number harvested	Catch per hour	Number harvested	
1988	0.075 (0.030)	5,610 (2,061)	0.004 (0.003)	286 (225)	0.114 (0.035)	8,596 (2,306)			75,204 (11,044)
1989	0.004 (0.008)	320 (660)	0.007 (0.013)	552 (1,021)	0.320 (0.182)	26,446 (13,705)			82,713 (19,380)
1990 <sup>2</sup>	0.060 (0.041)	661 (413)	0.030 (0.035)	332 (373)					11,031 (2,951)
1991	0.062 (0.025)	5,774 (1,998)	0.007 (0.005)	683 (442)	0.048 (0.019)	4,414 (1,521)	0.106 (0.035)	9,776 (2,570)	92,480 (18,268)
1992	0.019 (0.022)	643 (739)	0.020 (0.022)	686 (761)	0.076 (0.074)	2,609 (2,505)	0.054 (0.023)	1,842 (740)	34,427 (5,228)
1993	0.055 (0.016)	3,496 (922)	0.015 (0.008)	965 (472)	0.043 (0.012)	2,748 (658)	0.084 (0.020)	5,374 (1,071)	64,148 (8,639)
1994 <sup>3</sup>	0.063 (0.016)	6,168 (1,372)	0.003 (0.003)	248 (247)	0.024 (0.010)	2,378 (890)	0.173 (0.037)	16,891 (2,907)	97,517 (12,247)
1995 <sup>4</sup>	0.057 (0.034)	2,211 (893)	0.003 (0.003)	98 (86)	0.010 (0.009)	384 (293)	0.021 (0.017)	810 (531)	39,135 (17,733)

<sup>1</sup> Siscowet lake trout were differentiated from lean lake trout beginning with the 1991 season.

<sup>2</sup> During 1990 only the month of March was surveyed due to poor ice conditions caused by mild winter weather.

<sup>3</sup> January through the middle of April.

<sup>4</sup> February through March.

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Report approved Richard D. Clark, Jr.  
James S. Diana, Editor  
Alan D. Sutton, Graphics  
Barbara A. Diana, Word Processor

Appendix 1.—Estimated catch per hour, number caught, and effort (angler hours, trips, and days) for New Buffalo by all modes (non-charter) of sportfishing, 1994. Bounds on the error of estimation in parentheses.

Species	Catch per hour	Month								Season
		Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0737 (0.0346)	923 (886)	2,930 (1,508)	174 (215)	67 (135)	192 (265)	0 (0)	18 (44)	0 (0)	4,304 (1,788)
Chinook salmon	0.0035 (0.0028)	4 (11)	66 (109)	57 (81)	66 (77)	14 (30)	0 (0)	0 (0)	0 (0)	207 (159)
Rainbow trout	0.0114 (0.0092)	36 (63)	334 (425)	152 (164)	33 (68)	112 (233)	0 (0)	0 (0)	0 (0)	667 (520)
Brown trout	0.0031 (0.0031)	31 (44)	138 (169)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	14 (30)	183 (177)
Lake trout	0.0091 (0.0078)	0 (0)	0 (0)	338 (364)	112 (204)	56 (116)	0 (0)	24 (59)	0 (0)	530 (437)
Yellow perch	1.2340 (0.5717)	0 (0)	0 (0)	1,196 (1,891)	5,894 (4,607)	38,820 (25,538)	11,107 (10,645)	15,018 (8,745)	0 (0)	72,035 (29,441)
Total	1.3350 (0.5833)	994 (889)	3,468 (1,580)	1,917 (1,946)	6,172 (4,615)	39,194 (25,541)	11,107 (10,645)	15,060 (8,745)	14 (30)	77,926 (29,504)
Angler hours		2,598 (1,441)	6,587 (3,331)	6,395 (4,684)	13,145 (3,929)	16,847 (8,972)	5,847 (3,375)	6,278 (4,432)	676 (188)	58,373 (12,732)
Angler trips		1,129 (473)	2,401 (989)	1,183 (855)	2,716 (852)	3,533 (1,821)	1,106 (601)	1,275 (833)	364 (114)	13,707 (2,654)
Angler days		1,129 (473)	2,401 (989)	1,183 (855)	2,716 (852)	3,435 (1,802)	1,106 (601)	1,275 (833)	364 (114)	13,609 (2,641)

Appendix 2.—Estimated catch per hour, number caught, and effort (angler hours, trips, and days) for St. Joseph-Benton Harbor by all modes (non-charter) of sportfishing, 1994. Bounds on the error of estimation in parentheses.

Species	Catch per hour	Month								Season
		Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0235 (0.0086)	2,924 (1,120)	1,620 (1,112)	516 (626)	55 (111)	18 (37)	0 (0)	0 (0)	0 (0)	5,133 (1,702)
Chinook salmon	0.0092 (0.0056)	17 (28)	341 (495)	1,114 (973)	516 (475)	0 (0)	0 (0)	0 (0)	28 (51)	2,016 (1,192)
Rainbow trout	0.0091 (0.0060)	51 (72)	78 (175)	594 (1,111)	187 (211)	136 (138)	653 (451)	194 (256)	87 (80)	1,980 (1,268)
Atlantic salmon	0.0003 (0.0007)	0 (0)	67 (158)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	67 (158)
Brown trout	0.0039 (0.0042)	237 (213)	175 (188)	421 (844)	0 (0)	0 (0)	0 (0)	0 (0)	10 (24)	843 (891)
Lake trout	0.0075 (0.0043)	0 (0)	0 (0)	479 (624)	259 (324)	508 (362)	276 (391)	125 (264)	0 (0)	1,647 (921)
White sucker	0.0000 (0.0000)	10 (15)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	10 (15)
Channel catfish	0.0017 (0.0025)	0 (0)	0 (0)	57 (66)	0 (0)	0 (0)	70 (152)	235 (510)	0 (0)	362 (536)
Yellow perch	0.6970 (0.2478)	6,100 (3,124)	13,506 (5,561)	20,351 (17,341)	33,795 (20,891)	31,116 (17,275)	3,480 (3,999)	39,989 (35,526)	3,771 (5,790)	152,108 (48,866)
Freshwater drum	0.0024 (0.0023)	0 (0)	0 (0)	109 (87)	259 (447)	93 (139)	70 (142)	0 (0)	0 (0)	531 (497)
Other	0.0002 (0.0003)	0 (0)	6 (12)	31 (47)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	37 (49)
Total	0.7548 (0.2520)	9,339 (3,326)	15,793 (5,701)	23,672 (17,447)	35,071 (20,905)	31,871 (17,280)	4,549 (4,049)	40,543 (35,532)	3,896 (5,791)	164,734 (48,949)
Angler hours		8,821 (1,641)	24,590 (10,472)	54,831 (21,223)	39,464 (10,505)	42,451 (14,094)	18,944 (7,542)	23,546 (12,989)	5,597 (2,532)	218,244 (33,223)
Angler trips		2,960 (617)	7,364 (3,123)	10,742 (3,612)	7,582 (1,896)	8,587 (2,737)	4,695 (2,274)	5,224 (2,337)	1,833 (618)	48,987 (6,729)
Angler days		2,960 (617)	7,350 (3,122)	10,742 (3,612)	7,582 (1,896)	8,587 (2,737)	4,695 (2,274)	5,224 (2,337)	1,833 (618)	48,973 (6,729)



Appendix 3.—Estimated catch per hour, number caught, and effort (angler hours, trips, and days) for South Haven by all modes (non-charter) of sportfishing, 1994. Bounds on the error of estimation in parentheses.

Species	Catch per hour	Month							Season
		Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0043 (0.0030)	939 (718)	24 (52)	95 (105)	35 (56)	0 (0)	24 (37)	0 (0)	1,117 (731)
Chinook salmon	0.0033 (0.0016)	116 (129)	198 (209)	263 (210)	51 (64)	154 (120)	89 (125)	0 (0)	871 (372)
Rainbow trout	0.0015 (0.0008)	48 (63)	34 (50)	87 (81)	27 (28)	24 (32)	22 (38)	156 (143)	398 (192)
Brown trout	0.0024 (0.0012)	194 (149)	98 (89)	16 (34)	18 (30)	58 (74)	158 (196)	81 (68)	623 (284)
Lake trout	0.0090 (0.0038)	0 (0)	157 (156)	883 (553)	549 (352)	654 (488)	108 (107)	0 (0)	2,351 (839)
Channel catfish	0.0003 (0.0003)	0 (0)	0 (0)	0 (0)	0 (0)	50 (75)	35 (49)	0 (0)	85 (90)
Yellow perch	5.3875 (2.2570)	775,919 (404,647)	355,317 (270,608)	71,813 (30,068)	79,666 (45,653)	34,164 (29,660)	83,227 (52,981)	13,899 (13,660)	1,414,005 (493,791)
Other	0.0000 (0.0000)	0 (0)	5 (10)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	5 (10)
Total	5.4083 (2.2597)	777,216 (404,648)	355,833 (270,608)	73,157 (30,074)	80,346 (45,654)	35,104 (29,664)	83,663 (52,982)	14,136 (13,661)	1,419,455 (493,793)
Angler hours		97,657 (46,806)	46,913 (29,842)	41,713 (15,768)	25,264 (9,626)	20,642 (12,578)	18,610 (9,589)	11,660 (4,018)	262,459 (60,737)
Angler trips		24,603 (10,642)	10,117 (6,008)	8,573 (3,119)	5,896 (2,201)	4,319 (2,426)	3,846 (1,993)	3,024 (1,030)	60,378 (13,223)
Angler days		23,072 (10,275)	9,719 (5,884)	8,311 (3,050)	5,658 (2,119)	4,145 (2,398)	3,716 (1,952)	2,847 (1,000)	57,468 (12,828)

Appendix 4.—Estimated catch per hour, number caught, and effort (angler hours, trips, and days) for Holland by all modes (non-charter) of sportfishing, 1994. Bounds on the error of estimation in parentheses.

Species	Catch per hour	Month							Season
		Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0074 (0.0062)	402 (582)	219 (230)	0 (0)	73 (89)	68 (105)	15 (23)	6 (13)	783 (641)
Chinook salmon	0.0201 (0.0104)	208 (342)	933 (819)	435 (471)	165 (162)	131 (120)	245 (237)	17 (39)	2,134 (1,053)
Rainbow trout	0.0173 (0.0091)	29 (28)	812 (682)	260 (293)	201 (149)	352 (514)	137 (94)	44 (59)	1,835 (922)
Brown trout	0.0086 (0.0060)	300 (370)	544 (486)	14 (29)	0 (0)	0 (0)	51 (75)	4 (10)	913 (616)
Lake trout	0.0378 (0.0151)	0 (0)	1,085 (952)	559 (410)	1,677 (825)	562 (623)	125 (125)	0 (0)	4,008 (1,469)
Smallmouth bass	0.0004 (0.0006)	0 (0)	0 (0)	0 (0)	44 (64)	0 (0)	0 (0)	0 (0)	44 (64)
Largemouth bass	0.0001 (0.0002)	0 (0)	0 (0)	0 (0)	14 (28)	0 (0)	0 (0)	0 (0)	14 (28)
Yellow perch	0.6003 (0.2298)	1,632 (1,374)	1,512 (943)	18,434 (5,744)	15,135 (12,817)	13,227 (13,525)	13,287 (10,393)	361 (523)	63,588 (22,164)
Walleye	0.0006 (0.0007)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	45 (59)	14 (24)	59 (64)
Freshwater drum	0.0000 (0.0000)	0 (0)	0 (0)	0 (0)	5 (11)	0 (0)	0 (0)	0 (0)	5 (11)
Other	0.0009 (0.0018)	0 (0)	0 (0)	0 (0)	0 (0)	97 (197)	0 (0)	0 (0)	97 (197)
Total	0.6937 (0.2372)	2,571 (1,575)	5,105 (1,795)	19,702 (5,785)	17,314 (12,846)	14,437 (13,551)	13,905 (10,397)	446 (529)	73,480 (22,275)
Angler hours		4,320 (1,729)	18,504 (10,758)	26,898 (5,702)	23,313 (6,537)	17,410 (6,733)	12,737 (6,201)	2,738 (1,688)	105,920 (16,751)
Angler trips		2,232 (771)	5,034 (2,148)	7,751 (1,605)	7,006 (1,773)	4,642 (1,526)	3,333 (1,314)	1,171 (664)	31,169 (3,927)
Angler days		1,945 (721)	4,671 (2,065)	6,813 (1,497)	6,316 (1,626)	4,114 (1,439)	3,153 (1,267)	1,063 (607)	28,075 (3,703)

Appendix 5.—Estimated catch per hour, number caught, and effort (angler hours, trips, and days) for Grand Haven by all modes (non-charter) of sportfishing, 1994. Bounds on the error of estimation in parentheses.

Species	Catch per hour	Month							Season
		Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0012 (0.0011)	72 (60)	88 (162)	6 (11)	0 (0)	0 (0)	25 (55)	17 (34)	208 (185)
Chinook salmon	0.0174 (0.0067)	68 (89)	834 (667)	1,120 (673)	188 (194)	388 (378)	427 (337)	24 (54)	3,049 (1,097)
Rainbow trout	0.0118 (0.0062)	164 (113)	551 (762)	742 (550)	101 (150)	218 (402)	71 (99)	231 (140)	2,078 (1,053)
Brown trout	0.0083 (0.0046)	340 (170)	913 (730)	101 (149)	86 (133)	0 (0)	20 (41)	0 (0)	1,460 (777)
Lake trout	0.0194 (0.0106)	0 (0)	916 (909)	1,555 (1,439)	546 (497)	330 (340)	60 (91)	8 (17)	3,415 (1,808)
Channel catfish	0.0028 (0.0020)	5 (10)	65 (106)	144 (219)	226 (237)	41 (81)	14 (29)	0 (0)	495 (351)
Pumpkinseed	0.0004 (0.0007)	0 (0)	0 (0)	0 (0)	70 (119)	0 (0)	0 (0)	0 (0)	70 (119)
Bluegill	0.0025 (0.0046)	0 (0)	0 (0)	0 (0)	428 (816)	13 (27)	0 (0)	0 (0)	441 (816)
Smallmouth bass	0.0002 (0.0003)	0 (0)	0 (0)	0 (0)	0 (0)	34 (48)	0 (0)	0 (0)	34 (48)
Yellow perch	0.6780 (0.2113)	1,054 (817)	1,074 (960)	87,412 (29,809)	17,573 (12,498)	5,037 (4,168)	6,476 (7,053)	480 (531)	119,106 (33,373)
Freshwater drum	0.0025 (0.0026)	0 (0)	0 (0)	0 (0)	446 (461)	0 (0)	0 (0)	0 (0)	446 (461)
Lake whitefish	0.0000 (0.0000)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	5 (11)	5 (11)
Round whitefish	0.0003 (0.0003)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	44 (46)	44 (46)
Total	0.7449 (0.2160)	1,703 (849)	4,441 (1,829)	91,080 (29,858)	19,664 (12,549)	6,061 (4,219)	7,093 (7,063)	809 (555)	130,851 (33,482)
Angler hours		9,935 (1,666)	22,375 (9,466)	54,236 (14,878)	36,509 (12,058)	27,859 (9,386)	18,174 (5,012)	6,579 (1,491)	175,667 (23,970)
Angler trips		2,947 (532)	4,750 (1,685)	12,183 (2,926)	8,395 (2,201)	6,605 (1,815)	4,307 (1,089)	1,795 (396)	40,982 (4,601)
Angler days		2,673 (505)	4,575 (1,648)	12,160 (2,926)	8,370 (2,200)	6,593 (1,815)	4,307 (1,089)	1,795 (396)	40,473 (4,584)

Appendix 6.—Estimated catch per hour, number caught, and effort (angler hours, trips, and days) for Muskegon by all modes (non-charter) of sportfishing, 1994. Bounds on the error of estimation in parentheses.

Species	Catch per hour	Month							Season
		Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0036 (0.0028)	12 (25)	256 (250)	59 (97)	13 (27)	18 (37)	0 (0)	0 (0)	358 (273)
Chinook salmon	0.0157 (0.0069)	0 (0)	433 (320)	484 (448)	130 (142)	188 (190)	277 (170)	41 (83)	1,553 (629)
Rainbow trout	0.0194 (0.0101)	86 (96)	207 (179)	743 (776)	303 (317)	310 (327)	223 (186)	44 (48)	1,916 (942)
Brown trout	0.0158 (0.0098)	701 (796)	669 (443)	68 (147)	19 (42)	43 (63)	63 (83)	0 (0)	1,563 (930)
Lake trout	0.0234 (0.0123)	41 (88)	797 (512)	1,196 (985)	241 (266)	31 (50)	10 (19)	0 (0)	2,316 (1,146)
Northern pike	0.0004 (0.0006)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	37 (59)	37 (59)
Channel catfish	0.0001 (0.0002)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	12 (26)	12 (26)
Pumpkinseed	0.0031 (0.0039)	0 (0)	221 (338)	87 (183)	0 (0)	0 (0)	0 (0)	0 (0)	308 (384)
Bluegill	0.0009 (0.0014)	0 (0)	86 (131)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	86 (131)
Smallmouth bass	0.0001 (0.0002)	0 (0)	0 (0)	0 (0)	9 (22)	0 (0)	0 (0)	0 (0)	9 (22)
Yellow perch	0.3634 (0.1941)	929 (1,291)	3,897 (3,001)	21,118 (17,184)	3,913 (3,369)	1,913 (2,015)	3,251 (2,599)	963 (909)	35,984 (18,137)
Walleye	0.0015 (0.0030)	0 (0)	0 (0)	0 (0)	142 (295)	5 (11)	0 (0)	0 (0)	147 (295)
Lake whitefish	0.0002 (0.0004)	16 (35)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	16 (35)
Round whitefish	0.0005 (0.0011)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	45 (101)	45 (101)
Total	0.4479 (0.2005)	1,785 (1,523)	6,566 (3,129)	23,755 (17,237)	4,770 (3,411)	2,508 (2,052)	3,824 (2,613)	1,142 (922)	44,350 (18,241)
Angler hours		18,453 (7,266)	20,220 (3,999)	25,256 (12,403)	10,004 (6,104)	7,510 (4,677)	13,340 (4,637)	4,234 (1,673)	99,017 (17,494)
Angler trips		5,467 (2,100)	4,565 (947)	6,076 (2,853)	2,080 (1,177)	1,609 (970)	2,476 (913)	1,302 (461)	23,575 (4,101)
Angler days		4,858 (1,969)	4,480 (948)	6,076 (2,853)	2,080 (1,177)	1,593 (961)	2,465 (912)	1,289 (461)	22,841 (4,033)

Appendix 7.—Estimated catch per hour, number caught, and effort (angler hours, trips, and days) for Ludington by all modes (non-charter) of sportfishing, 1994. Bounds on the error of estimation in parentheses.

Species	Catch per hour	Month							Season
		Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0044 (0.0023)	0 (0)	9 (16)	20 (31)	11 (23)	418 (261)	233 (198)	14 (19)	705 (331)
Chinook salmon	0.0210 (0.0083)	45 (77)	13 (25)	142 (137)	165 (156)	2,151 (983)	784 (481)	56 (85)	3,356 (1,120)
Rainbow trout	0.0180 (0.0074)	40 (48)	55 (87)	262 (245)	535 (556)	1,219 (717)	346 (251)	410 (273)	2,867 (1,015)
Brown trout	0.0269 (0.0121)	2,628 (1,324)	1,024 (1,014)	69 (94)	174 (154)	197 (154)	38 (46)	163 (254)	4,293 (1,704)
Lake trout	0.0136 (0.0083)	0 (0)	93 (139)	115 (108)	1,338 (1,171)	609 (355)	14 (21)	0 (0)	2,169 (1,236)
Northern pike	0.0001 (0.0002)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	14 (31)	0 (0)	14 (31)
Rockbass	0.0007 (0.0016)	0 (0)	102 (241)	3 (6)	0 (0)	0 (0)	0 (0)	0 (0)	105 (241)
Bluegill	0.0002 (0.0004)	0 (0)	33 (77)	3 (6)	0 (0)	0 (0)	0 (0)	0 (0)	36 (77)
Yellow perch	0.1612 (0.0835)	0 (0)	1,074 (1,535)	13,954 (8,819)	9,148 (8,017)	1,193 (1,636)	354 (518)	0 (0)	25,723 (12,139)
Round whitefish	0.0006 (0.0007)	14 (31)	0 (0)	68 (111)	0 (0)	0 (0)	0 (0)	15 (31)	97 (119)
Total	0.2468 (0.0941)	2,727 (1,327)	2,403 (1,864)	14,636 (8,825)	11,371 (8,124)	5,787 (2,092)	1,783 (778)	658 (384)	39,365 (12,420)
Angler hours		13,072 (5,484)	7,630 (5,614)	20,776 (10,532)	29,909 (19,258)	61,903 (22,894)	20,412 (9,630)	5,823 (2,555)	159,525 (34,158)
Angler trips		4,047 (1,610)	2,313 (1,512)	6,017 (2,540)	8,094 (4,221)	11,676 (4,034)	4,372 (1,920)	1,622 (633)	38,141 (7,036)
Angler days		3,373 (1,381)	1,840 (1,231)	5,115 (2,239)	6,751 (3,694)	9,376 (3,296)	3,496 (1,567)	1,372 (589)	31,323 (5,979)

Appendix 8.—Estimated catch per hour, number caught, and effort (angler hours, trips, and days) for Manistee by all modes (non-charter) of sportfishing, 1994. Bounds on the error of estimation in parentheses.

Species	Catch per hour	Month							Season
		Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0034 (0.0021)	8 (12)	6 (12)	0 (0)	0 (0)	137 (147)	225 (160)	119 (189)	495 (288)
Chinook salmon	0.0164 (0.0088)	102 (105)	18 (28)	87 (102)	206 (262)	1,584 (1,070)	318 (227)	52 (121)	2,367 (1,141)
Rainbow trout	0.0134 (0.0071)	74 (92)	66 (73)	598 (716)	161 (219)	325 (253)	105 (99)	608 (431)	1,937 (913)
Brown trout	0.0496 (0.0194)	4,223 (1,765)	995 (522)	1,248 (1,129)	237 (327)	345 (317)	39 (42)	82 (162)	7,169 (2,213)
Brook trout	0.0003 (0.0006)	43 (80)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	43 (80)
Lake trout	0.0073 (0.0052)	0 (0)	103 (81)	268 (295)	429 (603)	257 (207)	0 (0)	0 (0)	1,057 (707)
Smallmouth bass	0.0002 (0.0004)	0 (0)	20 (41)	0 (0)	4 (9)	0 (0)	0 (0)	0 (0)	24 (42)
Yellow perch	0.0205 (0.0147)	10 (20)	2,123 (1,833)	611 (775)	134 (184)	83 (172)	0 (0)	0 (0)	2,961 (2,006)
Walleye	0.0003 (0.0006)	0 (0)	0 (0)	0 (0)	0 (0)	42 (86)	0 (0)	0 (0)	42 (86)
Lake whitefish	0.0001 (0.0002)	18 (37)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	18 (37)
Round whitefish	0.0038 (0.0026)	497 (344)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	57 (84)	554 (354)
Burbot	0.0009 (0.0013)	72 (148)	60 (116)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	132 (188)
Total	0.1162 (0.0366)	5,047 (1,812)	3,391 (1,913)	2,812 (1,576)	1,171 (788)	2,773 (1,188)	687 (298)	918 (519)	16,799 (3,438)
Angler hours		24,744 (6,907)	15,916 (6,067)	17,941 (13,369)	24,713 (25,117)	38,507 (16,333)	15,584 (5,311)	7,139 (3,013)	144,544 (34,614)
Angler trips		6,599 (1,770)	3,999 (1,476)	3,669 (2,356)	6,203 (5,684)	9,244 (3,585)	3,695 (1,113)	1,790 (763)	35,199 (7,605)
Angler days		5,419 (1,525)	3,404 (1,296)	3,244 (2,174)	5,124 (4,809)	7,472 (2,945)	2,936 (910)	1,307 (509)	28,906 (6,451)

Appendix 9.—Estimated catch per hour, number caught, and effort (angler hours, trips, and days) for Onekama by all modes (non-charter) of sportfishing, 1994. Bounds on the error of estimation in parentheses.

Species	Catch per hour	Month							Season
		Apr	May	Jun	Jul	Aug	Sep	Oct	
Pink salmon	0.0012 (0.0019)	0 (0)	0 (0)	0 (0)	16 (34)	0 (0)	36 (75)	0 (0)	52 (82)
Coho salmon	0.0158 (0.0126)	22 (57)	0 (0)	0 (0)	24 (39)	144 (246)	491 (427)	1 (2)	682 (498)
Chinook salmon	0.0189 (0.0124)	0 (0)	0 (0)	39 (81)	268 (247)	296 (323)	214 (213)	0 (0)	817 (466)
Rainbow trout	0.0151 (0.0106)	24 (41)	27 (63)	101 (166)	94 (115)	291 (305)	112 (160)	2 (5)	651 (406)
Brown trout	0.0156 (0.0149)	505 (583)	15 (36)	5 (10)	139 (165)	0 (0)	0 (0)	12 (18)	676 (607)
Lake trout	0.0223 (0.0166)	0 (0)	70 (163)	29 (54)	446 (398)	374 (475)	46 (74)	0 (0)	965 (647)
Northern pike	0.0026 (0.0036)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	112 (149)	0 (0)	112 (149)
Yellow perch	0.0738 (0.0860)	0 (0)	0 (0)	3,079 (3,562)	111 (279)	0 (0)	0 (0)	0 (0)	3,190 (3,573)
Round whitefish	0.0020 (0.0030)	0 (0)	11 (27)	32 (54)	45 (113)	0 (0)	0 (0)	0 (0)	88 (128)
Total	0.1673 (0.1024)	551 (587)	123 (180)	3,285 (3,568)	1,143 (594)	1,105 (695)	1,011 (535)	15 (19)	7,233 (3,772)
Angler hours		4,133 (2,854)	3,120 (2,946)	4,648 (4,165)	9,377 (7,083)	12,302 (9,235)	9,416 (4,695)	248 (208)	43,244 (13,846)
Angler trips		1,139 (638)	883 (774)	877 (784)	1,573 (1,052)	2,449 (1,602)	1,899 (923)	128 (108)	8,948 (2,481)
Angler days		837 (496)	741 (671)	835 (751)	1,417 (985)	2,050 (1,369)	1,446 (723)	95 (81)	7,421 (2,153)

Appendix 10.—Estimated catch per hour, number caught, and effort (angler hours, trips, and days) for Franfort by all modes (non-charter) of sportfishing, 1994. Bounds on the error of estimation in parentheses.

Species	Catch per hour	Month							Season
		Apr	May	Jun	Jul	Aug	Sep	Oct	
Pink salmon	0.0001 (0.0002)	0 (0)	0 (0)	0 (0)	7 (16)	0 (0)	15 (31)	0 (0)	22 (35)
Coho salmon	0.0247 (0.0142)	54 (144)	14 (29)	34 (49)	43 (52)	1,594 (661)	3,701 (2,364)	50 (80)	5,490 (2,461)
Chinook salmon	0.0119 (0.0056)	0 (0)	4 (8)	156 (133)	439 (290)	1,434 (605)	619 (451)	0 (0)	2,652 (819)
Rainbow trout	0.0211 (0.0098)	286 (300)	22 (31)	1,483 (797)	1,334 (960)	928 (377)	395 (325)	250 (137)	4,698 (1,384)
Brown trout	0.0410 (0.0481)	6,575 (10,143)	823 (439)	872 (547)	294 (200)	329 (174)	197 (189)	19 (25)	9,109 (10,172)
Lake trout	0.0186 (0.0088)	0 (0)	397 (314)	1,303 (850)	1,244 (799)	1,141 (450)	51 (72)	0 (0)	4,136 (1,291)
Northern pike	0.0001 (0.0002)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	33 (57)	0 (0)	33 (57)
Smallmouth bass	0.0002 (0.0004)	0 (0)	0 (0)	0 (0)	33 (70)	6 (14)	0 (0)	0 (0)	39 (71)
Yellow perch	0.0007 (0.0011)	0 (0)	0 (0)	127 (221)	22 (47)	0 (0)	0 (0)	0 (0)	149 (226)
Freshwater drum	0.0001 (0.0002)	0 (0)	0 (0)	0 (0)	29 (63)	0 (0)	0 (0)	0 (0)	29 (63)
Round whitefish	0.0071 (0.0054)	8 (16)	0 (0)	0 (0)	0 (0)	286 (576)	0 (0)	1,281 (902)	1,575 (1,070)
Burbot	0.0006 (0.0008)	0 (0)	84 (153)	38 (56)	0 (0)	8 (18)	0 (0)	0 (0)	130 (164)
Total	0.1262 (0.0660)	6,923 (10,148)	1,344 (563)	4,013 (1,315)	3,445 (1,303)	5,726 (1,229)	5,011 (2,438)	1,600 (916)	28,062 (10,725)
Angler hours		50,000 (70,879)	10,103 (4,009)	22,445 (8,495)	38,579 (17,840)	47,680 (13,609)	45,945 (26,031)	7,596 (2,107)	222,348 (79,357)
Angler trips		12,083 (15,947)	2,898 (980)	4,865 (1,614)	8,737 (3,302)	9,526 (2,501)	9,812 (5,313)	2,547 (771)	50,468 (17,431)
Angler days		9,340 (12,782)	2,043 (730)	3,987 (1,373)	6,869 (2,644)	7,518 (2,027)	7,589 (4,212)	1,664 (520)	39,010 (13,961)



Appendix 11.—Estimated catch per hour, number caught, and effort (angler hours, trips, and days) for the West Arm of Grand Traverse Bay by all modes (non-charter) of sportfishing, 1994. Bounds on the error of estimation in parentheses.

Species	Catch per hour	Month							Season
		Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0011 (0.0010)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	28 (40)	52 (62)	80 (74)
Chinook salmon	0.0107 (0.0055)	0 (0)	0 (0)	0 (0)	242 (284)	22 (44)	428 (258)	121 (124)	813 (406)
Rainbow trout	0.0090 (0.0048)	382 (265)	20 (42)	0 (0)	67 (135)	0 (0)	0 (0)	215 (192)	684 (356)
Brown trout	0.0099 (0.0083)	296 (310)	368 (533)	11 (23)	0 (0)	0 (0)	29 (59)	46 (57)	750 (622)
Lake trout	0.0453 (0.0175)	0 (0)	653 (433)	818 (537)	1,193 (757)	767 (772)	11 (21)	0 (0)	3,442 (1,283)
Rainbow smelt	0.0003 (0.0006)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	25 (53)	25 (53)
White sucker	0.0003 (0.0006)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	25 (53)	25 (53)
Lake herring	0.0017 (0.0031)	127 (231)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	127 (231)
Smallmouth bass	0.0038 (0.0034)	0 (0)	0 (0)	0 (0)	91 (186)	0 (0)	76 (111)	124 (136)	291 (256)
Yellow perch	0.0419 (0.0340)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	2,856 (2,553)	332 (232)	3,188 (2,564)
Lake whitefish	0.0040 (0.0048)	0 (0)	253 (350)	0 (0)	51 (103)	0 (0)	0 (0)	0 (0)	304 (365)
Round whitefish	0.0058 (0.0049)	9 (19)	0 (0)	0 (0)	0 (0)	89 (131)	0 (0)	342 (344)	440 (369)
Burbot	0.0044 (0.0065)	0 (0)	298 (497)	9 (18)	0 (0)	31 (63)	0 (0)	0 (0)	338 (501)
Total	0.1382 (0.0431)	814 (469)	1,592 (918)	838 (538)	1,644 (847)	909 (787)	3,428 (2,569)	1,282 (506)	10,507 (3,089)
Angler hours		8,166 (1,275)	7,488 (2,054)	9,617 (2,605)	18,421 (4,935)	13,877 (3,501)	14,568 (3,485)	3,888 (688)	76,025 (7,865)
Angler trips		2,580 (455)	2,275 (638)	2,199 (634)	5,528 (1,490)	3,617 (987)	3,685 (902)	1,104 (222)	20,988 (2,252)
Angler days		1,753 (343)	2,144 (637)	1,886 (582)	5,176 (1,446)	3,033 (886)	2,974 (738)	953 (209)	17,919 (2,080)

Appendix 12.—Estimated catch per hour, number caught, and effort (angler hours, trips, and days) for the East Arm of Grand Traverse Bay by all modes (non-charter) of sportfishing, 1994. Bounds on the error of estimation in parentheses.

Species	Catch per hour	Month							Season
		Apr	May	Jun	Jul	Aug	Sep	Oct	
Chinook salmon	0.0058 (0.0035)	17 (24)	0 (0)	0 (0)	67 (98)	20 (27)	158 (129)	71 (110)	333 (199)
Rainbow trout	0.0124 (0.0114)	584 (648)	8 (15)	0 (0)	0 (0)	0 (0)	14 (29)	110 (109)	716 (658)
Brown trout	0.0549 (0.0189)	2,191 (940)	411 (286)	96 (175)	226 (206)	31 (64)	71 (94)	130 (251)	3,156 (1,056)
Lake trout	0.0201 (0.0100)	0 (0)	61 (85)	132 (118)	536 (472)	389 (276)	39 (65)	0 (0)	1,157 (570)
White sucker	0.0007 (0.0014)	0 (0)	0 (0)	39 (78)	0 (0)	0 (0)	0 (0)	0 (0)	39 (78)
Channel catfish	0.0005 (0.0010)	0 (0)	0 (0)	0 (0)	29 (58)	0 (0)	0 (0)	0 (0)	29 (58)
Lake herring	0.0014 (0.0014)	0 (0)	54 (66)	21 (42)	0 (0)	0 (0)	0 (0)	7 (14)	82 (79)
Smallmouth bass	0.0297 (0.0200)	0 (0)	0 (0)	541 (656)	912 (914)	93 (123)	164 (168)	0 (0)	1,710 (1,144)
Yellow perch	0.0658 (0.0384)	0 (0)	60 (82)	375 (431)	0 (0)	370 (533)	2,505 (1,941)	474 (732)	3,784 (2,186)
Freshwater drum	0.0006 (0.0012)	0 (0)	0 (0)	0 (0)	34 (68)	0 (0)	0 (0)	0 (0)	34 (68)
Lake whitefish	0.0633 (0.0232)	0 (0)	1,298 (700)	1,079 (941)	17 (34)	169 (197)	0 (0)	1,077 (531)	3,640 (1,303)
Round whitefish	0.0095 (0.0087)	53 (109)	42 (61)	133 (251)	0 (0)	14 (28)	303 (408)	0 (0)	545 (496)
Burbot	0.0020 (0.0030)	0 (0)	43 (89)	0 (0)	0 (0)	72 (145)	0 (0)	0 (0)	115 (170)
Total	0.2667 (0.0590)	2,845 (1,147)	1,977 (776)	2,416 (1,272)	1,821 (1,058)	1,158 (664)	3,254 (1,998)	1,869 (951)	15,340 (3,161)
Angler hours		5,354 (1,976)	6,591 (1,713)	8,745 (1,398)	11,938 (2,309)	13,915 (2,183)	5,684 (1,167)	5,300 (1,133)	57,527 (4,641)
Angler trips		1,710 (910)	1,579 (426)	2,241 (415)	3,345 (687)	3,323 (603)	1,391 (299)	1,561 (366)	15,150 (1,497)
Angler days		1,392 (757)	1,466 (413)	2,076 (415)	3,345 (687)	2,547 (566)	1,332 (296)	1,369 (324)	13,527 (1,379)

Appendix 13.—Estimated catch per hour, number caught, and effort (angler hours, trips, and days) for Elk Rapids by all modes (non-charter) of sportfishing, 1994. Bounds on the error of estimation in parentheses.

Species	Catch per hour	Month							Season
		Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0015 (0.0023)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	63 (98)	63 (98)
Chinook salmon	0.0032 (0.0032)	7 (15)	0 (0)	0 (0)	0 (0)	0 (0)	25 (51)	105 (125)	137 (136)
Rainbow trout	0.0204 (0.0085)	250 (192)	320 (198)	13 (27)	48 (98)	67 (135)	0 (0)	163 (136)	861 (351)
Brown trout	0.0272 (0.0160)	0 (0)	47 (97)	0 (0)	139 (142)	265 (220)	128 (132)	570 (596)	1,149 (671)
Lake trout	0.0015 (0.0023)	0 (0)	0 (0)	0 (0)	64 (96)	0 (0)	0 (0)	0 (0)	64 (96)
White sucker	0.0004 (0.0008)	0 (0)	16 (32)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	16 (32)
Channel catfish	0.0022 (0.0026)	0 (0)	0 (0)	42 (85)	51 (68)	0 (0)	0 (0)	0 (0)	93 (109)
Lake herring	0.0021 (0.0031)	0 (0)	87 (127)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	87 (127)
Smallmouth bass	0.0861 (0.0666)	0 (0)	0 (0)	2,896 (2,710)	708 (693)	33 (66)	0 (0)	0 (0)	3,637 (2,798)
Yellow perch	0.0437 (0.0380)	175 (351)	1,289 (1,414)	382 (651)	0 (0)	0 (0)	0 (0)	0 (0)	1,846 (1,596)
Freshwater drum	0.0100 (0.0197)	0 (0)	0 (0)	406 (831)	16 (33)	0 (0)	0 (0)	0 (0)	422 (832)
Lake whitefish	0.0049 (0.0073)	0 (0)	123 (252)	85 (178)	0 (0)	0 (0)	0 (0)	0 (0)	208 (309)
Round whitefish	0.0007 (0.0014)	0 (0)	31 (64)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	31 (64)
Total	0.2040 (0.0832)	432 (400)	1,913 (1,460)	3,824 (2,915)	1,026 (725)	365 (266)	153 (142)	901 (632)	8,614 (3,436)
Angler hours		4,429 (738)	5,358 (1,189)	9,341 (2,130)	8,941 (1,711)	4,893 (1,108)	4,284 (1,007)	4,978 (1,001)	42,224 (3,559)
Angler trips		1,531 (378)	1,507 (364)	2,811 (709)	2,522 (538)	1,564 (404)	1,167 (360)	1,325 (434)	12,427 (1,244)
Angler days		991 (265)	1,029 (288)	2,309 (640)	2,009 (481)	1,163 (329)	814 (271)	971 (336)	9,286 (1,043)

Appendix 14.—Estimated catch per hour, number caught, and effort (angler hours, trips, and days) for Charlevoix by all modes (non-charter) of sportfishing, 1994. Bounds on the error of estimation in parentheses.

Species	Catch per hour	Month					Season
		May	Jun	Jul	Aug	Sep	
Coho salmon	0.0002 (0.0004)	0 (0)	0 (0)	8 (17)	0 (0)	0 (0)	8 (17)
Chinook salmon	0.0208 (0.0098)	0 (0)	0 (0)	147 (217)	170 (148)	407 (199)	724 (330)
Rainbow trout	0.0017 (0.0023)	0 (0)	0 (0)	23 (32)	37 (75)	0 (0)	60 (82)
Brown trout	0.0033 (0.0035)	0 (0)	65 (63)	50 (103)	0 (0)	0 (0)	115 (121)
Lake trout	0.1233 (0.0361)	76 (60)	941 (374)	1,981 (851)	1,201 (672)	97 (108)	4,296 (1,154)
Channel catfish	0.0008 (0.0012)	0 (0)	0 (0)	0 (0)	0 (0)	29 (43)	29 (43)
Smallmouth bass	0.0034 (0.0049)	0 (0)	0 (0)	19 (39)	0 (0)	98 (163)	117 (168)
Yellow perch	0.0028 (0.0047)	99 (167)	0 (0)	0 (0)	0 (0)	0 (0)	99 (167)
Walleye	0.0008 (0.0016)	0 (0)	0 (0)	29 (59)	0 (0)	0 (0)	29 (59)
Burbot	0.0001 (0.0002)	0 (0)	4 (8)	0 (0)	0 (0)	0 (0)	4 (8)
Total	0.1573 (0.0399)	175 (177)	1,010 (379)	2,257 (888)	1,408 (692)	631 (282)	5,481 (1,234)
Angler hours		450 (293)	8,001 (1,402)	8,266 (2,279)	7,876 (2,321)	10,256 (1,983)	34,849 (4,070)
Angler trips		124 (81)	1,337 (254)	2,102 (605)	1,854 (563)	2,054 (422)	7,471 (965)
Angler days		124 (81)	1,022 (214)	2,053 (592)	1,854 (563)	1,853 (395)	6,906 (936)

Appendix 15.—Estimated catch per hour, number caught, and effort (angler hours, trips, and days) for Petoskey by all modes (non-charter) of sportfishing, 1994. Bounds on the error of estimation in parentheses.

Species	Catch per hour	Month					Season
		May	Jun	Jul	Aug	Sep	
Coho salmon	0.0006 (0.0011)	0 (0)	0 (0)	0 (0)	0 (0)	8 (15)	8 (15)
Chinook salmon	0.0058 (0.0049)	0 (0)	0 (0)	0 (0)	47 (46)	30 (45)	77 (64)
Rainbow trout	0.0002 (0.0004)	0 (0)	0 (0)	0 (0)	0 (0)	2 (4)	2 (4)
Brown trout	0.0016 (0.0027)	4 (8)	0 (0)	0 (0)	17 (35)	0 (0)	21 (36)
Lake trout	0.1162 (0.0330)	220 (151)	530 (285)	334 (141)	299 (140)	150 (122)	1,533 (398)
Channel catfish	0.0006 (0.0009)	0 (0)	0 (0)	3 (6)	5 (10)	0 (0)	8 (12)
Rockbass	0.0096 (0.0217)	0 (0)	0 (0)	0 (0)	127 (287)	0 (0)	127 (287)
Smallmouth bass	0.0205 (0.0254)	0 (0)	248 (330)	22 (45)	0 (0)	0 (0)	270 (333)
Yellow perch	0.0399 (0.0504)	0 (0)	0 (0)	0 (0)	347 (549)	179 (368)	526 (661)
Total	0.1950 (0.0712)	224 (151)	778 (436)	359 (148)	842 (638)	369 (391)	2,572 (891)
Angler hours		1,274 (469)	3,414 (707)	2,867 (609)	3,676 (995)	1,961 (484)	13,192 (1,522)
Angler trips		298 (119)	670 (159)	729 (162)	961 (262)	566 (134)	3,224 (390)
Angler days		298 (119)	652 (158)	683 (157)	945 (262)	563 (133)	3,141 (387)

Appendix 16.—Estimated catch per hour, number caught, and effort (angler hours, trips, and days) for the Bear River shore/pier fishery, 1994. Bounds on the error of estimation in parentheses.

Species	Catch per hour	Month					Season
		May	Jun	Jul	Aug	Sep	
Coho salmon	0.0029 (0.0047)	0 (0)	0 (0)	0 (0)	0 (0)	42 (68)	42 (68)
Chinook salmon	0.0167 (0.0147)	0 (0)	0 (0)	0 (0)	0 (0)	240 (210)	240 (210)
Rainbow trout	0.0778 (0.0278)	966 (351)	0 (0)	0 (0)	149 (156)	0 (0)	1,115 (384)
Brook trout	0.0195 (0.0145)	135 (111)	101 (162)	0 (0)	24 (50)	20 (40)	280 (207)
Northern pike	0.0007 (0.0015)	0 (0)	10 (21)	0 (0)	0 (0)	0 (0)	10 (21)
White sucker	0.0810 (0.0705)	1,085 (992)	75 (152)	0 (0)	0 (0)	0 (0)	1,160 (1,004)
Channel catfish	0.0111 (0.0122)	0 (0)	0 (0)	159 (174)	0 (0)	0 (0)	159 (174)
Smallmouth bass	0.0033 (0.0052)	0 (0)	48 (76)	0 (0)	0 (0)	0 (0)	48 (76)
Yellow perch	0.0169 (0.0258)	0 (0)	0 (0)	152 (318)	90 (187)	0 (0)	242 (369)
Freshwater drum	0.0094 (0.0116)	0 (0)	3 (6)	71 (107)	60 (125)	0 (0)	134 (165)
Other	0.0052 (0.0106)	0 (0)	75 (152)	0 (0)	0 (0)	0 (0)	75 (152)
Total	0.2446 (0.0877)	2,186 (1,058)	312 (281)	382 (378)	323 (278)	302 (224)	3,505 (1,212)
Angler hours		5,431 (700)	1,662 (467)	2,381 (580)	1,961 (600)	2,894 (675)	14,329 (1,364)
Angler trips		1,966 (294)	751 (234)	1,302 (377)	945 (314)	986 (244)	5,950 (664)
Angler days		1,966 (294)	751 (234)	1,184 (370)	921 (308)	938 (237)	5,760 (655)

Appendix 17.—Estimated catch per hour, number caught, and effort (angler hours, trips, and days) for the Little Bay de Noc boat fishery (non-charter), 1994. Bounds on the error of estimation in parentheses.

Species	Catch per hour	Month							Season
		Apr	May	Jun	Jul	Aug	Sep	Oct	
Chinook salmon	0.0001 (0.0002)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	21 (43)	0 (0)	21 (43)
Brown trout	0.0037 (0.0032)	839 (720)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	839 (720)
Splake	0.0023 (0.0015)	483 (319)	0 (0)	0 (0)	0 (0)	36 (73)	0 (0)	0 (0)	519 (327)
Northern pike	0.0023 (0.0014)	0 (0)	107 (124)	111 (168)	0 (0)	114 (162)	110 (123)	82 (123)	524 (316)
White sucker	0.0026 (0.0030)	595 (689)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	595 (689)
Channel catfish	0.0002 (0.0004)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	45 (92)	45 (92)
Rockbass	0.0015 (0.0015)	0 (0)	62 (124)	116 (192)	128 (257)	0 (0)	16 (32)	28 (57)	350 (350)
Pumpkinseed	0.0002 (0.0004)	0 (0)	0 (0)	0 (0)	0 (0)	43 (88)	0 (0)	0 (0)	43 (88)
Smallmouth bass	0.0023 (0.0027)	0 (0)	246 (494)	103 (212)	97 (208)	0 (0)	0 (0)	68 (137)	514 (592)
Black crappie	0.0003 (0.0006)	58 (116)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	58 (116)
Yellow perch	0.0936 (0.0376)	3,510 (1,812)	135 (223)	5,583 (5,634)	4,206 (3,389)	2,320 (2,300)	5,257 (3,986)	217 (235)	21,228 (8,234)
Walleye	0.0928 (0.0223)	0 (0)	12,600 (3,943)	1,327 (955)	601 (767)	1,116 (633)	2,809 (1,293)	2,589 (1,374)	21,042 (4,583)
Total	0.2019 (0.0468)	5,485 (2,096)	13,150 (3,984)	7,240 (5,724)	5,032 (3,490)	3,629 (2,394)	8,213 (4,193)	3,029 (1,410)	45,778 (9,514)
Angler hours		21,221 (5,414)	45,859 (6,403)	32,776 (8,906)	48,233 (14,069)	21,411 (5,889)	23,990 (7,804)	33,237 (9,906)	226,727 (23,265)
Angler trips		6,115 (1,599)	9,935 (1,398)	8,421 (2,436)	11,942 (3,949)	6,288 (1,844)	5,130 (1,714)	7,122 (2,218)	54,953 (6,107)
Angler days		6,115 (1,599)	9,935 (1,398)	8,301 (2,399)	11,942 (3,949)	6,288 (1,844)	5,130 (1,714)	6,966 (2,194)	54,677 (6,084)

Appendix 18.—Estimated catch per hour, number caught, and effort (angler hours, trips, and days) for the Big Bay de Noc boat fishery (non-charter), 1994. Bounds on the error of estimation in parentheses.

Species	Catch per hour	Month						Season
		May	Jun	Jul	Aug	Sep	Oct	
Northern pike	0.0111 (0.0115)	98 (105)	0 (0)	328 (592)	41 (83)	48 (67)	176 (364)	691 (711)
Brown bullhead	0.0004 (0.0006)	0 (0)	0 (0)	27 (38)	0 (0)	0 (0)	0 (0)	27 (38)
Channel catfish	0.0003 (0.0006)	19 (38)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	19 (38)
Smallmouth bass	0.0566 (0.0257)	461 (391)	824 (600)	997 (864)	390 (709)	161 (329)	688 (718)	3,521 (1,545)
Yellow perch	0.0344 (0.0369)	1,058 (2,137)	124 (186)	444 (501)	366 (567)	147 (171)	0 (0)	2,139 (2,281)
Walleye	0.1323 (0.0518)	2,134 (1,545)	1,151 (1,114)	2,102 (1,055)	2,774 (2,167)	67 (96)	0 (0)	8,228 (3,073)
Total	0.2352 (0.0729)	3,770 (2,668)	2,099 (1,279)	3,898 (1,569)	3,571 (2,351)	423 (389)	864 (805)	14,625 (4,188)
Angler hours		13,393 (3,364)	12,338 (3,332)	13,137 (3,009)	13,782 (4,249)	6,106 (1,546)	3,421 (1,485)	62,177 (7,357)
Angler trips		3,450 (902)	3,268 (945)	3,385 (856)	4,354 (1,302)	1,265 (385)	932 (465)	16,654 (2,121)
Angler days		3,389 (896)	3,268 (945)	3,385 (856)	4,354 (1,302)	1,265 (385)	932 (465)	16,593 (2,119)



Appendix 19.—Estimated catch per hour, number caught, and effort (angler hours, trips, and days) for the Cedar River by all modes (non-charter) of sportfishing, 1994. Bounds on the error of estimation in parentheses.

Species	Catch per hour	Month							Season
		Apr	May	Jun	Jul	Aug	Sep	Oct	
Chinook salmon	0.0005 (0.0010)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	11 (22)	0 (0)	11 (22)
Rainbow trout	0.0022 (0.0025)	0 (0)	12 (26)	0 (0)	0 (0)	0 (0)	0 (0)	33 (43)	45 (50)
Brown trout	0.0033 (0.0034)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	18 (37)	50 (59)	68 (70)
Northern pike	0.0067 (0.0047)	0 (0)	9 (14)	35 (48)	46 (64)	22 (29)	26 (39)	0 (0)	138 (95)
Rockbass	0.0017 (0.0033)	0 (0)	0 (0)	34 (65)	0 (0)	0 (0)	0 (0)	0 (0)	34 (65)
Smallmouth bass	0.0160 (0.0092)	0 (0)	0 (0)	168 (145)	114 (100)	35 (48)	11 (17)	0 (0)	328 (183)
Yellow perch	0.0233 (0.0470)	0 (0)	0 (0)	0 (0)	9 (18)	469 (962)	0 (0)	0 (0)	478 (962)
Walleye	0.0110 (0.0059)	0 (0)	70 (55)	93 (78)	62 (67)	0 (0)	0 (0)	0 (0)	225 (117)
Freshwater drum	0.0004 (0.0008)	0 (0)	0 (0)	0 (0)	8 (16)	0 (0)	0 (0)	0 (0)	8 (16)
Other	0.0002 (0.0005)	0 (0)	0 (0)	4 (9)	0 (0)	0 (0)	0 (0)	0 (0)	4 (9)
Total	0.0653 (0.0494)	0 (0)	91 (62)	334 (184)	239 (138)	526 (964)	66 (61)	83 (73)	1,339 (998)
Angler hours		608 (279)	3,249 (875)	6,392 (2,044)	5,083 (1,162)	2,726 (700)	1,524 (361)	919 (360)	20,501 (2,669)
Angler trips		390 (213)	1,433 (411)	2,163 (731)	2,502 (632)	1,187 (352)	717 (177)	412 (168)	8,804 (1,154)
Angler days		390 (213)	1,433 (411)	2,156 (729)	2,502 (632)	1,187 (352)	701 (173)	403 (168)	8,772 (1,152)

Appendix 20.—Estimated catch per hour, number caught, and effort (angler hours, trips, and days) for the Cedar River Public Access boat fishery (non-charter), 1994. Bounds on the error of estimation in parentheses.

Species	Catch per hour	Month						Season
		Apr	May	Jun	Jul	Aug	Sep	
Chinook salmon	0.0238 (0.0167)	0 (0)	0 (0)	– (0)	121 (76)	238 (316)	145 (114)	504 (344)
Rainbow trout	0.0033 (0.0044)	0 (0)	0 (0)	– (0)	50 (86)	14 (28)	5 (9)	69 (91)
Brown trout	0.0845 (0.0375)	1,086 (652)	171 (162)	– (0)	182 (114)	257 (275)	92 (93)	1,788 (741)
Splake	0.0440 (0.0192)	581 (330)	101 (97)	– (0)	191 (144)	36 (52)	22 (37)	931 (378)
Northern pike	0.0094 (0.0123)	0 (0)	0 (0)	– (0)	0 (0)	128 (211)	71 (148)	199 (258)
Rockbass	0.0022 (0.0045)	0 (0)	0 (0)	– (0)	46 (93)	0 (0)	0 (0)	46 (93)
Smallmouth bass	0.0036 (0.0052)	0 (0)	0 (0)	– (0)	76 (109)	0 (0)	0 (0)	76 (109)
Yellow perch	0.7969 (0.4784)	0 (0)	0 (0)	– (0)	6,335 (4,710)	9,628 (8,457)	894 (1,258)	16,857 (9,762)
Walleye	0.0005 (0.0010)	0 (0)	0 (0)	– (0)	11 (23)	0 (0)	0 (0)	11 (23)
Total	0.9682 (0.4883)	1,667 (731)	272 (189)	– (0)	7,012 (4,717)	10,301 (8,470)	1,229 (1,276)	20,481 (9,808)
Angler hours		5,087 (1,382)	2,489 (1,405)	– (0)	6,532 (1,640)	4,889 (1,840)	2,156 (1,119)	21,153 (3,348)
Angler trips		1,443 (400)	569 (331)	– (0)	1,168 (296)	1,128 (435)	476 (276)	4,784 (789)
Angler days		1,421 (396)	559 (326)	– (0)	1,151 (293)	1,128 (435)	476 (276)	4,735 (784)

Appendix 21.—Estimated catch per hour, number caught, and effort (angler hours, trips, and days) for Stoney Point to Kleinke Park by all modes (non-charter) of sportfishing, 1994. Bounds on the error of estimation in parentheses.

Species	Catch per hour	Month				Season
		Apr	May	Jun	Jul	
Chinook salmon	0.0171 (0.0176)	0 (0)	— (0)	0 (0)	163 (160)	163 (160)
Brown trout	0.0903 (0.0830)	191 (152)	— (0)	0 (0)	668 (727)	859 (743)
Splake	0.0112 (0.0154)	107 (143)	— (0)	0 (0)	0 (0)	107 (143)
Northern pike	0.0055 (0.0118)	0 (0)	— (0)	0 (0)	52 (110)	52 (110)
Yellow perch	0.5191 (0.3303)	0 (0)	— (0)	2,730 (1,941)	2,209 (1,943)	4,939 (2,746)
Total	0.6432 (0.3602)	298 (209)	— (0)	2,730 (1,941)	3,092 (2,084)	6,120 (2,856)
Angler hours		1,335 (427)	— (0)	1,745 (615)	6,435 (2,849)	9,515 (2,946)
Angler trips		350 (133)	— (0)	546 (222)	1,548 (623)	2,444 (675)
Angler days		350 (133)	— (0)	546 (222)	1,522 (610)	2,418 (663)

Appendix 22.—Estimated catch per hour, number caught, and effort (angler hours, trips, and days) for the Menominee River by all modes (non-charter) of sportfishing, 1994. Bounds on the error of estimation in parentheses.

Species	Catch per hour	Month							Season
		Apr	May	Jun	Jul	Aug	Sep	Oct	
Chinook salmon	0.0044 (0.0043)	0 (0)	0 (0)	0 (0)	0 (0)	212 (444)	174 (151)	109 (86)	495 (477)
Rainbow trout	0.0073 (0.0040)	237 (236)	307 (302)	0 (0)	0 (0)	44 (90)	65 (132)	166 (156)	819 (444)
Brown trout	0.0240 (0.0103)	142 (156)	214 (313)	0 (0)	0 (0)	27 (54)	1,189 (1,012)	1,105 (371)	2,677 (1,134)
Splake	0.0015 (0.0030)	162 (328)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	4 (8)	166 (328)
Northern pike	0.0014 (0.0014)	0 (0)	20 (41)	0 (0)	47 (95)	86 (106)	0 (0)	0 (0)	153 (148)
White sucker	0.1630 (0.1741)	14,796 (18,117)	3,408 (6,939)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	18,204 (19,400)
Channel catfish	0.0037 (0.0025)	0 (0)	0 (0)	235 (224)	111 (133)	0 (0)	62 (71)	0 (0)	408 (270)
Rockbass	0.0069 (0.0052)	0 (0)	70 (102)	490 (482)	94 (190)	121 (254)	0 (0)	0 (0)	775 (586)
Bluegill	0.0185 (0.0148)	0 (0)	49 (69)	1,533 (1,555)	312 (490)	106 (200)	65 (132)	0 (0)	2,065 (1,649)
Smallmouth bass	0.0056 (0.0038)	0 (0)	0 (0)	0 (0)	274 (253)	195 (199)	136 (276)	25 (51)	630 (427)
Largemouth bass	0.0001 (0.0002)	0 (0)	0 (0)	14 (29)	0 (0)	0 (0)	0 (0)	0 (0)	14 (29)
Yellow perch	0.0240 (0.0235)	505 (807)	1,968 (2,466)	179 (300)	0 (0)	24 (49)	0 (0)	0 (0)	2,676 (2,612)
Walleye	0.1644 (0.0322)	1,859 (586)	4,130 (1,715)	4,277 (1,304)	6,108 (2,382)	1,850 (748)	23 (37)	113 (140)	18,360 (3,353)
Freshwater drum	0.0103 (0.0092)	0 (0)	0 (0)	771 (885)	354 (500)	20 (41)	0 (0)	0 (0)	1,145 (1,017)
Burbot	0.0005 (0.0010)	0 (0)	0 (0)	61 (124)	0 (0)	0 (0)	0 (0)	0 (0)	61 (124)
Other	0.0009 (0.0008)	0 (0)	0 (0)	9 (18)	0 (0)	0 (0)	81 (85)	8 (16)	98 (88)
Total	0.4364 (0.1818)	17,701 (18,150)	10,166 (7,575)	7,569 (2,300)	7,300 (2,508)	2,685 (963)	1,795 (1,082)	1,530 (438)	48,746 (20,017)
Angler hours		20,132 (2,209)	17,382 (4,355)	19,942 (3,502)	19,892 (2,466)	15,517 (3,497)	10,295 (2,518)	8,543 (971)	111,703 (7,855)
Angler trips		7,348 (1,089)	6,266 (1,590)	7,524 (1,459)	7,101 (1,013)	5,468 (1,154)	3,268 (928)	3,031 (462)	40,006 (3,046)
Angler days		7,348 (1,089)	6,180 (1,574)	7,458 (1,454)	6,948 (1,006)	5,416 (1,147)	3,138 (900)	2,929 (455)	39,417 (3,020)

Appendix 23.—Estimated catch per hour, number caught, and effort (angler hours, trips, and days) for Menominee by all modes (non-charter) of sportfishing, 1994. Bounds on the error of estimation in parentheses.

Species	Catch per hour	Month							Season
		Apr	May	Jun	Jul	Aug	Sep	Oct	
Chinook salmon	0.0095 (0.0039)	0 (0)	0 (0)	0 (0)	468 (245)	313 (208)	76 (100)	— (0)	857 (337)
Rainbow trout	0.0027 (0.0022)	0 (0)	0 (0)	0 (0)	220 (197)	24 (35)	0 (0)	— (0)	244 (200)
Brown trout	0.0898 (0.0220)	3,173 (1,218)	285 (251)	0 (0)	3,110 (1,096)	1,384 (659)	152 (170)	— (0)	8,104 (1,792)
Lake trout	0.0005 (0.0010)	0 (0)	0 (0)	0 (0)	46 (94)	0 (0)	0 (0)	— (0)	46 (94)
Splake	0.0042 (0.0027)	140 (163)	139 (158)	0 (0)	63 (76)	39 (57)	0 (0)	— (0)	381 (246)
Rockbass	0.0006 (0.0012)	0 (0)	0 (0)	55 (111)	0 (0)	0 (0)	0 (0)	— (0)	55 (111)
Bluegill	0.0004 (0.0008)	0 (0)	0 (0)	0 (0)	33 (67)	0 (0)	0 (0)	— (0)	33 (67)
Smallmouth bass	0.0006 (0.0012)	0 (0)	0 (0)	0 (0)	0 (0)	54 (111)	0 (0)	— (0)	54 (111)
Yellow perch	0.3247 (0.1697)	4,260 (8,195)	7,884 (10,538)	9,377 (4,725)	7,313 (4,902)	473 (574)	0 (0)	— (0)	29,307 (14,996)
Walleye	0.0041 (0.0040)	252 (321)	0 (0)	7 (14)	0 (0)	54 (111)	55 (118)	— (0)	368 (360)
Freshwater drum	0.0001 (0.0002)	0 (0)	0 (0)	7 (14)	0 (0)	0 (0)	0 (0)	— (0)	7 (14)
Total	0.4372 (0.1738)	7,825 (8,293)	8,308 (10,542)	9,446 (4,726)	11,253 (5,035)	2,341 (914)	283 (230)	— (0)	39,456 (15,116)
Angler hours		21,928 (4,921)	8,855 (2,827)	9,836 (2,320)	33,436 (6,590)	10,863 (2,533)	5,337 (1,885)	— (0)	90,255 (9,539)
Angler trips		6,462 (1,591)	3,758 (1,218)	3,823 (775)	7,272 (1,362)	2,670 (624)	1,867 (724)	— (0)	25,852 (2,717)
Angler days		6,462 (1,591)	3,758 (1,218)	3,823 (775)	7,166 (1,350)	2,630 (617)	1,779 (695)	— (0)	25,618 (2,702)

Appendix 24.—Estimated catch per hour, number caught, and effort (angler hours, trips, and days) for Rogers City by all modes (non-charter) of sportfishing, 1994. Bounds on the error of estimation in parentheses.

Species	Catch per hour	Month					Season
		May	Jun	Jul	Aug	Sep	
Pink salmon	0.0010 (0.0009)	0 (0)	0 (0)	15 (16)	76 (80)	3 (5)	94 (82)
Coho salmon	0.0001 (0.0002)	0 (0)	1 (2)	4 (8)	0 (0)	0 (0)	5 (8)
Chinook salmon	0.1142 (0.0170)	0 (0)	99 (82)	2,781 (578)	3,655 (798)	3,928 (832)	10,463 (1,292)
Rainbow trout	0.0058 (0.0027)	0 (0)	0 (0)	413 (229)	115 (71)	0 (0)	528 (240)
Brown trout	0.0018 (0.0009)	23 (37)	0 (0)	46 (36)	67 (58)	27 (22)	163 (81)
Lake trout	0.0215 (0.0065)	492 (246)	518 (303)	788 (400)	156 (94)	13 (14)	1,967 (567)
White sucker	0.0002 (0.0004)	14 (29)	0 (0)	0 (0)	0 (0)	0 (0)	14 (29)
Channel catfish	0.0008 (0.0015)	0 (0)	0 (0)	0 (0)	66 (128)	4 (9)	70 (128)
Total	0.1453 (0.0199)	529 (250)	618 (314)	4,047 (740)	4,135 (823)	3,975 (832)	13,304 (1,442)
Angler hours		1,361 (415)	2,720 (885)	21,236 (3,367)	39,828 (5,174)	26,448 (4,422)	91,593 (7,656)
Angler trips		490 (157)	821 (285)	5,008 (818)	8,343 (1,119)	6,002 (1,011)	20,664 (1,746)
Angler days		401 (134)	775 (277)	4,538 (753)	6,625 (914)	5,168 (880)	17,507 (1,507)

Appendix 25.—Estimated catch per hour, number caught, and effort (angler hours, trips, and days) for Rockport by all modes (non-charter) of sportfishing, 1994. Bounds on the error of estimation in parentheses.

Species	Catch per hour	Month					Season
		May	Jun	Jul	Aug	Sep	
Pink salmon	0.0121 (0.0049)	0 (0)	353 (176)	255 (159)	0 (0)	0 (0)	608 (237)
Coho salmon	0.0001 (0.0002)	0 (0)	0 (0)	3 (5)	0 (0)	0 (0)	3 (5)
Chinook salmon	0.1294 (0.0236)	143 (132)	4,112 (820)	2,120 (551)	137 (92)	0 (0)	6,512 (1,001)
Rainbow trout	0.0089 (0.0034)	3 (6)	275 (140)	170 (90)	2 (4)	0 (0)	450 (167)
Atlantic salmon	0.0003 (0.0004)	0 (0)	6 (12)	7 (13)	0 (0)	0 (0)	13 (18)
Brown trout	0.0034 (0.0028)	0 (0)	146 (140)	26 (25)	0 (0)	0 (0)	172 (142)
Lake trout	0.0219 (0.0055)	100 (71)	740 (221)	263 (106)	0 (0)	0 (0)	1,103 (255)
Other	0.0000 (0.0000)	0 (0)	0 (0)	0 (0)	2 (4)	0 (0)	2 (4)
Total	0.1761 (0.0276)	246 (150)	5,632 (890)	2,844 (591)	141 (92)	0 (0)	8,863 (1,083)
Angler hours		2,099 (556)	27,540 (3,587)	17,734 (3,249)	2,680 (676)	279 (181)	50,332 (4,922)
Angler trips		552 (153)	5,034 (679)	3,157 (591)	794 (212)	124 (84)	9,661 (941)
Angler days		552 (153)	4,898 (669)	3,157 (591)	794 (212)	124 (84)	9,525 (934)

Appendix 26.—Estimated catch per hour, number caught, and effort (angler hours, trips, and days) for Alpena by all modes (non-charter) of sportfishing, 1994. Bounds on the error of estimation in parentheses.

Species	Catch per hour	Month							Season
		Apr	May	Jun	Jul	Aug	Sep	Oct	
Pink salmon	0.0012 (0.0008)	0 (0)	0 (0)	0 (0)	108 (74)	19 (31)	0 (0)	0 (0)	127 (80)
Coho salmon	0.0000 (0.0000)	1 (3)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	1 (3)
Chinook salmon	0.0440 (0.0061)	1 (3)	42 (37)	60 (49)	3,305 (509)	674 (187)	351 (156)	359 (155)	4,792 (588)
Rainbow trout	0.0093 (0.0022)	87 (48)	313 (177)	17 (25)	429 (105)	27 (22)	16 (24)	126 (87)	1,015 (232)
Atlantic salmon	0.0001 (0.0002)	0 (0)	7 (11)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	7 (11)
Brown trout	0.0271 (0.0056)	247 (97)	187 (94)	383 (214)	1,463 (421)	372 (253)	120 (79)	174 (141)	2,946 (576)
Brook trout	0.0000 (0.0000)	0 (0)	0 (0)	0 (0)	3 (6)	0 (0)	0 (0)	0 (0)	3 (6)
Lake trout	0.0077 (0.0016)	0 (0)	59 (43)	66 (56)	682 (142)	33 (24)	0 (0)	0 (0)	840 (160)
Northern pike	0.0002 (0.0002)	7 (15)	18 (23)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	25 (27)
Channel catfish	0.0003 (0.0005)	0 (0)	0 (0)	31 (53)	5 (10)	0 (0)	0 (0)	0 (0)	36 (54)
Rockbass	0.0005 (0.0010)	0 (0)	0 (0)	49 (101)	0 (0)	0 (0)	0 (0)	0 (0)	49 (101)
Bluegill	0.0001 (0.0002)	0 (0)	0 (0)	16 (34)	0 (0)	0 (0)	0 (0)	0 (0)	16 (34)
Yellow perch	0.0000 (0.0000)	3 (6)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	3 (6)
Walleye	0.0181 (0.0046)	498 (208)	1,395 (434)	43 (47)	33 (39)	0 (0)	0 (0)	0 (0)	1,969 (485)
Freshwater drum	0.0001 (0.0002)	0 (0)	3 (6)	10 (19)	0 (0)	0 (0)	0 (0)	0 (0)	13 (20)
Lake whitefish	0.0000 (0.0000)	2 (5)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	2 (5)
Burbot	0.0000 (0.0000)	0 (0)	3 (6)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	3 (6)
Other	0.0000 (0.0000)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	3 (6)	0 (0)	3 (6)
Total	0.1089 (0.0118)	846 (235)	2,027 (482)	675 (262)	6,028 (689)	1,125 (318)	490 (177)	659 (227)	11,850 (1,007)



Appendix 26.—Continued.

Species	Catch per hour	Month							Season
		Apr	May	Jun	Jul	Aug	Sep	Oct	
Angler hours		5,408 (789)	11,391 (1,774)	6,457 (1,369)	66,745 (6,530)	6,628 (1,164)	6,792 (1,619)	5,368 (522)	108,789 (7,248)
Angler trips		2,163 (319)	3,676 (573)	1,463 (330)	8,780 (883)	1,378 (263)	1,588 (380)	1,452 (179)	20,500 (1,251)
Angler days		2,163 (319)	3,676 (573)	1,433 (329)	8,780 (883)	1,378 (263)	1,588 (380)	1,452 (179)	20,470 (1,250)

Appendix 27.—Estimated catch per hour, number caught, and effort (angler hours, trips, and days) for Harrisville by all modes (non-charter) of sportfishing, 1994. Bounds on the error of estimation in parentheses.

Species	Catch per hour	Month					Season
		Jun	Jul	Aug	Sep	Oct	
Pink salmon	0.0001 (0.0002)	0 (0)	9 (20)	0 (0)	0 (0)	0 (0)	9 (20)
Coho salmon	0.0003 (0.0005)	0 (0)	0 (0)	0 (0)	28 (43)	0 (0)	28 (43)
Chinook salmon	0.1023 (0.0379)	46 (68)	1,303 (1,167)	653 (568)	3,615 (1,789)	2,622 (1,244)	8,239 (2,537)
Rainbow trout	0.0038 (0.0026)	35 (50)	151 (157)	44 (64)	44 (64)	32 (55)	306 (196)
Atlantic salmon	0.0003 (0.0005)	8 (17)	14 (32)	0 (0)	0 (0)	0 (0)	22 (36)
Brown trout	0.0025 (0.0022)	0 (0)	137 (155)	45 (67)	21 (44)	0 (0)	203 (174)
Lake trout	0.0109 (0.0077)	57 (78)	543 (520)	245 (272)	33 (40)	0 (0)	878 (593)
Channel catfish	0.0001 (0.0002)	0 (0)	0 (0)	0 (0)	7 (15)	0 (0)	7 (15)
Yellow perch	0.0002 (0.0005)	15 (34)	0 (0)	0 (0)	0 (0)	0 (0)	15 (34)
Walleye	0.0011 (0.0012)	19 (53)	0 (0)	10 (22)	61 (77)	0 (0)	90 (96)
Lake whitefish	0.0000 (0.0000)	0 (0)	0 (0)	4 (9)	0 (0)	0 (0)	4 (9)
Total	0.1217 (0.0411)	180 (132)	2,157 (1,297)	1,001 (637)	3,809 (1,793)	2,654 (1,245)	9,801 (2,621)
Angler hours		2,639 (2,758)	12,397 (9,394)	8,986 (7,447)	39,006 (10,812)	17,474 (2,787)	80,502 (16,613)
Angler trips		602 (656)	2,378 (1,836)	1,881 (1,509)	8,452 (2,356)	3,388 (664)	16,701 (3,474)
Angler days		544 (594)	2,124 (1,638)	1,539 (1,214)	5,490 (1,615)	2,229 (460)	11,926 (2,707)

Appendix 28.—Estimated catch per hour, number caught, and effort (angler hours, trips, and days) for Oscoda by all modes (non-charter) of sportfishing, 1994. Bounds on the error of estimation in parentheses.

Species	Catch per hour	Month						Season
		May	Jun	Jul	Aug	Sep	Oct	
Chinook salmon	0.0316 (0.0136)	35 (54)	170 (175)	819 (586)	1,303 (872)	1,919 (1,189)	117 (140)	4,363 (1,603)
Rainbow trout	0.0084 (0.0049)	57 (55)	38 (80)	535 (357)	360 (382)	21 (29)	150 (314)	1,161 (618)
Atlantic salmon	0.0001 (0.0002)	7 (14)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	7 (14)
Brown trout	0.0026 (0.0022)	49 (94)	0 (0)	61 (124)	138 (230)	82 (78)	34 (65)	364 (296)
Lake trout	0.0075 (0.0043)	61 (77)	62 (121)	425 (268)	478 (451)	13 (28)	0 (0)	1,039 (545)
Northern pike	0.0013 (0.0024)	0 (0)	159 (327)	25 (52)	0 (0)	0 (0)	0 (0)	184 (331)
White sucker	0.0000 (0.0000)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	2 (4)	2 (4)
Channel catfish	0.0027 (0.0029)	0 (0)	88 (182)	219 (333)	0 (0)	62 (111)	7 (13)	376 (396)
Rockbass	0.0001 (0.0002)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	14 (22)	14 (22)
Bluegill	0.0001 (0.0002)	9 (20)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	9 (20)
Walleye	0.0052 (0.0030)	369 (264)	135 (175)	74 (160)	53 (68)	26 (55)	61 (115)	718 (383)
Freshwater drum	0.0106 (0.0159)	0 (0)	344 (654)	1,114 (2,068)	0 (0)	0 (0)	0 (0)	1,458 (2,169)
Round whitefish	0.0004 (0.0006)	0 (0)	0 (0)	0 (0)	51 (70)	0 (0)	0 (0)	51 (70)
Total	0.0707 (0.0264)	587 (302)	996 (806)	3,272 (2,230)	2,383 (1,083)	2,123 (1,199)	385 (369)	9,746 (2,909)
Angler hours		11,613 (3,647)	9,143 (4,448)	34,357 (10,159)	33,135 (21,776)	42,294 (18,064)	7,397 (4,567)	137,939 (30,946)
Angler trips		3,121 (938)	1,990 (920)	7,096 (2,185)	6,083 (3,941)	8,879 (3,701)	1,771 (1,182)	28,940 (6,093)
Angler days		2,408 (788)	1,902 (856)	6,086 (2,004)	4,916 (3,235)	6,774 (2,924)	1,264 (881)	23,350 (5,016)

Appendix 29.—Estimated catch per hour, number caught, and effort (angler hours, trips, and days) for Tawas by all modes (non-charter) of sportfishing, 1994. Bounds on the error of estimation in parentheses.

Species	Catch per hour	Month							Season
		Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0005 (0.0008)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	12 (26)	22 (46)	34 (53)
Chinook salmon	0.0090 (0.0047)	0 (0)	0 (0)	107 (143)	0 (0)	58 (71)	341 (242)	150 (160)	656 (331)
Rainbow trout	0.0023 (0.0019)	32 (31)	4 (9)	18 (38)	24 (50)	51 (104)	0 (0)	41 (54)	170 (137)
Brown trout	0.0234 (0.0106)	205 (184)	0 (0)	26 (54)	477 (427)	765 (461)	213 (345)	29 (57)	1,715 (744)
Lake trout	0.0012 (0.0015)	0 (0)	0 (0)	90 (109)	0 (0)	0 (0)	0 (0)	0 (0)	90 (109)
Northern pike	0.0029 (0.0024)	18 (30)	42 (61)	22 (37)	97 (147)	35 (52)	0 (0)	0 (0)	214 (174)
Channel catfish	0.0015 (0.0016)	0 (0)	0 (0)	0 (0)	61 (76)	9 (19)	39 (81)	0 (0)	109 (113)
Rockbass	0.0027 (0.0044)	0 (0)	145 (306)	49 (80)	0 (0)	0 (0)	0 (0)	0 (0)	194 (316)
Smallmouth bass	0.0039 (0.0059)	0 (0)	0 (0)	39 (59)	249 (431)	0 (0)	0 (0)	0 (0)	288 (435)
Black crappie	0.0007 (0.0015)	0 (0)	48 (102)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	48 (102)
Yellow perch	0.1268 (0.0660)	1,015 (986)	906 (753)	5,380 (4,246)	1,808 (1,515)	79 (129)	31 (65)	63 (106)	9,282 (4,679)
Walleye	0.0212 (0.0120)	64 (69)	0 (0)	0 (0)	1,186 (738)	87 (108)	215 (416)	0 (0)	1,552 (857)
Freshwater drum	0.0055 (0.0062)	0 (0)	0 (0)	0 (0)	325 (444)	40 (68)	40 (50)	0 (0)	405 (452)
Lake whitefish	0.0001 (0.0002)	6 (13)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	6 (13)
Total	0.2017 (0.0717)	1,340 (1,006)	1,145 (821)	5,731 (4,252)	4,227 (1,853)	1,124 (514)	891 (604)	305 (212)	14,763 (4,886)
Angler hours		8,202 (2,496)	8,060 (3,382)	11,252 (3,979)	17,625 (5,025)	11,981 (3,828)	13,186 (4,049)	2,873 (1,052)	73,179 (9,534)
Angler trips		3,938 (1,244)	3,410 (1,409)	3,689 (1,291)	3,456 (954)	3,050 (1,001)	4,393 (1,268)	924 (351)	22,860 (2,974)
Angler days		2,023 (673)	2,254 (960)	2,493 (1,031)	3,158 (888)	2,414 (822)	3,055 (903)	652 (261)	16,049 (2,188)

Appendix 30.—Estimated catch per hour, number caught, and effort (angler hours, trips, and days) for Au Gres by all modes (non-charter) of sportfishing, 1994. Bounds on the error of estimation in parentheses.

Species	Catch per hour	Month							Season
		Apr	May	Jun	Jul	Aug	Sep	Oct	
Chinook salmon	0.0002 (0.0003)	0 (0)	23 (50)	0 (0)	0 (0)	0 (0)	0 (0)	37 (82)	60 (96)
Brown trout	0.0011 (0.0014)	194 (354)	151 (267)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	345 (443)
Northern pike	0.0000 (0.0000)	0 (0)	14 (31)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	14 (31)
Brown bullhead	0.0001 (0.0002)	0 (0)	0 (0)	0 (0)	16 (32)	0 (0)	0 (0)	0 (0)	16 (32)
Channel catfish	0.0042 (0.0023)	0 (0)	0 (0)	79 (122)	779 (526)	146 (215)	300 (326)	8 (16)	1,312 (667)
White perch	0.0008 (0.0010)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	131 (229)	128 (222)	259 (319)
White bass	0.0002 (0.0003)	0 (0)	0 (0)	0 (0)	50 (76)	0 (0)	0 (0)	0 (0)	50 (76)
Rockbass	0.0005 (0.0006)	56 (117)	0 (0)	0 (0)	99 (124)	0 (0)	0 (0)	0 (0)	155 (170)
Bluegill	0.0003 (0.0005)	0 (0)	58 (123)	0 (0)	20 (42)	0 (0)	0 (0)	0 (0)	78 (130)
Lake herring	0.0001 (0.0002)	0 (0)	0 (0)	28 (57)	0 (0)	0 (0)	0 (0)	0 (0)	28 (57)
Smallmouth bass	0.0025 (0.0020)	0 (0)	0 (0)	28 (57)	583 (588)	46 (94)	29 (61)	102 (164)	788 (623)
Largemouth bass	0.0003 (0.0006)	0 (0)	0 (0)	0 (0)	0 (0)	99 (209)	0 (0)	0 (0)	99 (209)
Black crappie	0.0001 (0.0002)	0 (0)	0 (0)	0 (0)	0 (0)	18 (38)	0 (0)	0 (0)	18 (38)
Yellow perch	1.2287 (0.4389)	52,661 (55,104)	2,103 (3,080)	18,488 (18,906)	37,730 (20,088)	64,842 (32,354)	183,188 (92,443)	24,058 (12,197)	383,070 (116,397)
Walleye	0.0300 (0.0141)	35 (60)	0 (0)	67 (92)	8,101 (3,962)	936 (653)	171 (186)	54 (52)	9,364 (4,022)
Freshwater drum	0.0040 (0.0022)	0 (0)	0 (0)	16 (32)	595 (438)	211 (274)	403 (364)	17 (31)	1,242 (634)
Lake whitefish	0.0001 (0.0002)	20 (40)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	20 (40)
Other	0.0000 (0.0000)	0 (0)	12 (25)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	12 (25)
Total	1.2732 (0.4436)	52,966 (55,105)	2,361 (3,095)	18,706 (18,907)	47,973 (20,495)	66,298 (32,363)	184,222 (92,445)	24,404 (12,201)	396,930 (116,473)

Appendix 30.—Continued.

Species	Catch per hour	Month							Season
		Apr	May	Jun	Jul	Aug	Sep	Oct	
Angler hours		39,247 (17,077)	14,961 (7,908)	25,809 (11,760)	84,218 (33,669)	72,047 (28,228)	63,246 (31,037)	12,229 (6,470)	311,757 (58,549)
Angler trips		25,616 (13,597)	4,187 (2,053)	6,307 (3,129)	14,056 (5,639)	14,718 (6,037)	12,281 (6,016)	2,525 (1,462)	79,690 (17,477)
Angler days		13,688 (6,956)	2,982 (1,595)	5,429 (2,738)	12,632 (5,102)	12,718 (5,112)	11,063 (5,406)	2,279 (1,285)	60,791 (11,894)

Appendix 31.—Estimated catch per hour, number caught, and effort (angler hours, trips, and days) for the boat fishery (non-charter) in the area from Saganing Creek to the mouth of the Saginaw River, 1994. Bounds on the error of estimation in parentheses.

Species	Catch per hour	Month							Season
		Apr	May	Jun	Jul	Aug	Sep	Oct	
Northern pike	0.0001 (0.0002)	0 (0)	0 (0)	0 (0)	0 (0)	34 (70)	0 (0)	0 (0)	34 (70)
Channel catfish	0.0169 (0.0137)	0 (0)	253 (460)	148 (185)	718 (992)	2,454 (3,432)	2,115 (2,665)	0 (0)	5,688 (4,484)
White perch	0.0001 (0.0002)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	23 (49)	23 (49)
White bass	0.0023 (0.0034)	18 (37)	622 (1,100)	132 (205)	0 (0)	0 (0)	0 (0)	0 (0)	772 (1,120)
Rockbass	0.0001 (0.0002)	0 (0)	0 (0)	44 (92)	0 (0)	0 (0)	0 (0)	0 (0)	44 (92)
Smallmouth bass	0.0005 (0.0008)	0 (0)	89 (193)	0 (0)	0 (0)	68 (138)	0 (0)	0 (0)	157 (237)
Largemouth bass	0.0046 (0.0041)	0 (0)	89 (193)	938 (978)	0 (0)	525 (934)	0 (0)	0 (0)	1,552 (1,366)
Yellow perch	1.6167 (0.5437)	5,711 (5,651)	2,728 (3,172)	8,715 (6,934)	40,517 (28,167)	191,090 (78,448)	255,097 (128,197)	40,463 (19,954)	544,321 (154,500)
Walleye	0.0490 (0.0189)	612 (540)	2,304 (2,008)	958 (718)	9,125 (4,751)	3,080 (2,056)	305 (460)	127 (161)	16,511 (5,646)
Freshwater drum	0.0006 (0.0008)	0 (0)	0 (0)	0 (0)	0 (0)	85 (174)	90 (189)	18 (38)	193 (260)
Total	1.6909 (0.5514)	6,341 (5,677)	6,085 (3,948)	10,935 (7,045)	50,360 (28,582)	197,336 (78,556)	257,607 (128,226)	40,631 (19,955)	569,295 (154,679)
Angler hours		7,875 (3,055)	29,211 (18,057)	28,739 (13,674)	77,941 (29,252)	97,472 (30,292)	84,598 (37,061)	10,844 (4,215)	336,680 (60,720)
Angler trips		1,949 (764)	6,400 (3,619)	5,492 (2,599)	11,960 (4,517)	17,506 (5,433)	14,899 (6,593)	2,074 (808)	60,280 (10,699)
Angler days		1,949 (764)	6,400 (3,619)	5,492 (2,599)	11,960 (4,517)	17,506 (5,433)	14,899 (6,593)	2,074 (808)	60,280 (10,699)

Appendix 32.—Estimated catch per hour, number caught, and effort (angler hours, trips, and days) for the area from Essexville to the mouth of the Saginaw River by all modes (non-charter) of sportfishing, 1994. Bounds on the error of estimation in parentheses.

Species	Catch per hour	Month							Season
		Apr	May	Jun	Jul	Aug	Sep	Oct	
Channel catfish	0.0434 (0.0224)	15 (34)	594 (465)	107 (150)	380 (323)	1,701 (1,247)	41 (61)	0 (0)	2,838 (1,379)
White perch	0.0094 (0.0208)	0 (0)	617 (1,362)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	617 (1,362)
White bass	0.0219 (0.0187)	15 (34)	1,320 (1,189)	30 (63)	66 (133)	0 (0)	0 (0)	0 (0)	1,431 (1,199)
Yellow perch	1.4341 (0.5268)	342 (527)	530 (780)	2,657 (2,384)	6,168 (4,351)	34,234 (21,360)	42,377 (19,666)	7,445 (7,043)	93,753 (30,300)
Walleye	0.0549 (0.0283)	0 (0)	1,848 (1,390)	1,213 (946)	140 (119)	0 (0)	91 (189)	295 (377)	3,587 (1,738)
Freshwater drum	0.0019 (0.0021)	0 (0)	0 (0)	0 (0)	70 (107)	19 (39)	37 (77)	0 (0)	126 (137)
Other	0.0501 (0.0966)	35 (83)	197 (237)	3,046 (6,288)	0 (0)	0 (0)	0 (0)	0 (0)	3,278 (6,293)
Total	1.6158 (0.5528)	407 (536)	5,106 (2,466)	7,053 (6,793)	6,824 (4,368)	35,954 (21,396)	42,546 (19,667)	7,740 (7,053)	105,630 (31,079)
Angler hours		2,001 (1,385)	13,343 (6,785)	11,402 (4,478)	8,342 (2,544)	13,113 (5,276)	11,847 (4,547)	5,324 (2,688)	65,372 (11,411)
Angler trips		474 (347)	2,351 (1,184)	2,211 (891)	1,355 (449)	2,388 (991)	2,062 (801)	1,234 (697)	12,075 (2,151)
Angler days		474 (347)	2,351 (1,184)	2,211 (891)	1,355 (449)	2,388 (991)	2,062 (801)	1,234 (697)	12,075 (2,151)



Appendix 33.—Estimated catch per hour, number caught, and effort (angler hours, trips, and days) for the area from Quanicassee to Sebewaing by all modes (non-charter) of sportfishing, 1994. Bounds on the error of estimation in parentheses.

Species	Catch per hour	Month							Season
		Apr	May	Jun	Jul	Aug	Sep	Oct	
White sucker	0.0009 (0.0013)	97 (160)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	15 (31)	112 (163)
Brown bullhead	0.0008 (0.0015)	81 (171)	9 (21)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	90 (172)
Channel catfish	0.0233 (0.0284)	98 (205)	0 (0)	1,406 (2,961)	1,020 (1,477)	256 (409)	0 (0)	9 (19)	2,789 (3,340)
White perch	0.0025 (0.0026)	0 (0)	0 (0)	0 (0)	149 (223)	62 (82)	88 (186)	0 (0)	299 (302)
Rockbass	0.0001 (0.0002)	0 (0)	11 (24)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	11 (24)
Pumpkinseed	0.0004 (0.0009)	46 (98)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	46 (98)
Largemouth bass	0.0001 (0.0002)	0 (0)	7 (16)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	7 (16)
Black crappie	0.0017 (0.0021)	183 (248)	9 (26)	0 (0)	0 (0)	0 (0)	0 (0)	10 (21)	202 (250)
Yellow perch	1.1970 (0.4990)	58,100 (35,362)	7 (16)	1,587 (3,384)	3,894 (3,201)	24,389 (20,585)	30,151 (24,079)	24,849 (12,335)	142,977 (49,273)
Walleye	0.0312 (0.0189)	0 (0)	0 (0)	0 (0)	1,534 (1,258)	2,192 (1,659)	0 (0)	0 (0)	3,726 (2,082)
Freshwater drum	0.0047 (0.0049)	0 (0)	4 (8)	3 (10)	446 (527)	16 (36)	88 (186)	0 (0)	557 (560)
Other	0.0001 (0.0001)	7 (12)	5 (11)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	12 (16)
Total	1.2628 (0.5090)	58,612 (35,364)	52 (49)	2,996 (4,497)	7,043 (3,787)	26,915 (20,656)	30,327 (24,080)	24,883 (12,335)	150,828 (49,435)
Angler hours		27,479 (13,630)	324 (313)	6,383 (4,031)	21,462 (10,490)	34,090 (19,147)	17,462 (8,741)	12,244 (5,452)	119,444 (28,016)
Angler trips		15,129 (7,812)	297 (289)	1,661 (1,120)	4,533 (2,184)	5,891 (3,416)	4,253 (2,210)	4,194 (2,192)	35,958 (9,407)
Angler days		10,426 (5,419)	220 (221)	1,515 (1,101)	4,204 (2,065)	5,822 (3,359)	4,062 (2,171)	3,256 (1,568)	29,505 (7,304)

Appendix 34.—Estimated catch per hour, number caught, and effort (angler hours, trips, and days) for area from Sebawaing to Sand Point by all modes (non-charter) of sportfishing, 1994. Bounds on the error of estimation in parentheses.

Species	Catch per hour	Month							Season
		Apr	May	Jun	Jul	Aug	Sep	Oct	
White sucker	0.0011 (0.0015)	198 (273)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	198 (273)
Channel catfish	0.0174 (0.0141)	2 (5)	1,326 (1,954)	877 (1,338)	861 (825)	66 (74)	75 (116)	12 (20)	3,219 (2,512)
White perch	0.0023 (0.0026)	170 (355)	0 (0)	0 (0)	195 (306)	28 (58)	34 (60)	0 (0)	427 (476)
White bass	0.0007 (0.0009)	0 (0)	0 (0)	23 (49)	100 (150)	0 (0)	0 (0)	0 (0)	123 (158)
Rockbass	0.0008 (0.0008)	0 (0)	35 (54)	87 (137)	0 (0)	0 (0)	0 (0)	32 (62)	154 (160)
Pumpkinseed	0.0009 (0.0012)	28 (59)	90 (187)	0 (0)	40 (85)	0 (0)	0 (0)	0 (0)	158 (214)
Smallmouth bass	0.0038 (0.0051)	0 (0)	325 (501)	1 (2)	8 (18)	370 (789)	0 (0)	0 (0)	704 (935)
Largemouth bass	0.0015 (0.0022)	0 (0)	185 (385)	40 (64)	54 (112)	0 (0)	0 (0)	0 (0)	279 (406)
Black crappie	0.0006 (0.0013)	0 (0)	100 (234)	14 (38)	0 (0)	0 (0)	0 (0)	0 (0)	114 (237)
Yellow perch	0.8379 (0.3541)	119,165 (53,523)	74 (111)	517 (677)	5,053 (5,158)	14,839 (11,386)	8,218 (8,527)	6,856 (4,376)	154,722 (55,797)
Walleye	0.0752 (0.0345)	0 (0)	14 (29)	19 (29)	9,111 (4,890)	4,480 (2,681)	249 (288)	7 (14)	13,880 (5,584)
Freshwater drum	0.0068 (0.0078)	0 (0)	730 (1,378)	41 (55)	348 (273)	125 (154)	6 (12)	0 (0)	1,250 (1,414)
Other	0.0008 (0.0013)	0 (0)	97 (206)	0 (0)	47 (101)	0 (0)	0 (0)	0 (0)	144 (229)
Total	0.9497 (0.3692)	119,563 (53,525)	2,976 (2,503)	1,619 (1,510)	15,817 (7,171)	19,908 (11,725)	8,582 (8,533)	6,907 (4,377)	175,372 (56,164)
Angler hours		36,666 (15,669)	11,270 (5,800)	16,910 (9,095)	52,166 (25,434)	52,521 (24,010)	12,139 (8,247)	2,992 (1,611)	184,664 (40,692)
Angler trips		15,980 (6,766)	3,376 (1,577)	3,693 (2,048)	9,329 (4,446)	11,530 (5,563)	2,565 (1,551)	1,066 (773)	47,539 (10,304)
Angler days		12,679 (5,399)	2,759 (1,302)	3,537 (2,008)	9,021 (4,276)	11,093 (5,361)	2,189 (1,426)	791 (555)	42,069 (9,178)

Appendix 35.—Estimated catch per hour, number caught, and effort (angler hours, trips, and days) for the area from Sand Point to Port Austin by all modes (non-charter) of sportfishing, 1994. Bounds on the error of estimation in parentheses.

Species	Catch per hour	Month							Season
		Apr	May	Jun	Jul	Aug	Sep	Oct	
Pink salmon	0.0003 (0.0006)	0 (0)	0 (0)	0 (0)	0 (0)	82 (166)	0 (0)	0 (0)	82 (166)
Chinook salmon	0.0046 (0.0041)	0 (0)	90 (188)	287 (523)	67 (141)	138 (280)	806 (1,018)	9 (20)	1,397 (1,202)
Rainbow trout	0.0027 (0.0024)	113 (206)	76 (159)	348 (537)	196 (327)	82 (166)	0 (0)	0 (0)	815 (700)
Brown trout	0.0015 (0.0018)	53 (111)	101 (211)	0 (0)	71 (112)	231 (467)	0 (0)	0 (0)	456 (536)
Lake trout	0.0082 (0.0119)	0 (0)	1,674 (3,516)	483 (544)	176 (264)	148 (299)	0 (0)	0 (0)	2,481 (3,580)
Rainbow smelt	0.0002 (0.0004)	0 (0)	55 (113)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	55 (113)
Channel catfish	0.0050 (0.0080)	0 (0)	0 (0)	0 (0)	1,500 (2,369)	0 (0)	0 (0)	0 (0)	1,500 (2,369)
White perch	0.0000 (0.0000)	2 (4)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	2 (4)
Rockbass	0.0003 (0.0006)	91 (192)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	91 (192)
Yellow perch	0.3469 (0.1568)	25,654 (11,563)	15,631 (23,632)	5,345 (6,872)	9,149 (9,594)	19,063 (18,006)	28,750 (25,997)	1,102 (1,242)	104,694 (42,814)
Walleye	0.0580 (0.0269)	18 (37)	0 (0)	746 (1,377)	8,729 (5,507)	7,925 (4,712)	84 (176)	0 (0)	17,502 (7,380)
Freshwater drum	0.0009 (0.0011)	0 (0)	0 (0)	0 (0)	225 (315)	39 (79)	0 (0)	0 (0)	264 (325)
Other	0.0012 (0.0025)	0 (0)	0 (0)	0 (0)	363 (764)	0 (0)	0 (0)	0 (0)	363 (764)
Total	0.4298 (0.1667)	25,931 (11,567)	17,627 (23,895)	7,209 (7,070)	20,476 (11,352)	27,708 (18,624)	29,640 (26,018)	1,111 (1,242)	129,702 (43,692)
Angler hours		16,489 (5,995)	33,815 (14,567)	24,302 (11,278)	95,008 (46,255)	91,556 (25,920)	32,650 (13,041)	7,938 (2,850)	301,758 (58,008)
Angler trips		7,493 (2,792)	9,434 (3,804)	8,606 (3,760)	16,842 (7,912)	16,093 (4,761)	8,223 (3,576)	2,993 (1,387)	69,684 (11,678)
Angler days		5,142 (1,950)	7,478 (3,206)	7,164 (3,482)	15,372 (7,312)	14,274 (4,447)	6,539 (3,098)	1,951 (1,079)	57,920 (10,498)

Appendix 36.—Estimated catch per hour, number caught, and effort (angler hours, trips, and days) for the area from Eagle Bay to Harbor Beach by all modes (non-charter) of sportfishing, 1994. Bounds on the error of estimation in parentheses.

Species	Catch per hour	Month							Season
		Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0032 (0.0033)	19 (29)	194 (301)	174 (340)	66 (136)	17 (35)	0 (0)	0 (0)	470 (476)
Chinook salmon	0.0289 (0.0115)	98 (140)	428 (349)	838 (795)	848 (721)	190 (254)	1,803 (942)	40 (60)	4,245 (1,500)
Rainbow trout	0.0066 (0.0039)	137 (203)	80 (97)	325 (376)	333 (301)	34 (70)	62 (75)	0 (0)	971 (541)
Atlantic salmon	0.0003 (0.0005)	0 (0)	29 (61)	0 (0)	0 (0)	0 (0)	14 (27)	0 (0)	43 (67)
Brown trout	0.0141 (0.0087)	337 (525)	635 (810)	10 (20)	913 (696)	44 (95)	132 (281)	0 (0)	2,071 (1,227)
Lake trout	0.0168 (0.0137)	0 (0)	331 (521)	986 (1,701)	1,018 (827)	76 (119)	64 (78)	0 (0)	2,475 (1,967)
Channel catfish	0.0010 (0.0012)	0 (0)	0 (0)	0 (0)	86 (141)	55 (84)	0 (0)	0 (0)	141 (164)
Smallmouth bass	0.0000 (0.0000)	0 (0)	0 (0)	0 (0)	1 (2)	0 (0)	0 (0)	0 (0)	1 (2)
Yellow perch	0.0435 (0.0284)	0 (0)	0 (0)	751 (915)	3,386 (3,456)	2,235 (1,785)	15 (30)	0 (0)	6,387 (3,996)
Walleye	0.0120 (0.0073)	0 (0)	0 (0)	0 (0)	514 (573)	1,123 (848)	134 (150)	0 (0)	1,771 (1,034)
Freshwater drum	0.0011 (0.0019)	0 (0)	0 (0)	129 (270)	2 (5)	28 (58)	0 (0)	0 (0)	159 (276)
Total	0.1275 (0.0414)	591 (581)	1,697 (1,074)	3,213 (2,166)	7,167 (3,754)	3,802 (2,002)	2,224 (1,001)	40 (60)	18,734 (5,029)
Angler hours		2,190 (1,525)	27,566 (14,735)	19,514 (10,376)	36,415 (13,298)	24,034 (11,789)	31,828 (8,398)	5,425 (3,486)	146,972 (26,937)
Angler trips		688 (467)	5,824 (3,426)	4,277 (2,484)	7,570 (2,809)	4,562 (2,333)	6,715 (1,900)	1,763 (1,243)	31,399 (6,051)
Angler days		605 (434)	4,782 (2,853)	3,048 (1,698)	6,453 (2,424)	3,737 (1,902)	5,421 (1,631)	1,401 (1,177)	25,447 (4,975)

Appendix 37.—Estimated catch per hour, number caught, and effort (angler hours, trips, and days) for Port Sanilac by all modes (non-charter) of sportfishing, 1994. Bounds on the error of estimation in parentheses.

Species	Catch per hour	Month							Season
		Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0022 (0.0014)	71 (59)	111 (106)	14 (29)	0 (0)	0 (0)	0 (0)	0 (0)	196 (125)
Chinook salmon	0.0387 (0.0090)	859 (468)	1,504 (365)	237 (147)	0 (0)	96 (83)	399 (379)	350 (177)	3,445 (745)
Rainbow trout	0.0067 (0.0023)	53 (49)	320 (123)	65 (77)	77 (113)	16 (19)	12 (25)	56 (61)	599 (202)
Atlantic salmon	0.0008 (0.0010)	0 (0)	48 (82)	16 (23)	0 (0)	7 (14)	0 (0)	0 (0)	71 (86)
Brown trout	0.0204 (0.0058)	521 (251)	170 (116)	93 (83)	124 (139)	218 (162)	514 (303)	175 (141)	1,815 (491)
Lake trout	0.0004 (0.0004)	0 (0)	6 (12)	0 (0)	17 (28)	16 (25)	0 (0)	0 (0)	39 (39)
Northern pike	0.0022 (0.0020)	0 (0)	0 (0)	0 (0)	10 (20)	157 (164)	0 (0)	26 (51)	193 (173)
Yellow bullhead	0.0004 (0.0009)	0 (0)	0 (0)	33 (71)	0 (0)	0 (0)	0 (0)	0 (0)	33 (71)
Channel catfish	0.0014 (0.0017)	0 (0)	0 (0)	0 (0)	101 (141)	23 (48)	0 (0)	0 (0)	124 (149)
Rockbass	0.0003 (0.0005)	0 (0)	0 (0)	15 (31)	8 (17)	0 (0)	0 (0)	0 (0)	23 (35)
Yellow perch	0.0480 (0.0292)	0 (0)	9 (18)	514 (350)	1,840 (1,399)	482 (522)	1,426 (2,070)	0 (0)	4,271 (2,576)
Walleye	0.0035 (0.0018)	91 (59)	77 (63)	0 (0)	0 (0)	76 (86)	0 (0)	69 (106)	313 (161)
Freshwater drum	0.0003 (0.0004)	0 (0)	0 (0)	0 (0)	27 (40)	0 (0)	0 (0)	0 (0)	27 (40)
Total	0.1253 (0.0326)	1,595 (540)	2,245 (429)	987 (405)	2,204 (1,419)	1,091 (586)	2,351 (2,126)	676 (262)	11,149 (2,754)
Angler hours		11,911 (3,486)	17,916 (2,104)	6,568 (1,201)	11,564 (3,994)	9,437 (2,500)	20,088 (3,369)	11,500 (1,500)	88,984 (7,336)
Angler trips		2,594 (712)	3,049 (382)	1,618 (311)	2,508 (808)	2,442 (572)	4,212 (776)	2,520 (392)	18,943 (1,577)
Angler days		2,594 (712)	3,049 (382)	1,618 (311)	2,508 (808)	2,442 (572)	4,212 (776)	2,494 (390)	18,917 (1,576)

Appendix 38.—Estimated catch per hour, number caught, and effort (angler hours, trips, and days) for Lexington by all modes (non-charter) of sportfishing, 1994. Bounds on the error of estimation in parentheses.

Species	Catch per hour	Month							Season
		Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0017 (0.0009)	110 (57)	48 (68)	0 (0)	0 (0)	0 (0)	9 (18)	0 (0)	167 (91)
Chinook salmon	0.0551 (0.0133)	1,067 (332)	2,766 (1,009)	113 (107)	39 (57)	10 (19)	252 (166)	1,252 (499)	5,499 (1,192)
Rainbow trout	0.0067 (0.0027)	75 (63)	297 (150)	0 (0)	180 (164)	9 (18)	36 (73)	74 (109)	671 (266)
Atlantic salmon	0.0006 (0.0006)	5 (10)	57 (63)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	62 (64)
Brown trout	0.0123 (0.0049)	721 (243)	88 (75)	0 (0)	215 (326)	141 (198)	32 (65)	26 (52)	1,223 (466)
Brook trout	0.0001 (0.0002)	6 (11)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	6 (11)
Lake trout	0.0001 (0.0002)	0 (0)	0 (0)	8 (16)	0 (0)	0 (0)	0 (0)	0 (0)	8 (16)
Northern pike	0.0017 (0.0027)	0 (0)	0 (0)	0 (0)	0 (0)	153 (272)	0 (0)	21 (43)	174 (275)
Yellow bullhead	0.0013 (0.0026)	0 (0)	0 (0)	0 (0)	129 (262)	0 (0)	0 (0)	0 (0)	129 (262)
Channel catfish	0.0026 (0.0033)	0 (0)	0 (0)	0 (0)	214 (324)	14 (29)	33 (45)	0 (0)	261 (328)
Rockbass	0.0024 (0.0036)	0 (0)	0 (0)	0 (0)	237 (352)	0 (0)	0 (0)	0 (0)	237 (352)
Pumpkinseed	0.0036 (0.0052)	0 (0)	0 (0)	0 (0)	0 (0)	364 (524)	0 (0)	0 (0)	364 (524)
Bluegill	0.0003 (0.0006)	0 (0)	0 (0)	0 (0)	0 (0)	31 (64)	0 (0)	0 (0)	31 (64)
Yellow perch	0.0090 (0.0052)	6 (10)	137 (199)	60 (76)	612 (451)	31 (64)	0 (0)	55 (110)	901 (515)
Walleye	0.0086 (0.0068)	176 (133)	45 (69)	0 (0)	441 (530)	198 (382)	0 (0)	0 (0)	860 (670)
Freshwater drum	0.0009 (0.0013)	0 (0)	0 (0)	0 (0)	11 (23)	83 (134)	0 (0)	0 (0)	94 (136)
Total	0.1070 (0.0209)	2,166 (441)	3,438 (1,048)	181 (132)	2,078 (959)	1,034 (749)	362 (199)	1,428 (527)	10,687 (1,763)
Angler hours		14,204 (3,503)	21,598 (5,035)	5,230 (1,809)	18,148 (6,274)	10,339 (3,403)	14,169 (3,520)	16,147 (1,971)	99,835 (10,398)
Angler trips		2,451 (581)	3,903 (887)	1,175 (414)	4,424 (1,398)	2,419 (755)	3,394 (813)	3,459 (548)	21,225 (2,187)
Angler days		2,451 (581)	3,903 (887)	1,175 (414)	4,424 (1,398)	2,419 (755)	3,394 (813)	3,459 (548)	21,225 (2,187)

Appendix 39.—Estimated catch per hour, number caught, and effort (angler hours, trips, and days) for the boat fishery (non-charter) in the area from Point Mouillee to the mouth of the Raisin River, 1994. Bounds on the error of estimation in parentheses.

Species	Catch per hour	Month							Season
		Apr	May	Jun	Jul	Aug	Sep	Oct	
Rainbow trout	0.0000 (0.0000)	0 (0)	7 (15)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	7 (15)
Northern pike	0.0001 (0.0002)	0 (0)	0 (0)	0 (0)	21 (43)	0 (0)	0 (0)	0 (0)	21 (43)
White sucker	0.0001 (0.0002)	0 (0)	0 (0)	28 (57)	0 (0)	0 (0)	0 (0)	0 (0)	28 (57)
Channel catfish	0.0064 (0.0043)	0 (0)	12 (25)	86 (99)	1,009 (874)	485 (708)	243 (490)	93 (170)	1,928 (1,243)
White perch	0.0189 (0.0109)	0 (0)	234 (229)	579 (403)	1,891 (962)	1,833 (2,357)	1,121 (1,759)	31 (53)	5,689 (3,129)
White bass	0.0132 (0.0061)	4 (9)	1,078 (603)	2,194 (993)	673 (1,212)	0 (0)	0 (0)	0 (0)	3,949 (1,679)
Rockbass	0.0025 (0.0016)	0 (0)	17 (23)	6 (11)	402 (402)	96 (114)	198 (220)	38 (45)	757 (475)
Smallmouth bass	0.0015 (0.0009)	0 (0)	27 (54)	36 (47)	287 (241)	75 (88)	24 (51)	0 (0)	449 (271)
Yellow perch	0.3189 (0.1563)	12 (26)	1,118 (676)	3,479 (1,540)	3,597 (1,638)	17,644 (16,432)	55,222 (39,850)	14,671 (7,705)	95,743 (43,851)
Walleye	0.1331 (0.0346)	584 (479)	4,947 (2,256)	16,504 (4,823)	16,381 (5,446)	1,316 (1,179)	232 (330)	4 (9)	39,968 (7,729)
Freshwater drum	0.0054 (0.0026)	0 (0)	15 (20)	313 (182)	1,130 (695)	106 (169)	38 (65)	28 (57)	1,630 (743)
Other	0.0002 (0.0003)	0 (0)	0 (0)	0 (0)	46 (93)	0 (0)	0 (0)	18 (40)	64 (101)
Total	0.5004 (0.1725)	600 (480)	7,455 (2,443)	23,225 (5,180)	25,437 (6,018)	21,555 (16,659)	57,078 (39,894)	14,883 (7,708)	150,233 (44,696)
Angler hours		5,055 (3,665)	39,855 (14,245)	81,621 (20,574)	92,391 (26,784)	29,869 (23,770)	41,763 (28,143)	9,662 (4,837)	300,216 (52,321)
Angler trips		1,047 (766)	7,849 (2,648)	15,254 (3,872)	15,885 (4,591)	5,758 (4,637)	8,646 (5,982)	1,842 (942)	56,281 (10,092)
Angler days		999 (733)	7,725 (2,608)	14,952 (3,798)	15,773 (4,562)	5,660 (4,512)	8,567 (5,916)	1,831 (933)	55,507 (9,940)

Appendix 40.—Estimated catch per hour, number caught, and effort (angler hours, trips, and days) for the boat fishery (non-charter) in the area from the mouth of the Raisin River to the Michigan-Ohio state line, 1994. Bounds on the error of estimation in parentheses.

Species	Catch per hour	Month							Season
		Apr	May	Jun	Jul	Aug	Sep	Oct	
Rainbow trout	0.0001 (0.0001)	0 (0)	24 (51)	19 (40)	28 (58)	0 (0)	0 (0)	0 (0)	71 (87)
Redhorses	0.0001 (0.0002)	0 (0)	30 (61)	0 (0)	0 (0)	0 (0)	15 (32)	0 (0)	45 (69)
Channel catfish	0.0411 (0.0148)	1,057 (1,141)	4,042 (3,326)	7,403 (4,604)	4,192 (2,623)	5,395 (3,947)	3,803 (3,332)	1,555 (1,407)	27,447 (8,313)
White perch	0.0121 (0.0051)	0 (0)	1,190 (829)	431 (323)	4,153 (2,375)	502 (680)	744 (986)	1,034 (1,012)	8,054 (2,982)
White bass	0.0633 (0.0276)	821 (1,145)	30,321 (15,281)	4,877 (4,187)	296 (252)	94 (135)	2,726 (3,253)	3,142 (3,021)	42,277 (16,497)
Rockbass	0.0007 (0.0005)	0 (0)	0 (0)	34 (69)	117 (133)	24 (49)	257 (262)	24 (37)	456 (308)
Pumpkinseed	0.0001 (0.0002)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	39 (87)	39 (87)
Bluegill	0.0023 (0.0024)	0 (0)	30 (61)	0 (0)	165 (194)	175 (302)	811 (1,424)	370 (666)	1,551 (1,614)
Smallmouth bass	0.0011 (0.0009)	0 (0)	62 (79)	0 (0)	89 (122)	77 (156)	402 (513)	110 (110)	740 (566)
Largemouth bass	0.0005 (0.0006)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	29 (64)	277 (333)	306 (339)
Black crappie	0.0001 (0.0002)	56 (121)	0 (0)	0 (0)	0 (0)	0 (0)	15 (32)	0 (0)	71 (125)
Yellow perch	0.2063 (0.0807)	0 (0)	4,576 (2,642)	4,251 (2,127)	11,820 (6,919)	19,204 (10,906)	76,694 (43,278)	21,297 (11,878)	137,842 (46,823)
Walleye	0.2173 (0.0682)	1,795 (1,409)	58,259 (27,930)	42,932 (16,729)	38,975 (14,697)	2,673 (2,494)	522 (747)	36 (59)	145,192 (35,843)
Freshwater drum	0.0219 (0.0092)	677 (800)	4,663 (3,562)	5,537 (3,633)	2,934 (1,776)	254 (231)	347 (370)	235 (236)	14,647 (5,471)
Other	0.0009 (0.0006)	42 (91)	228 (192)	211 (318)	0 (0)	33 (48)	25 (54)	67 (84)	606 (398)
Total	0.5678 (0.1441)	4,448 (2,294)	103,425 (32,327)	65,695 (18,345)	62,769 (16,724)	28,431 (11,891)	86,390 (43,574)	28,186 (12,404)	379,344 (62,133)
Angler hours		23,531 (12,871)	164,994 (79,184)	206,764 (72,170)	163,560 (54,773)	37,167 (27,975)	53,738 (34,999)	18,284 (10,261)	668,038 (129,450)
Angler trips		6,425 (3,562)	29,181 (14,073)	35,283 (12,318)	26,891 (9,085)	7,037 (5,140)	9,934 (6,463)	3,733 (2,220)	118,484 (22,762)
Angler days		6,355 (3,515)	29,134 (14,067)	35,283 (12,318)	26,891 (9,085)	6,962 (5,047)	9,934 (6,463)	3,733 (2,220)	118,292 (22,731)



Appendix 41.—Estimated catch per hour, number caught, and effort (angler hours, trips, and days) for Black River Harbor (Lake Superior) by all modes (non-charter) of sportfishing, 1994. Bounds on the error of estimation in parentheses.

Species	Catch per hour	Month							Season
		Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0405 (0.0306)	— (0)	186 (143)	— (0)	8 (10)	— (0)	— (0)	— (0)	194 (143)
Chinook salmon	0.0031 (0.0048)	— (0)	15 (23)	— (0)	0 (0)	— (0)	— (0)	— (0)	15 (23)
Brown trout	0.0111 (0.0137)	— (0)	53 (65)	— (0)	0 (0)	— (0)	— (0)	— (0)	53 (65)
Lake trout	0.0261 (0.0175)	— (0)	8 (16)	— (0)	117 (79)	— (0)	— (0)	— (0)	125 (81)
Siscowet	0.0148 (0.0134)	— (0)	0 (0)	— (0)	71 (63)	— (0)	— (0)	— (0)	71 (63)
Walleye	0.0040 (0.0082)	— (0)	0 (0)	— (0)	19 (39)	— (0)	— (0)	— (0)	19 (39)
Lake whitefish	0.0035 (0.0072)	— (0)	17 (35)	— (0)	0 (0)	— (0)	— (0)	— (0)	17 (35)
Total	0.1030 (0.0444)	— (0)	279 (163)	— (0)	215 (109)	— (0)	— (0)	— (0)	494 (196)
Angler hours		— (0)	2,953 (589)	— (0)	1,842 (561)	— (0)	— (0)	— (0)	4,795 (813)
Angler trips		— (0)	628 (143)	— (0)	322 (103)	— (0)	— (0)	— (0)	950 (176)
Angler days		— (0)	628 (143)	— (0)	322 (103)	— (0)	— (0)	— (0)	950 (176)

Appendix 42.—Estimated catch per hour, number caught, and effort (angler hours, trips, and days) for the Ontonagon boat fishery (non-charter), 1994. Bounds on the error of estimation in parentheses.

Species	Catch per hour	Month			Season
		May	Jun	Jul	
Coho salmon	0.0111 (0.0121)	132 (215)	67 (76)	13 (19)	212 (229)
Chinook salmon	0.0066 (0.0054)	90 (86)	37 (55)	0 (0)	127 (102)
Rainbow trout	0.0037 (0.0075)	70 (141)	0 (0)	0 (0)	70 (141)
Brown trout	0.0026 (0.0037)	28 (56)	22 (44)	0 (0)	50 (71)
Lake trout	0.0465 (0.0192)	75 (81)	496 (263)	318 (214)	889 (349)
Siscowet	0.0205 (0.0141)	103 (148)	219 (210)	70 (61)	392 (264)
Walleye	0.0510 (0.0293)	585 (492)	361 (233)	29 (35)	975 (546)
Other	0.0026 (0.0046)	0 (0)	50 (89)	0 (0)	50 (89)
Total	0.1446 (0.0441)	1,083 (589)	1,252 (432)	430 (226)	2,765 (765)
Angler hours		6,004 (1,365)	9,523 (1,851)	3,596 (835)	19,123 (2,447)
Angler trips		1,369 (321)	1,877 (372)	857 (216)	4,103 (537)
Angler days		1,369 (321)	1,877 (372)	857 (216)	4,103 (537)

Appendix 43.—Estimated catch per hour, number caught, and effort (angler hours, trips, and days) for Traverse Bay (Lake Superior) by all modes (non-charter) of sportfishing, 1994. Bounds on the error of estimation in parentheses.

Species	Catch per hour	Month						Season
		May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0198 (0.0154)	11 (21)	0 (0)	– (0)	83 (118)	102 (96)	7 (14)	203 (154)
Chinook salmon	0.0090 (0.0088)	28 (34)	32 (66)	– (0)	0 (0)	32 (47)	0 (0)	92 (88)
Rainbow trout	0.0006 (0.0012)	0 (0)	6 (12)	– (0)	0 (0)	0 (0)	0 (0)	6 (12)
Lake trout	0.0864 (0.0408)	40 (42)	153 (266)	– (0)	327 (199)	195 (132)	172 (147)	887 (389)
Siscowet	0.1454 (0.0540)	163 (144)	274 (289)	– (0)	438 (221)	435 (240)	183 (172)	1,493 (490)
Total	0.2611 (0.0780)	242 (155)	465 (398)	– (0)	848 (320)	764 (294)	362 (227)	2,681 (650)
Angler hours		1,148 (417)	2,139 (1,062)	– (0)	2,527 (691)	3,013 (974)	1,443 (695)	10,270 (1,792)
Angler trips		280 (103)	449 (227)	– (0)	532 (148)	762 (258)	425 (226)	2,448 (449)
Angler days		280 (103)	449 (227)	– (0)	532 (148)	762 (258)	425 (226)	2,448 (449)

Appendix 44.—Estimated catch per hour, number caught, and effort (angler hours, trips, and days) for Keweenaw Bay by all modes (non-charter) of sportfishing, 1994. Bounds on the error of estimation in parentheses.

Species	Catch per hour	Month							Season
		Apr	May	Jun	Jul	Aug	Sep	Oct	
Pink salmon	0.0004 (0.0009)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	6 (14)	0 (0)	6 (14)
Coho salmon	0.0386 (0.0158)	0 (0)	240 (169)	79 (57)	24 (29)	38 (40)	56 (74)	133 (78)	570 (214)
Chinook salmon	0.0278 (0.0121)	0 (0)	115 (83)	196 (124)	56 (53)	13 (22)	31 (43)	0 (0)	411 (166)
Rainbow trout	0.0068 (0.0058)	65 (71)	12 (24)	0 (0)	0 (0)	9 (19)	0 (0)	14 (30)	100 (83)
Brown trout	0.0004 (0.0009)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	6 (14)	0 (0)	6 (14)
Lake trout	0.0110 (0.0121)	0 (0)	1 (2)	14 (27)	37 (59)	0 (0)	111 (165)	0 (0)	163 (177)
Siscowet	0.0219 (0.0166)	0 (0)	16 (24)	17 (30)	49 (70)	12 (25)	230 (224)	0 (0)	324 (239)
Yellow perch	0.0700 (0.0705)	0 (0)	0 (0)	0 (0)	1,034 (1,028)	0 (0)	0 (0)	0 (0)	1,034 (1,028)
Total	0.1769 (0.0804)	65 (71)	384 (191)	306 (142)	1,200 (1,034)	72 (55)	440 (292)	147 (84)	2,614 (1,107)
Angler hours		2,424 (1,970)	2,537 (663)	3,473 (772)	2,263 (643)	1,031 (348)	1,861 (598)	1,186 (315)	14,775 (2,431)
Angler trips		606 (516)	618 (176)	650 (165)	563 (166)	261 (94)	430 (139)	495 (125)	3,623 (629)
Angler days		606 (516)	618 (176)	650 (165)	563 (166)	261 (94)	430 (139)	495 (125)	3,623 (629)

Appendix 45.—Estimated catch per hour, number caught, and effort (angler hours, trips, and days) for Marquette by all modes (non-charter) of sportfishing, 1994. Bounds on the error of estimation in parentheses.

Species	Catch per hour	Month							Season
		Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0567 (0.0115)	2,006 (531)	544 (216)	120 (69)	108 (88)	33 (30)	183 (99)	35 (30)	3,029 (594)
Chinook salmon	0.0105 (0.0041)	247 (137)	175 (141)	48 (51)	52 (69)	7 (10)	25 (22)	5 (8)	559 (216)
Rainbow trout	0.0046 (0.0028)	96 (101)	110 (100)	12 (15)	0 (0)	3 (7)	22 (35)	5 (9)	248 (148)
Atlantic salmon	0.0005 (0.0008)	8 (17)	0 (0)	0 (0)	20 (40)	0 (0)	0 (0)	0 (0)	28 (43)
Brown trout	0.0004 (0.0004)	11 (13)	0 (0)	7 (14)	0 (0)	0 (0)	0 (0)	2 (4)	20 (20)
Brook trout	0.0001 (0.0002)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	5 (9)	0 (0)	5 (9)
Lake trout	0.1512 (0.0188)	78 (107)	450 (154)	2,211 (528)	1,217 (386)	1,983 (408)	1,114 (307)	1,025 (319)	8,078 (909)
Splake	0.0048 (0.0027)	17 (22)	51 (87)	0 (0)	0 (0)	0 (0)	5 (10)	181 (111)	254 (143)
Rockbass	0.0002 (0.0004)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	10 (19)	10 (19)
Siscowet	0.0026 (0.0020)	0 (0)	4 (5)	63 (84)	11 (22)	31 (56)	6 (8)	25 (32)	140 (109)
Lake herring	0.0013 (0.0010)	36 (30)	36 (50)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	72 (58)
Walleye	0.0001 (0.0001)	3 (6)	2 (3)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	5 (7)
Lake whitefish	0.0129 (0.0083)	174 (154)	408 (408)	2 (5)	0 (0)	0 (0)	0 (0)	104 (73)	688 (442)
Round whitefish	0.0164 (0.0076)	192 (219)	51 (80)	0 (0)	0 (0)	0 (0)	0 (0)	631 (326)	874 (401)
Total	0.2622 (0.0278)	2,868 (629)	1,831 (532)	2,463 (542)	1,408 (404)	2,057 (413)	1,360 (326)	2,023 (478)	14,010 (1,281)
Angler hours		11,320 (1,531)	9,436 (1,023)	10,419 (1,265)	7,262 (1,178)	5,603 (854)	5,652 (883)	3,744 (549)	53,436 (2,862)
Angler trips		3,636 (522)	3,116 (495)	2,545 (318)	1,621 (278)	1,369 (216)	1,295 (212)	1,276 (206)	14,858 (911)
Angler days		3,609 (523)	3,116 (495)	2,545 (318)	1,621 (278)	1,369 (216)	1,295 (212)	1,276 (206)	14,831 (912)

Appendix 46.—Estimated catch per hour, number caught, and effort (angler hours, trips, and days) for the Au Train boat fishery (non-charter) of sportfishing, 1994. Bounds on the error of estimation in parentheses.

Species	Catch per hour	Month					Season
		Apr	May	Jun	Jul	Aug	
Coho salmon	0.0934 (0.0443)	94 (99)	818 (472)	7 (11)	186 (170)	28 (23)	1,133 (512)
Chinook salmon	0.0039 (0.0042)	7 (15)	35 (46)	5 (11)	0 (0)	0 (0)	47 (50)
Rainbow trout	0.0015 (0.0018)	7 (15)	0 (0)	11 (16)	0 (0)	0 (0)	18 (22)
Brown trout	0.0010 (0.0014)	7 (15)	5 (9)	0 (0)	0 (0)	0 (0)	12 (17)
Lake trout	0.1350 (0.0440)	0 (0)	354 (189)	293 (140)	532 (360)	459 (212)	1,638 (479)
Siscowet	0.0054 (0.0039)	0 (0)	42 (38)	18 (23)	5 (10)	0 (0)	65 (46)
Total	0.2401 (0.0677)	115 (102)	1,254 (512)	334 (144)	723 (398)	487 (213)	2,913 (705)
Angler hours		569 (348)	4,901 (856)	2,045 (601)	3,054 (1,276)	1,565 (481)	12,134 (1,753)
Angler trips		200 (133)	1,024 (203)	488 (196)	546 (226)	252 (80)	2,510 (393)
Angler days		200 (133)	1,024 (203)	488 (196)	546 (226)	252 (80)	2,510 (393)

Appendix 47.—Estimated catch per hour, number caught, and effort (angler hours, trips, and days) for Munising Bay by all modes (non-charter) of sportfishing, 1994. Bounds on the error of estimation in parentheses.

Species	Catch per hour	Month						Season
		Apr	May	Jun	Jul	Aug	Sep	
Coho salmon	0.0728 (0.0419)	203 (118)	480 (234)	0 (0)	12 (17)	14 (25)	655 (726)	1,364 (772)
Chinook salmon	0.0133 (0.0098)	7 (14)	148 (163)	63 (71)	0 (0)	18 (37)	14 (20)	250 (183)
Rainbow trout	0.0154 (0.0179)	40 (37)	238 (331)	0 (0)	0 (0)	0 (0)	10 (20)	288 (334)
Brown trout	0.0020 (0.0037)	0 (0)	0 (0)	0 (0)	3 (6)	0 (0)	35 (71)	38 (71)
Lake trout	0.1084 (0.0358)	0 (0)	153 (123)	120 (105)	603 (258)	176 (275)	979 (489)	2,031 (638)
Splake	0.0297 (0.0202)	65 (67)	474 (367)	0 (0)	0 (0)	0 (0)	18 (40)	557 (375)
Siscowet	0.0022 (0.0023)	0 (0)	8 (16)	0 (0)	19 (33)	0 (0)	15 (23)	42 (43)
Lake herring	0.0011 (0.0022)	0 (0)	20 (40)	0 (0)	0 (0)	0 (0)	0 (0)	20 (40)
Smallmouth bass	0.0004 (0.0008)	0 (0)	0 (0)	0 (0)	7 (14)	0 (0)	0 (0)	7 (14)
Yellow perch	0.0074 (0.0088)	0 (0)	0 (0)	0 (0)	139 (165)	0 (0)	0 (0)	139 (165)
Lake whitefish	0.0123 (0.0116)	112 (136)	118 (166)	0 (0)	0 (0)	0 (0)	0 (0)	230 (215)
Round whitefish	0.0068 (0.0081)	102 (142)	26 (53)	0 (0)	0 (0)	0 (0)	0 (0)	128 (152)
Total	0.2720 (0.0689)	529 (242)	1,665 (611)	183 (127)	783 (309)	208 (279)	1,726 (880)	5,094 (1,181)
Angler hours		800 (279)	6,036 (1,148)	1,910 (540)	4,040 (800)	1,512 (508)	4,432 (1,019)	18,730 (1,904)
Angler trips		267 (126)	1,364 (277)	355 (106)	760 (160)	311 (115)	1,197 (286)	4,254 (474)
Angler days		267 (126)	1,364 (277)	355 (106)	760 (160)	311 (115)	1,197 (286)	4,254 (474)

Appendix 48.—Estimated catch per hour, number caught, and effort (angler hours, trips, and days) for the Dear River shore fishery, 1994. Bounds on the error of estimation in parentheses.

Species	Catch per hour	Month		Season
		Sep	Oct	
Coho salmon	0.0083 (0.0097)	0 (0)	31 (36)	31 (36)
Chinook salmon	0.0279 (0.0145)	0 (0)	104 (52)	104 (52)
White sucker	0.0013 (0.0026)	0 (0)	5 (10)	5 (10)
Total	0.0375 (0.0180)	0 (0)	140 (64)	140 (64)
Angler hours		2,021 (484)	1,713 (217)	3,734 (530)
Angler trips		1,032 (323)	792 (132)	1,824 (349)
Angler days		1,032 (323)	792 (132)	1,824 (349)



Appendix 49.—Estimated catch per hour, number caught, and effort (angler hours, trips, and days) for the Chocolay River shore fishery, 1994. Bounds on the error of estimation in parentheses.

Species	Catch per hour	Month	Season
		Sep	
Coho salmon	0.1379 (0.0777)	598 (294)	598 (294)
Rainbow trout	0.0025 (0.0050)	11 (22)	11 (22)
Northern pike	0.0030 (0.0063)	13 (27)	13 (27)
Total	0.1434 (0.0788)	622 (296)	622 (296)
Angler hours		4,338 (1,191)	4,338 (1,191)
Angler trips		1,829 (523)	1,829 (523)
Angler days		1,829 (523)	1,829 (523)

Appendix 50.—Estimated catch per hour, number caught, and effort (angler hours, trips, and days) for the Menominee area ice fishery, 1995. Bounds on the error of estimation in parentheses.

Species	Catch per hour	Month		Season
		Feb	Mar	
Brown trout	0.0095 (0.0089)	1 (3)	39 (37)	40 (37)
Splake	0.0277 (0.0179)	55 (51)	62 (54)	117 (74)
Northern pike	0.0121 (0.0099)	51 (41)	0 (0)	51 (41)
Yellow perch	0.2570 (0.1504)	738 (572)	348 (236)	1,086 (619)
Burbot	0.0007 (0.0014)	0 (0)	3 (6)	3 (6)
Total	0.3069 (0.1536)	845 (576)	452 (245)	1,297 (626)
Angler hours		2,392 (427)	1,834 (366)	4,226 (562)
Angler trips		637 (127)	473 (111)	1,110 (169)
Angler days		629 (127)	473 (111)	1,102 (169)

Appendix 51.—Estimated catch per hour, number caught, and effort (angler hours, trips, and days) for the Memoninee River ice fishery, 1995. Bounds on the error of estimation in parentheses.

Species	Catch per hour	Month		Season
		Feb	Mar	
Rainbow trout	0.0231 (0.0187)	37 (72)	128 (110)	165 (131)
Brown trout	0.0153 (0.0090)	12 (11)	97 (61)	109 (62)
Yellow perch	0.0139 (0.0160)	99 (113)	0 (0)	99 (113)
Walleye	0.0392 (0.0190)	60 (51)	220 (119)	280 (129)
Total	0.0914 (0.0343)	208 (144)	445 (173)	653 (225)
Angler hours		1,130 (178)	6,014 (1,045)	7,144 (1,060)
Angler trips		407 (80)	2,905 (458)	3,312 (465)
Angler days		407 (80)	2,885 (456)	3,292 (463)

Appendix 52.—Estimated catch per hour, number caught, and effort (angler hours, trips, and days) for the Little Bay de Noc ice fishery, 1995. Bounds on the error of estimation in parentheses.

Species	Catch per hour	Month			Season
		Jan	Feb	Mar	
Chinook salmon	0.0001 (0.0002)	0 (0)	7 (15)	0 (0)	7 (15)
Brown trout	0.0012 (0.0016)	0 (0)	139 (194)	11 (20)	150 (195)
Splake	0.0098 (0.0054)	56 (89)	634 (468)	572 (475)	1,262 (673)
Rainbow smelt	0.0001 (0.0002)	0 (0)	11 (22)	0 (0)	11 (22)
Northern pike	0.0113 (0.0053)	773 (539)	643 (386)	43 (79)	1,459 (668)
Yellow perch	0.2360 (0.0601)	8,086 (3,311)	14,979 (4,531)	7,399 (3,918)	30,464 (6,844)
Walleye	0.0512 (0.0199)	3,394 (2,135)	2,650 (990)	567 (656)	6,611 (2,443)
Burbot	0.0009 (0.0013)	76 (155)	39 (53)	0 (0)	115 (164)
Total	0.3105 (0.0680)	12,385 (3,980)	19,102 (4,682)	8,592 (4,002)	40,079 (7,333)
Angler hours		50,908 (10,758)	58,309 (6,899)	19,847 (8,791)	129,064 (15,512)
Angler trips		13,488 (2,994)	14,607 (1,861)	5,041 (2,398)	33,136 (4,264)
Angler days		13,488 (2,994)	12,287 (1,644)	4,269 (2,040)	30,044 (3,978)

Appendix 53.—Estimated catch per hour, number caught, and effort (angler hours, trips, and days) for the Tawas area ice fishery, 1995. Bounds on the error of estimation in parentheses.

Species	Catch per hour	Month			Season
		Jan	Feb	Mar	
Brown trout	0.0108 (0.0067)	0 (0)	6 (12)	230 (140)	236 (141)
Northern pike	0.0231 (0.0143)	338 (255)	167 (162)	0 (0)	505 (302)
Yellow perch	0.0331 (0.0169)	85 (129)	276 (195)	365 (262)	726 (351)
Walleye	0.0099 (0.0071)	44 (84)	10 (21)	163 (124)	217 (151)
Burbot	0.0056 (0.0076)	69 (140)	16 (33)	37 (79)	122 (164)
Total	0.0824 (0.0277)	536 (329)	475 (257)	795 (331)	1,806 (533)
Angler hours		11,666 (3,105)	5,546 (1,094)	4,695 (1,262)	21,907 (3,526)
Angler trips		3,700 (1,081)	1,853 (418)	1,511 (459)	7,064 (1,247)
Angler days		3,270 (983)	1,433 (349)	1,008 (293)	5,711 (1,083)

Appendix 54.—Estimated catch per hour, number caught, and effort (angler hours, trips, and days) for the Au Gres area ice fishery, 1995. Bounds on the error of estimation in parentheses.

Species	Catch per hour	Month			Season
		Jan	Feb	Mar	
Northern pike	0.0008 (0.0012)	0 (0)	68 (101)	0 (0)	68 (101)
Yellow perch	2.6130 (1.0416)	58,077 (28,246)	115,858 (68,284)	46,931 (26,449)	220,866 (78,486)
Walleye	0.0021 (0.0029)	0 (0)	142 (230)	39 (88)	181 (246)
Total	2.6159 (1.0418)	58,077 (28,246)	116,068 (68,284)	46,970 (26,449)	221,115 (78,486)
Angler hours		23,229 (7,462)	41,072 (11,475)	20,226 (6,755)	84,527 (15,264)
Angler trips		6,061 (1,878)	12,047 (4,052)	6,012 (2,213)	24,120 (4,984)
Angler days		5,252 (1,768)	10,086 (3,446)	4,103 (1,568)	19,441 (4,178)

Appendix 55.—Estimated catch per hour, number caught, and effort (angler hours, trips, and days) for the ice fishery in the area from Saganing Creek to the mouth of the Saginaw River, 1995. Bounds on the error of estimation in parentheses.

Species	Catch per hour	Month			Season
		Jan	Feb	Mar	
Rainbow trout	0.0003 (0.0006)	0 (0)	0 (0)	28 (58)	28 (58)
Northern pike	0.0006 (0.0012)	67 (129)	0 (0)	0 (0)	67 (129)
Rockbass	0.0002 (0.0004)	26 (55)	0 (0)	0 (0)	26 (55)
Yellow perch	1.9653 (1.0832)	110,213 (53,907)	69,950 (93,197)	36,621 (26,062)	216,784 (110,774)
Walleye	0.0262 (0.0147)	0 (0)	745 (616)	2,147 (1,382)	2,892 (1,513)
Total	1.9926 (1.0854)	110,306 (53,907)	70,695 (93,199)	38,796 (26,099)	219,797 (110,784)
Angler hours		53,950 (17,497)	29,738 (11,218)	26,616 (9,354)	110,304 (22,792)
Angler trips		16,120 (5,342)	7,651 (3,135)	8,307 (2,898)	32,078 (6,838)
Angler days		13,586 (4,569)	7,170 (2,948)	7,234 (2,589)	27,990 (6,022)

Appendix 56.—Estimated catch per hour, number caught, and effort (angler hours, trips, and days) for the open ice fishery in the area from Essexville to the mouth of the Saginaw River, 1995. Bounds on the error of estimation in parentheses.

Species	Catch per hour	Month	
		Feb	Season
Yellow perch	0.7280 (1.3192)	1,108 (1,845)	1,108 (1,845)
Walleye	0.1248 (0.2163)	190 (300)	190 (300)
Total	0.8528 (1.3710)	1,298 (1,869)	1,298 (1,869)
Angler hours		1,522 (1,088)	1,522 (1,088)
Angler trips		270 (198)	270 (198)
Angler days		227 (171)	227 (171)



Appendix 57.—Estimated catch per hour, number caught, and effort (angler hours, trips, and days) for open ice fishery in the area from Quanicassee to Sebewaing, 1995. Bounds on the error of estimation in parentheses.

Species	Catch per hour	Month			Season
		Jan	Feb	Mar	
Northern pike	0.0013 (0.0037)	56 (158)	0 (0)	0 (0)	56 (158)
White perch	0.0001 (0.0002)	0 (0)	6 (14)	0 (0)	6 (14)
Yellow perch	1.1349 (0.5715)	5,310 (6,544)	18,557 (10,358)	23,442 (14,006)	47,309 (18,609)
Walleye	0.0097 (0.0084)	0 (0)	234 (189)	169 (266)	403 (326)
Total	1.1460 (0.5737)	5,366 (6,546)	18,797 (10,360)	23,611 (14,009)	47,774 (18,613)
Angler hours		4,098 (4,308)	15,036 (7,784)	22,553 (9,623)	41,687 (13,105)
Angler trips		1,373 (1,444)	3,049 (1,681)	7,104 (3,195)	11,526 (3,888)
Angler days		1,054 (1,126)	2,594 (1,371)	5,200 (2,354)	8,848 (2,948)

Appendix 58.—Estimated catch per hour, number caught, and effort (angler hours, trips, and days) for the ice fishery in the area from Sebewaing to Sand Point, 1995. Bounds on the error of estimation in parentheses.

Species	Catch per hour	Month			Season
		Jan	Feb	Mar	
White perch	0.0025 (0.0054)	0 (0)	387 (836)	0 (0)	387 (836)
Yellow perch	2.1791 (0.8311)	81,065 (65,320)	177,620 (74,262)	76,826 (44,997)	335,511 (108,657)
Walleye	0.0014 (0.0021)	0 (0)	144 (297)	67 (105)	211 (315)
Total	2.1830 (0.8315)	81,065 (65,320)	178,151 (74,267)	76,893 (44,997)	336,109 (108,660)
Angler hours		25,537 (12,404)	90,883 (25,147)	37,550 (13,263)	153,970 (31,018)
Angler trips		6,358 (3,391)	18,842 (5,390)	10,325 (3,614)	35,525 (7,322)
Angler days		5,557 (2,949)	17,925 (5,230)	7,938 (2,999)	31,420 (6,711)

Appendix 59.—Estimated catch per hour, number caught, and effort (angler hours, trips, and days) for the open ice fishery in the area from Sand Point to Port Austin, 1995. Bounds on the error of estimation in parentheses.

Species	Catch per hour	Month			Season
		Jan	Feb	Mar	
Yellow perch	0.6936 (1.1762)	– (0)	283 (356)	– (0)	283 (356)
Total	0.6936 (1.1762)	– (0)	283 (356)	– (0)	283 (356)
Angler hours		– (0)	408 (464)	– (0)	408 (464)
Angler trips		– (0)	186 (224)	– (0)	186 (224)
Angler days		– (0)	122 (147)	– (0)	122 (147)

Appendix 60.—Estimated catch per hour, number caught, and effort (angler hours, trips, and days) for the Keweenaw Bay area ice fishery, 1995. Bounds on the error of estimation in parentheses.

Species	Catch per hour	Month			Season
		Jan	Feb	Mar	
Coho salmon	0.0565 (0.0343)	— (0)	738 (602)	1,473 (660)	2,211 (893)
Chinook salmon	0.0025 (0.0025)	— (0)	59 (77)	39 (38)	98 (86)
Rainbow trout	0.0021 (0.0024)	— (0)	29 (67)	53 (54)	82 (86)
Brown trout	0.0011 (0.0019)	— (0)	40 (71)	2 (5)	42 (71)
Lake trout	0.0098 (0.0087)	— (0)	127 (184)	257 (228)	384 (293)
Rainbow smelt	0.2134 (0.1539)	— (0)	3,914 (3,326)	4,436 (3,298)	8,350 (4,684)
Northern pike	0.0005 (0.0010)	— (0)	0 (0)	20 (41)	20 (41)
Siscowet	0.0207 (0.0165)	— (0)	544 (490)	266 (205)	810 (531)
Lake herring	0.0053 (0.0047)	— (0)	22 (52)	187 (150)	209 (159)
Yellow perch	0.4110 (0.2941)	— (0)	13,231 (8,616)	2,854 (2,265)	16,085 (8,909)
Lake whitefish	0.0003 (0.0006)	— (0)	10 (21)	0 (0)	10 (21)
Round whitefish	0.0028 (0.0039)	— (0)	80 (127)	28 (61)	108 (141)
Burbot	0.0006 (0.0009)	— (0)	0 (0)	24 (33)	24 (33)
Total	0.7265 (0.4187)	— (0)	18,794 (9,272)	9,639 (4,071)	28,433 (10,126)
Angler hours		— (0)	25,817 (17,152)	13,318 (4,501)	39,135 (17,733)
Angler trips		— (0)	8,729 (5,726)	4,542 (1,529)	13,271 (5,927)
Angler days		— (0)	8,729 (5,726)	4,542 (1,529)	13,271 (5,927)

Appendix 61.—Estimated catch per hour, number caught, and effort (angler hours, trips, and days) for the Marquette Harbor ice fishery, 1995. Bounds on the error of estimation in parentheses.

Species	Catch per hour	Month	
		Mar	Season
Coho salmon	0.2086 (0.0878)	803 (275)	803 (275)
Chinook salmon	0.0005 (0.0010)	2 (4)	2 (4)
Rainbow trout	0.0013 (0.0029)	5 (11)	5 (11)
Brown trout	0.0013 (0.0029)	5 (11)	5 (11)
Lake trout	0.0023 (0.0046)	9 (18)	9 (18)
Splake	0.0169 (0.0131)	65 (48)	65 (48)
Lake herring	0.0086 (0.0119)	33 (45)	33 (45)
Burbot	0.0010 (0.0018)	4 (7)	4 (7)
Total	0.2406 (0.0944)	926 (284)	926 (284)
Angler hours		3,849 (942)	3,849 (942)
Angler trips		1,426 (331)	1,426 (331)
Angler days		1,420 (330)	1,420 (330)

Appendix 62.—Estimated catch per hour, number caught, and effort (angler hours, trips, and days) for the Munising Bay ice fishery, 1995. Bounds on the error of estimation in parentheses.

Species	Catch per hour	Month			Season
		Feb	Mar	Apr	
Coho salmon	0.0115 (0.0077)	20 (40)	0 (0)	114 (76)	134 (86)
Splake	0.0289 (0.0222)	317 (250)	0 (0)	20 (26)	337 (251)
Rainbow smelt	0.1807 (0.2208)	0 (0)	1,746 (2,532)	364 (297)	2,110 (2,549)
Lake herring	0.0272 (0.0359)	0 (0)	315 (415)	3 (7)	318 (415)
Lake whitefish	0.2355 (0.1536)	2,371 (1,688)	379 (328)	0 (0)	2,750 (1,720)
Round whitefish	0.0258 (0.0297)	34 (69)	262 (335)	5 (10)	301 (342)
Burbot	0.0001 (0.0003)	0 (0)	0 (0)	1 (3)	1 (3)
Total	0.5096 (0.2843)	2,742 (1,708)	2,702 (2,608)	507 (308)	5,951 (3,133)
Angler hours		5,938 (1,696)	5,073 (1,301)	667 (285)	11,678 (2,156)
Angler trips		1,498 (443)	1,664 (459)	201 (93)	3,363 (645)
Angler days		1,498 (443)	1,664 (459)	201 (93)	3,363 (645)