

**MICHIGAN DEPARTMENT OF NATURAL RESOURCES  
FISHERIES DIVISION**

**STATUS OF CERTAIN FISH SPECIES  
IN MICHIGAN WATERS OF  
LAKE ST. CLAIR AND LAKE ERIE  
1992**

by

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## **Creel Survey**

An on-site creel survey conducted by the Michigan Department of Natural Resources (MDNR), produced a total harvest estimate for Michigan's 1992 Lake Erie sport fishery (non-charter) of 530,032 fish (Table 1). Walleye (41%) and yellow perch (45%) accounted for 86% of the total catch. The only other considerable contributions to the harvest were from white bass (6%), channel catfish (4%), and white perch (2%). Angler effort declined slightly from 1991 (Table 2), continuing the trend begun in 1989. Since 1988, fishing pressure in Michigan waters of Lake Erie has declined over 80%. In 1992, walleye catch rates increased 66% over 1991, but were still lower than the catch rates seen in the 1986 to 1990 period. While yellow perch catch rates have fluctuated since 1986, the estimated harvest has declined by 84% since 1989 (Table 2).

Biological samples were collected from walleye and yellow perch during the 1992 on-site creel survey (Tables 3 and 4). Age 2 fish (1990 year class) dominated the walleye harvest, accounting for over 43% of the catch. Harvested age 2 walleye averaged 364 mm (14.3 in.) total length. The 1989 through 1986 year classes contributed a combined 44% of the total walleye harvest. Yellow perch harvest was dominated by Age 2 and Age 3 fish, which in combination accounted for nearly 75% of the harvest. The average lengths of harvested age 2 and age 3 yellow perch was 190 mm (7.5 in) and 199 mm (7.8 in) respectively.

Since 1989, Michigan charter boat operators have been required to report their charter fishing catch and effort to the MDNR. In 1992, Michigan charter boat anglers harvested 53,147 fish from Lake Erie (Table 5). Walleye (64%) and yellow perch (34%) were the only major species in the charter boat harvest, accounting for 98% of the catch. Charter boat catch rates for walleye were roughly 3 times higher than those estimated for non-charter anglers. Yellow perch catch rates were also higher for charter anglers.

During the period since 1989, walleye catch rates have remained relatively stable for Lake Erie charters, but have declined markedly for Lake St. Clair charters (Table 6). The 1992 Lake St. Clair charter catch rate for walleye, 0.1369 fish per hour, represents a 60% decline in walleye catch rates since 1989. Concurrently, the catch rate of "other" fish species, primarily smallmouth bass and muskellunge, has increased by 97% for Lake St. Clair charters. These data match the general fishing reports that we have heard from many Lake St. Clair sports anglers over the past four years.

In 1992, twenty-five Lake St. Clair muskellunge were entered in the MDNR voluntary angler recognition program (Master Angler Program), the highest number entered in a single year since before 1986 (Table 7). The number entered in 1992 which exceeded 30 pounds in weight was also the highest since before 1986. This follows the many positive comments from Lake St. Clair muskellunge anglers about the size and abundance of muskellunge in Lake St. Clair during the past several years. We feel that increased minimum size limits and frequency of catch and release fishing were the main reasons for the improved muskellunge population.

## **Commercial Harvest**

In 1992, two licensed commercial seine operations in the shallow embayments along Michigan's Lake Erie shoreline harvested nine species for a total of 291,369 pounds (Table 8). With the exception of February, commercial seines were fished every month. In combination, carp (86%) and quillback (10%) accounted for 96% of the total harvest by weight. The total value of the 1992 Lake Erie

commercial harvest from Michigan waters was estimated at \$45,856.76.

### Netting Surveys

The Michigan waters of the western basin of Lake Erie have been monitored with spring trap net surveys since 1978. In 1992, total catch per net day (CPUE) for all species combined was the second lowest recorded since 1978 (Table 9). CPUE values declined sharply for walleye, white perch, and freshwater drum. As in 1990, Secchi disc readings recorded in 1992 often exceeded 3.0 meters. Mean secchi disc reading in 1992 was 2.2 meters, a 75% increase over 1991. It is possible that net avoidance contributed to low total CPUE in 1990 and 1992.

Age 6 walleye made up 33% of the trap net walleye catch (Table 10), reflecting the strength of the 1986 year class. Overall, 75% of the walleye captured were Age 6 or younger. No yearling walleye, (1991 year class) were captured during the trap net survey. A total of 2,012 walleye captured in the trap nets were tagged and released as part of the ongoing interagency tagging project. In addition, 498 walleye were captured with electrofishing gear on the Huron River, tagged and released.

In 1992, a total of 10,561 walleye were tagged by Ontario, Ohio, New York, Pennsylvania, and Michigan at 13 different Lake Erie sites. A total of 296 of those tags were recovered by fishermen for a single season reporting rate of 2.8%. The 1992 site-specific reporting rate varied from a low of 0.4% at Barcelona, New York to a high of 4.6% for the Maumee River tag site in Ohio. Other sites with reporting rates over 3.0% were Sugar Rock, Ohio (3.9%) and Monroe, Michigan (3.5%). The West Basin tag sites apparently had the highest exploitation rate.

There has been considerable concern among fishermen and resource managers over the apparent decline in walleye fishing success in Lake St. Clair and the connecting channels. Geographical mapping of walleye tag recoveries (Figures 1-3) indicates only a modest decline in 1992. There appear to be differences between tag sites which may point to behavioral and temporal differences in walleye movement patterns.

Tag recovery analyses conducted on combined data from Michigan and Ohio showed that walleye tag reporting rate in 1992 was as high or higher than expected based on prior years. There apparently is little evidence from tagging that walleye fishing had declined for the Lake Erie stocks.

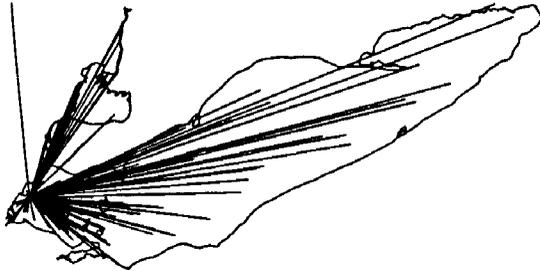
Michigan DNR has tagged walleye at the Monroe site each year since 1978. The geographical distribution of tag recoveries for each fishing year are shown in Figures 4-7. There has been a dramatic increase in reports of tagged walleye from the east, steadily spreading into the Central and Eastern basins. It is difficult to determine how much, if any, of this change was due to fish movement patterns. Most evidence suggests that it was due to the well documented expansion of the sport fishery and increased public awareness of the tagging study.

Age 6 (22%), age 7 (18%), and age 3 (17%) yellow perch comprised 57% of the trap net perch catch in 1992 (Table 11). In total, over 92% were between age 3 and age 8. Growth of yellow perch during the past five years, reflected by mean length at age from trap net samples, appears to be good. Growth rates seem to have increased slightly during this time period.

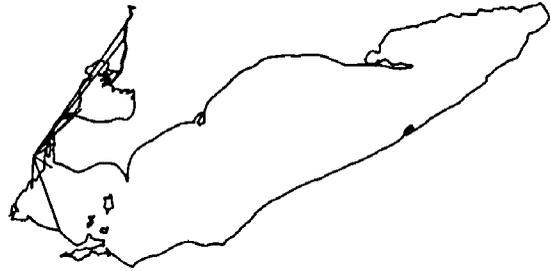
Since 1978, the MDNR has fished variable mesh multi-filament gill nets at two locations in western Lake Erie each fall, as part of the interagency yearling walleye assessment program. During 1992,

a total of 619 walleye were caught in four standard lifts (Table 12). The yearling catch per net lift of 63.0 suggests that the 1991 year class is relatively strong (Table 13). Further, the mean length of yearling walleye in 1992 was one of the lowest observed since 1983 (Table 14). If mean fall yearling length is assumed to be a function of yearling walleye density, the 1991 year class may be the strongest since 1982. It is likely that the absence of yearling walleye in the 1992 spring trap net survey is a reflection of this unusually small yearling mean length.

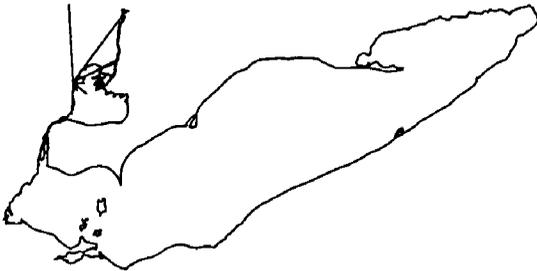
For the second consecutive year, the 1992 fall gill net survey also included 4 net lifts of variable mesh monofilament gill nets, to provide comparative catch data with the variable mesh multifilament gill nets. Monofilament nets caught a total of 254 walleye in 1992 (Table 15).



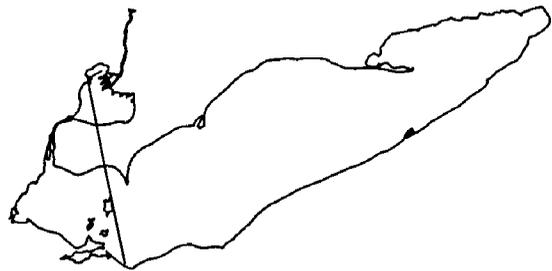
Monroe site



Huron River site

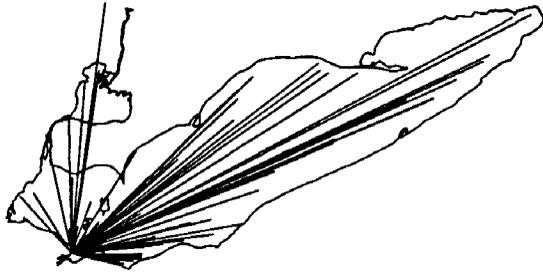


Clinton River Spillway site

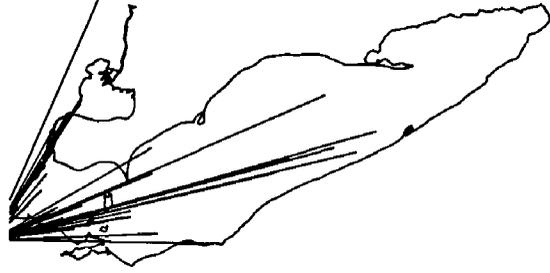


Lower Clinton River site

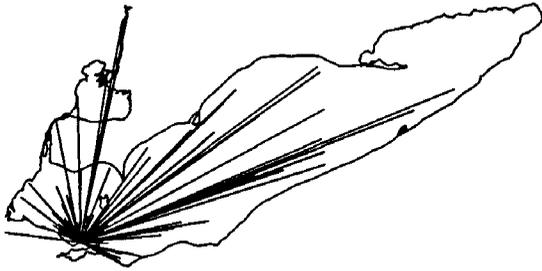
Figure 1.—Geographical distribution of walleye tags recovered in 1992 from four Michigan tag sites on Lake St. Clair and Lake Erie.



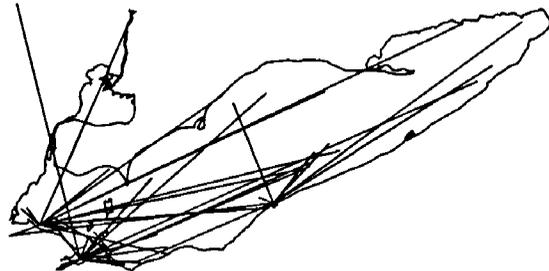
Sandusky Bay site



Maumee River site

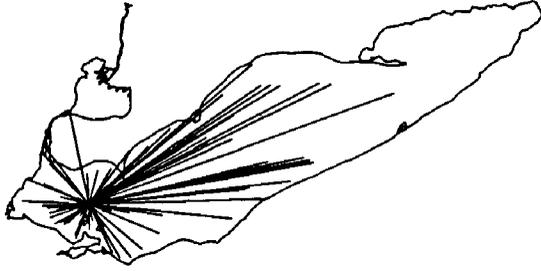


Sugar Rock site

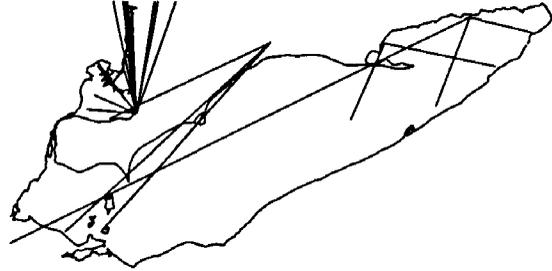


Sandusky River, Bono,  
Cedar Point, and Grand River sites

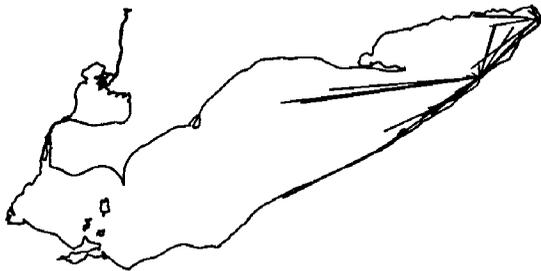
Figure 2.—Geographical distribution of walleye tags recovered in 1992 from seven Ohio tag sites on Lake Erie.



Chicken and Hen Islands site

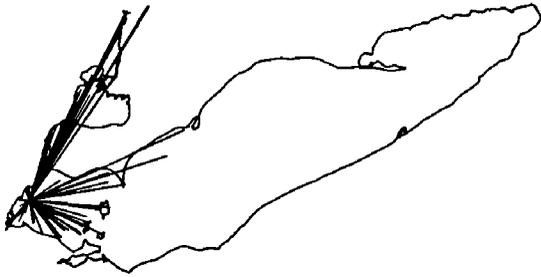


Thames River, Port Stanley,  
Long Point, and Port Maitland sites

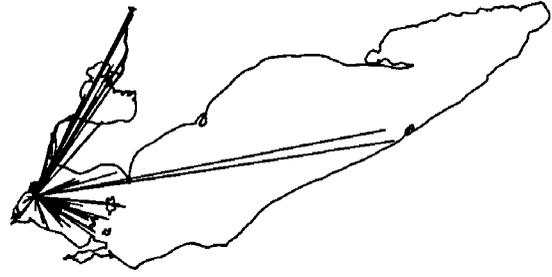


Lackawanna, Van Buren Bay,  
Barcelona, and Walnut Creek sites

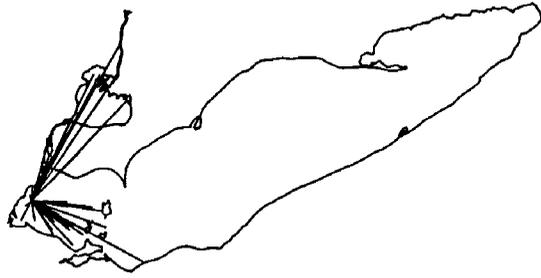
Figure 3.—Geographical distribution of walleye tags recovered in 1992 from five Ontario sites, three New York sites, and one Pennsylvania tag site on Lake Erie.



1980

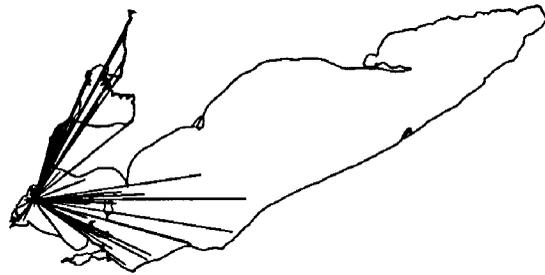


1979

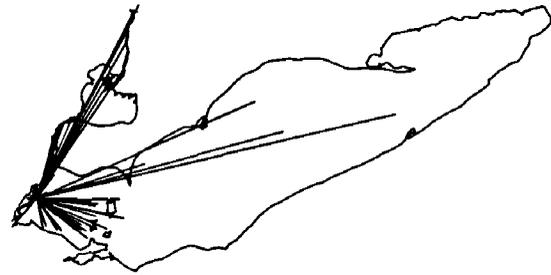


1978

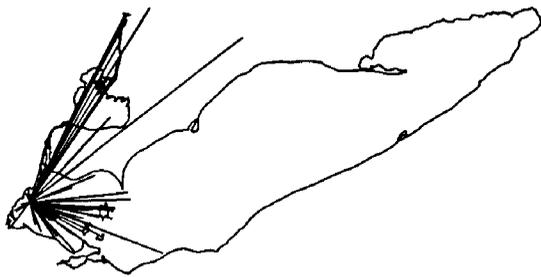
Figure 4.—Geographical distribution of tag recoveries during each of four years from walleye tagged at the Monroe, Michigan site on Lake Erie.



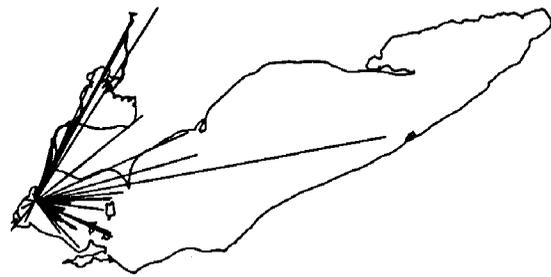
1984



1983

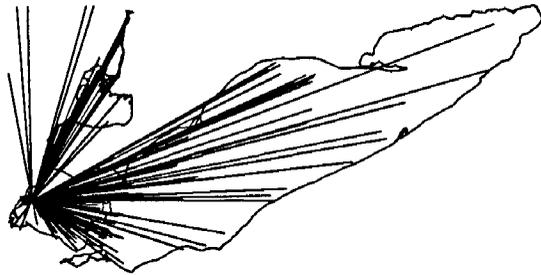


1982

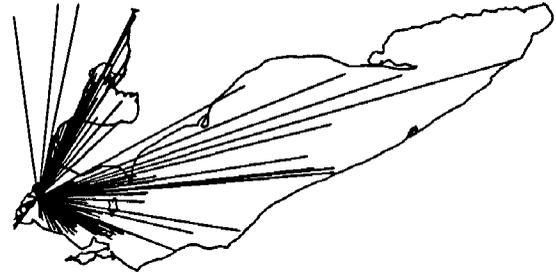


1981

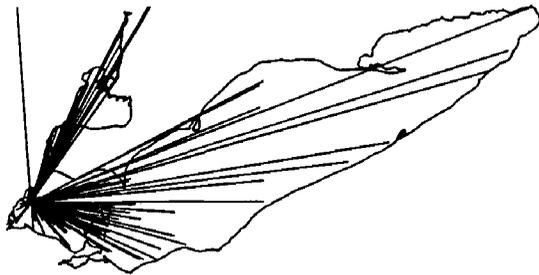
Figure 5.—Geographical distribution of tag recoveries during each of four years from walleye tagged at the Monroe, Michigan site on Lake Erie.



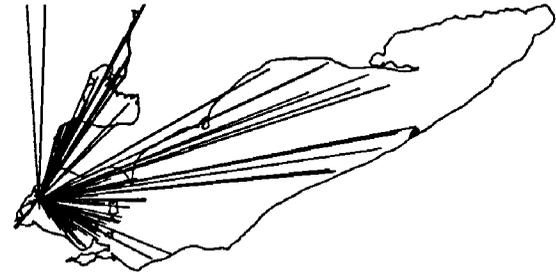
1988



1987

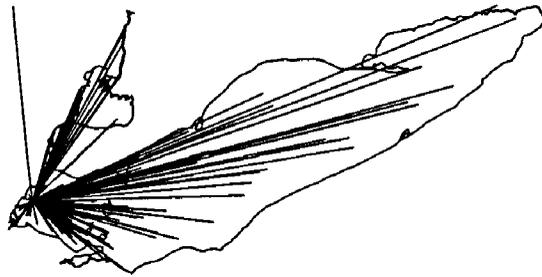


1986

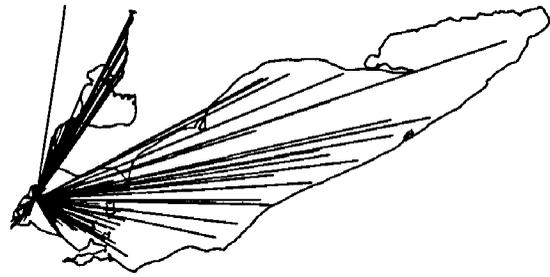


1985

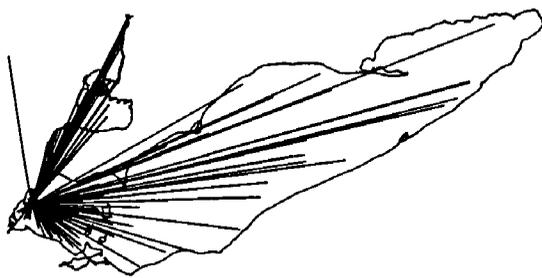
Figure 6.—Geographical distribution of tag recoveries during each of four years from walleye tagged at the Monroe, Michigan site on Lake Erie.



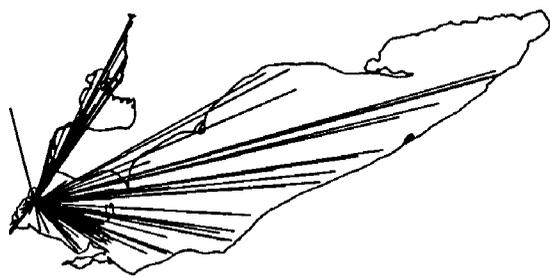
1992



1991



1990



1989

Figure 7.—Geographical distribution of tag recoveries during each of four years from walleye tagged at the Monroe, Michigan site on Lake Erie.

Table 1. Estimated sport harvest, catch rate, and effort for Michigan's 1992 Lake Erie non-charter boat fishery. Two standard errors in parentheses.

Species	Total C/H	Apr	May	Jun	Jul	Aug	Sep	Oct	Season
Yellow perch	0.2988 (0.1016)	0 (---)	1,089 (528)	7,357 (3,313)	4,363 (2,107)	11,950 (5,845)	123,793 (51,852)	88,356 (49,618)	236,908 (72,114)
Walleye	0.2720 (0.0695)	759 (655)	31,545 (10,831)	44,486 (15,341)	99,552 (37,836)	37,519 (13,398)	1,704 (1,775)	34 (74)	215,599 (44,354)
Channel catfish	0.0290 (0.0106)	255 (403)	1,118 (706)	2,041 (1,801)	6,197 (5,080)	7,321 (4,044)	5,008 (3,265)	1,049 (1,298)	22,989 (7,643)
White perch	0.0150 (0.0055)	0 (---)	2,533 (1,447)	1,231 (1,130)	1,459 (1,005)	2,721 (2,448)	2,355 (1,693)	1,627 (1,587)	11,926 (3,970)
White bass	0.0401 (0.0192)	1,123 (2,386)	14,984 (8,007)	8,012 (10,522)	3,983 (4,226)	1,572 (1,657)	1,939 (2,917)	203 (256)	31,816 (14,481)
Northern pike	0.0000 (---)	0 (---)	0 (---)	7 (14)	21 (45)	0 (---)	0 (---)	0 (---)	28 (47)
Yellow bullhead	0.0000 (---)	29 (60)	0 (---)	0 (---)	0 (---)	0 (---)	0 (---)	0 (---)	29 (60)
Rockbass	0.0012 (0.0008)	0 (---)	35 (44)	0 (---)	288 (447)	207 (211)	447 (403)	0 (---)	977 (639)
Bluegill	0.0014 (0.0016)	95 (205)	68 (90)	0 (---)	0 (---)	516 (925)	456 (846)	7 (12)	1,142 (1,273)
Smallmouth bass	0.0015 (0.0007)	0 (---)	10 (20)	306 (394)	238 (184)	370 (251)	148 (170)	102 (138)	1,174 (548)
Largemouth bass	0.0003 (0.0003)	0 (---)	90 (143)	85 (129)	62 (105)	0 (---)	0 (---)	0 (---)	237 (219)
White crappie	0.0001 (0.0002)	0 (---)	0 (---)	0 (---)	0 (---)	0 (---)	0 (---)	59 (127)	59 (127)
Black crappie	0.0001 (0.0001)	63 (136)	37 (77)	0 (---)	18 (37)	0 (---)	0 (---)	0 (---)	118 (161)
Freshwater drum	0.0086 (0.0040)	53 (77)	2,135 (1,625)	1,544 (2,127)	1,157 (970)	1,079 (590)	740 (573)	74 (137)	6,782 (2,968)

Table 1. Continued

Species	Total C/H	Apr	May	Jun	Jul	Aug	Sep	Oct	Season
Coho salmon	0.0000 (---)	10 (15)	0 (---)	0 (---)	0 (---)	0 (---)	0 (---)	0 (---)	10 (15)
Rainbow trout	0.0000 (---)	0 (---)	0 (---)	0 (---)	0 (---)	13 (28)	0 (---)	0 (---)	13 (28)
Lake trout	0.0001 (0.0001)	0 (---)	0 (---)	0 (---)	52 (68)	0 (---)	0 (---)	0 (---)	52 (68)
Other	0.0002 (0.0002)	72 (105)	45 (81)	20 (41)	0 (---)	5 (11)	31 (49)	0 (---)	173 (148)
Total	0.6686 (0.1487)	2,459 (2,523)	53,689 (13,674)	65,089 (19,138)	117,390 (38,495)	63,273 (15,494)	136,621 (52,106)	91,511 (49,662)	530,032 (86,388)
Angler hours		15,802 (6,843)	118,632 (41,469)	179,924 (55,255)	189,869 (65,924)	170,619 (61,779)	88,496 (35,176)	29,395 (13,507)	792,737 (120,008)
Angler trips		3,205 (1,292)	21,926 (7,564)	36,040 (12,328)	35,317 (12,045)	30,255 (11,260)	17,627 (6,768)	6,171 (2,863)	150,541 (23,168)
Angler days		3,205 (1,292)	21,774 (7,516)	35,914 (12,309)	35,317 (12,045)	30,255 (11,260)	17,627 (6,768)	6,171 (2,863)	150,263 (23,142)

Table 2.—Estimated sport harvest, catch rate (fish per hour), and angler effort for walleye and yellow perch from the Lake Erie boat fishery, April 15 - October 31, 1986-1992. Two standard errors in parentheses.

Species	1986	1987	1988 <sup>1</sup>	1989	1990	1991	1992
Walleye harvest	605,666 (110,365)	902,378 (151,024)	1,996,824 (419,055)	1,092,289 (205,068)	780,239 (145,900)	132,427 (22,873)	215,599 (44,354)
Walleye catch rate	.291 (.064)	.367 (.077)	.458 (.121)	.288 (.068)	.314 (.071)	.164 (.037)	.272 (.069)
Yellow perch harvest	844,294 (220,555)	619,112 (385,740)	318,786 (205,749)	1,466,372 (242,822)	769,736 (368,162)	378,654 (80,078)	236,908 (72,114)
Yellow perch catch rate	.406 (.117)	.252 (.160)	.073 (.049)	.386 (.084)	.310 (.156)	.470 (.129)	.299 (.102)
Angler hours	2,079,668 (252,852)	2,455,903 (308,709)	4,362,452 (702,522)	3,799,139 (545,688)	2,481,670 (298,193)	805,387 (120,402)	792,737 (120,008)

<sup>1</sup>Sample period, May through September.

Table 3.—Age distribution, mean length (mm), and mean weight (kg) of walleye sampled from Michigan's sport fishery in 1992.

Year class	Age	Number	Percent	Mean length	Mean weight
1990	2	224	43.8	364	0.46
1989	3	57	11.1	436	0.76
1988	4	59	11.5	469	0.97
1987	5	48	9.4	486	1.07
1986	6	60	11.7	533	1.43
1985	7	26	5.1	568	1.76
1984	8	21	4.1	575	1.81
1983	9	3	0.6	651	2.54
1982	10	12	2.3	641	2.58
1981	11	0	0.0		
1980	12	2	0.4	686	3.15
All fish		572		444	0.92

Table 4.—Mean length (mm), weight (g), and age distribution of yellow perch sampled from Michigan angler catch during 1992.

Year class	Age	Number	Percent	Mean length	Mean weight
1991	1	3	0.4	181	76
1990	2	310	41.6	190	103
1989	3	246	33.0	199	119
1988	4	74	9.9	209	134
1987	5	29	3.9	225	174
1986	6	47	6.3	232	173
1985	7	17	2.3	255	363
1984	8	15	2.0	250	227
1983	9	3	0.4	281	378
1982	10	1	0.1	318	454
All fish		1,030		202	128

Table 5.—Total catch per hour, catch per excursion, number caught, and fishing effort (angler hours, trips, and charter excursions) for charter boats on Lake Erie, 1992.

Species	Total catch per hour	Total catch per excursion	Month							Season Total
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0001	0.0018	3	0	0	0	0	0	0	3
Chinook salmon	0.0001	0.0018	3	0	0	0	0	0	0	3
Rainbow trout	0.0001	0.0024	0	0	3	1	0	0	0	4
Yellow perch	0.4148	10.7449	0	172	345	85	256	12,921	4,122	17,901
Walleye	0.7882	20.4184	288	7,058	15,852	9,108	1,682	27	2	34,017
Other	0.0282	0.7317	0	460	526	125	47	61	0	1,219
Angler hours			669	8,957	19,035	8,920	2,490	2,043	1,045	43,158
Angler trips			132	1,668	3,664	1,769	464	392	191	8,280
Anglers										
Resident			120	1,412	3,097	1,592	447	352	182	7,202
Nonresident			12	256	567	177	17	40	9	1,078
Charter excursions			29	346	715	355	99	86	36	1,666

Table 6.—Michigan charter boat catch and effort for Lake Erie and Lake St. Clair, 1989 - 1992.

	1989	1990	1991	1992
<b>Lake Erie</b>				
Total Walleye Catch/hr	0.7561	0.7449	0.6276	0.7882
Total Walleye Catch	14,868	33,379	24,640	34,017
Total Y.perch Catch/hr	1.3105	0.2941	0.3410	0.4148
Total Y.perch Catch	25,769	13,177	13,389	17,901
Charter Excursions	818	1,684	1,445	1,666
<b>Lake St. Clair</b>				
Total Walleye Catch/hr	0.3446	0.3242	0.2040	0.1369
Total Walleye Catch	3,892	6,881	3,607	1,550
Total Y.perch Catch/hr	0.1427	0.1375	0.1678	0.1410
Total Y.perch Catch	1,612	2,919	2,968	1,597
Other species Catch/hr	0.2103	0.2043	0.2577	0.4155
Total "other" catch	2,375	4,336	4,558	4,705
Charter Excursions	412	779	643	448

Table 7.—Summary of Lake St. Clair Great Lakes Muskellunge entered in the Michigan Department of Natural Resources Master Angler Program, 1987 - 1992.

	1986	1987	1988	1989	1990	1991	1992
Entries	8	18	19	16	14	13	25
Max. wt.	30.8	29.5	33.5	31.3	34.1	37.5	36.4
Number over 30 pounds	1	0	3	4	5	3	11

Table 8.—Commercial harvest (pounds) from Michigan waters of Lake Erie in 1992.

Species	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Carp	20920	0	5300	16019	52337	87940	14399	2075	8600	26525	5950	11300	251365
Quillback	0	0	0	1511	10493	18135	16	0	0	22	27	0	30204
Catfish	0	0	47	208	1925	1239	1082	0	0	122	206	0	4829
Gizzard shad	0	0	140	2705	0	0	0	0	0	0	0	0	2845
Goldfish	0	0	230	360	435	0	0	0	0	0	0	0	1025
Bullheads	0	0	147	0	0	0	142	0	0	0	155	0	444
White bass	0	0	0	105	0	85	0	0	0	0	167	0	357
Freshwater drum	0	0	0	174	0	3	0	0	0	113	0	0	290
White perch	0	0	0	0	0	0	0	0	0	0	10	0	10
Total	20920	0	5864	21082	65190	107402	15639	2075	8600	26782	6515	11300	291369

Table 9.—Mean catch per trap net lift for all species taken during spring trap net surveys on Lake Erie.

Species	Survey year										Mean					
	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987		1988	1989	1990	1991	1992
Walleye	28.1	49.0	18.1	20.6	38.8	26.1	36.6	75.5	61.7	33.9	83.1	35.9	23.8	95.9	37.7	44.3
Smallmouth bass	0.1	0.0	0.0	0.1	0.2	0.1	0.1	0.1	0.1	0.0	0.1	0.3	0.1	0.2	0.1	0.1
Yellow perch	377.0	320.0	669.0	512.0	146.0	257.0	129.0	156.0	40.3	174.0	23.0	48.1	7.7	29.5	35.0	194.9
Rock bass	1.2	0.8	1.9	0.9	1.5	1.3	1.0	1.5	0.7	1.5	0.9	0.8	0.3	0.8	0.5	1.0
White bass	1.5	1.5	3.7	1.4	10.5	4.9	2.5	2.8	7.6	0.4	5.3	4.7	0.9	1.6	0.5	3.3
White perch	0.0	0.1	0.3	0.5	24.6	35.0	10.9	38.9	30.3	43.5	63.1	233.0	40.5	56.8	5.1	38.8
Pumpkinseed	0.1	0.0	0.0	0.1	0.1	0.1	0.0	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.1
Bluegill	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.2	0.0	0.0
Black crappie	0.2	0.0	0.2	0.0	0.1	0.0	0.1	0.1	0.2	0.2	0.4	0.2	0.0	0.0	0.0	0.1
Channel catfish	3.5	9.7	5.4	5.8	4.9	10.6	4.6	5.5	5.4	2.7	3.5	4.1	9.0	6.0	4.6	5.7
Brown bullhead	0.2	1.1	1.6	1.9	1.7	4.2	2.5	1.5	4.1	0.9	9.2	3.9	13.1	4.3	4.0	3.6
Northern pike	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Muskellunge	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
White sucker	7.8	8.3	7.9	12.2	8.7	6.7	10.2	33.0	10.2	7.0	6.7	2.8	4.3	13.5	14.6	10.3
Redhorse sp.	2.4	1.2	0.6	1.0	0.8	1.5	1.7	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6
Freshwater drum	37.4	66.8	14.0	42.9	13.4	23.5	25.1	30.6	25.3	9.1	15.6	6.4	5.1	25.6	8.9	23.3
Common carp	5.1	26.1	4.7	8.2	6.9	14.9	3.5	2.0	1.9	0.6	6.0	0.6	2.3	2.3	1.3	5.8
Goldfish	4.8	2.4	0.3	0.4	0.4	2.5	0.6	0.2	0.1	0.0	0.2	0.1	0.1	0.1	0.1	0.8
Gizzard shad	4.4	4.7	2.3	3.9	17.8	28.4	18.1	17.4	2.7	2.3	15.9	0.3	2.3	0.0	0.6	8.1
Longnose gar	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bowfin	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
Mooneye	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Quillback	4.0	18.6	1.8	2.0	2.4	5.6	2.0	1.9	1.7	1.8	1.5	0.7	1.9	2.9	4.4	3.5
Stonecat	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0
Total	477.8	510.4	731.7	613.8	278.9	422.4	248.6	367.4	192.4	278.2	234.6	342.1	111.4	239.9	117.4	344.5
Percent Yellow perch	78.9	62.7	91.4	83.4	52.4	60.8	51.9	42.5	21.0	62.6	9.8	14.1	6.9	12.3	29.8	45.4
Percent White perch	0.0	0.0	0.0	0.1	8.8	8.3	4.4	10.6	15.7	15.6	26.9	68.1	36.4	23.7	4.3	14.9
Net lifts	50	46	48	36	37	53	57	51	49	55	51	55	82	29	55	50

Table 10.—Age distribution, mean length (mm), and catch per net day of walleye sampled during Michigan's spring trap net survey in 1992.

Year class	Age	Number	Percent	Mean length	Catch/net-day
1990	2	229	11.0	365	2.32
1989	3	140	6.8	434	1.42
1988	4	235	11.3	467	2.38
1987	5	254	12.2	496	2.58
1986	6	690	33.3	519	7.00
1985	7	208	10.0	552	2.11
1984	8	213	10.3	572	2.16
1983	9	45	2.2	592	0.46
1982	10	55	2.7	620	0.56
1981	11	3	0.1	625	0.00
1980	12	1	0.0	667	0.00
All fish		2,074		501	21.03

Table 11.—Mean length (mm) of yellow perch caught in trap nets during spring surveys. Sample size in parentheses.

Age	1988	1989	1990	1991	1992
<b>Males</b>					
2					159( 7)
3	173(14)	169(29)	175( 3)	189(12)	181(31)
4	198(24)	190(24)	185(38)	196(11)	208(16)
5	216( 9)	215(21)	205(29)	210(31)	221( 8)
6	225(41)	221(20)	230(25)	229(21)	243(34)
7	229(14)	251(14)	233(10)	244(21)	238(25)
8	245( 4)	248( 4)	252(22)	258( 8)	247(13)
9					278( 4)
10					248( 3)
<b>Females</b>					
3	198(14)	189(10)	( 0)	237( 4)	233(13)
4	229(34)	207(28)	213(17)	255( 3)	243(22)
5	258(11)	236(39)	233(36)	250(21)	254(14)
6	253(29)	272(32)	252(28)	253(18)	276(23)
7	275(15)	279(15)	278(22)	272(24)	283(23)
8	287( 7)	284(15)	290(17)	279( 7)	296(21)
9					294( 3)
10					313( 1)
11					337( 2)
12					346( 1)

Table 12.—Sample sizes and mean total length (mm) for walleye caught during fall in survey gill nets.

Age	1989 Sample size	1989 Mean length	1990 Sample size	1990 Mean length	1991 Sample size	1991 Mean length	1992 Sample size	1992 Mean length
<b>Sexes combined</b>								
1	246	335	64	351	218	345	252	309
2	215	410	143	418	68	434	192	414
3	361	452	107	461	37	463	40	459
4	57	489	174	487	40	489	29	487
5	32	509	34	509	78	500	55	504
6	7	519	33	532	6	520	44	530
7	30	534	7	530	8	544	5	542
8	1	626	14	568	8	570	2	627
10	1	669	1	637	—	—	—	—
Total	950	420	577	457	463	415	619	395
<b>Males</b>								
1	112	337	33	354	97	342	153	305
2	134	401	95	411	26	418	139	408
3	232	436	68	452	17	444	27	449
4	37	470	117	472	27	472	22	477
5	26	498	29	500	63	489	46	492
6	6	505	28	519	4	504	26	511
7	26	520	7	530	7	542	5	542
8	0	0	11	558	6	550	1	556
Total	573	418	388	452	247	422	419	394
<b>Females</b>								
1	113	337	31	348	121	348	98	316
2	81	426	48	432	42	444	52	430
3	128	481	39	477	20	479	12	478
4	20	525	57	519	13	525	5	518
5	6	557	5	563	15	550	7	577
6	1	604	5	602	2	552	18	558
7	4	621	3	604	1	560	—	—
8	1	626	1	637	2	629	1	698
10	1	669	—	—	—	—	—	—
Total	355	429	189	465	216	408	193	396

Table 13.—Walleye catch per gill net lift during fall surveys on Michigan waters of Lake Erie.

Year class	Total CPUE	Survey year																		
		1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992				
1972	0.9	0.8	0.2																	
1973	0.9	0.5	0.3	0.2																
1974	13.6	8.3	3.5	0.3	1.5															
1975	42.8	25.8	10.5	3.5	2.0	0.5	0.5													
1976	18.3	7.0	5.3	2.8	1.0	1.5	0.3	0.0	0.5											
1977	170.9	91.0	37.0	22.7	9.0	5.0	2.5	3.0	0.5	0.3										
1978	61.5		19.0	25.0	6.0	5.5	2.5	1.8	0.5	1.3										
1979	72.3			44.0	13.5	5.0	4.3	2.3	2.0	0.5	0.5	0.3								
1980	92.5					21.5	14.5	5.0	5.3	2.3	0.5	0.3	0.0	0.3						
1981	72.0					33.5	21.3	7.8	3.8	2.8	0.5	0.5	0.3	0.3	0.0	0.3				
1982	306.0						29.0	91.8	95.8	44.3	4.0	2.3	2.3	0.5	0.5	0.5	0.3	0.0	0.3	
1983	34.5							4.5	12.0	4.0	5.0	5.3	28.5	5.3	3.5	3.5	7.5	3.5	0.5	
1984	146.8								69.8	34.3	20.5	9.3	20.5	3.5	3.5	3.5	1.8	1.8	2.0	
1985	175.3									98.0	42.5	9.3	42.5	3.5	3.5	3.5	8.0	8.3	2.0	
1986	291.3										96.8	30.3	96.8	9.3	9.3	9.3	14.3	8.5	1.5	
1987	118.8											4.5		30.3	30.3	30.3	90.3	43.5	19.5	
1988	113.8													4.5	4.5	4.5	90.3	26.8	20.0	
1989	43.0																61.5	35.8	9.3	
1990	102.5																	16.0	35.8	17.0
1991	63.0																		16.0	54.5
1992	63.0																			63.0
Total	133.3	75.5	98.7	76.0	72.5	74.3	116.5	190.0	187.5	196.5	57.0	237.5	144.3	126.3	91.8					
Net lifts	4	4	6	2	2	4	4	4	4	4	4	4	4	4	4					

Table 14.—Sample sizes and mean total length (mm) for yearling walleye caught during fall in Michigan survey gill nets.

Survey Year	Year Class	Sample Size	Mean Length	Standard Error
1978	1977	410	343	1.0
1979	1978	115	330	1.9
1980	1979	222	344	1.3
1981	1980	86	336	2.0
1982	1981	143	333	1.9
1983	1982	116	308	1.7
1984	1983	18	311	4.7
1985	1984	279	329	1.2
1986	1985	392	339	1.0
1987	1986	387	332	1.1
1988	1987	18	347	4.2
1989	1988	246	336	1.2
1990	1989	64	352	2.4
1991	1990	218	345	1.3
1992	1991	252	309	1.4
Total		2966	334	0.4

Table 15.—Walleye catch in experimental mono-filament gill nets.

Year class	1991 Sample	1991 Percent	1992 Sample	1992 Percent
1983	3	1.8	0	0.0
1984	1	0.6	2	0.8
1985	2	1.2	2	0.8
1986	32	18.7	21	8.3
1987	7	4.1	18	7.1
1988	10	5.8	9	3.5
1989	22	12.9	10	3.9
1990	82	48.0	71	28.0
1991	12	7.0	119	46.9
1992	—	—	2	0.8