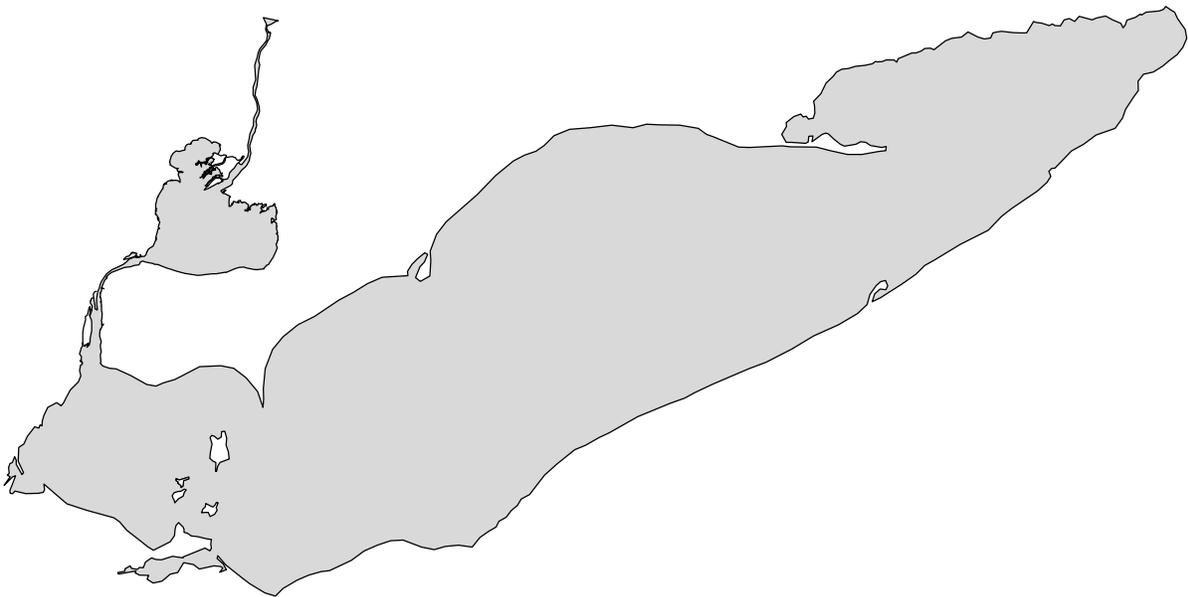


MICHIGAN DEPARTMENT OF NATURAL RESOURCES
FISHERIES DIVISION

**STATUS OF THE FISHERIES
IN MICHIGAN WATERS OF
LAKE ERIE AND LAKE ST. CLAIR**

1996



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Highlights for 1996

The purpose of this report is to provide an update on the status of the fisheries in the Great Lakes and connecting waters of southeast Michigan. Sources of information used in compiling this report include creel surveys, charter boat reports, the Master Angler program, and commercial fishery records, as well as fisheries research studies. Some of the 1996 highlights described in further detail in this report include:

- Lake Erie yellow perch abundance has declined, while growth has improved since 1991.
- Lake Erie walleye experienced good reproduction in 1993, 1994, and 1996, but suffered poor reproduction in 1992 and 1995.
- Angler effort for the Lake Erie sport fishery increased in 1996, but remained well below the levels observed prior to 1991.
- Non-charter catch rates for walleye have remained relatively stable since 1991, while catch rates for yellow perch increased greatly during 1995 and 1996.
- Lake Erie charter boat catch rates for walleye were over four times higher than those estimated for non-charter anglers in 1996.
- Charter boat yellow perch catch rates for Lake Erie have more than doubled since 1994 and have increased over seven-fold since 1990 for Lake St. Clair.
- Despite the lack of creel survey data for Lake St. Clair, it is apparent that the muskellunge fishery exceeds that of any other period in modern history.
- A fish community survey on Lake St. Clair resulted in a surprising total catch of 75 lake sturgeon.

Sport Fishery Summary

An on-site creel survey conducted by the Michigan Department of Natural Resources (MDNR) for Michigan's 1996 Lake Erie sport fishery (non-charter) produced a total harvest estimate of 792,758 fish (Table 1). Yellow perch (75%) and walleye (17%) accounted for 92% of the total catch. Estimated angler effort in 1996 increased nearly 80% over 1995 (Figure 1), but remained well below the high levels of effort observed prior to 1991. We suspect fishing success was not a major contributing factor to the change in effort, since catch rates for walleye have remained relatively stable throughout this time period, and yellow perch catch rates in 1995 and 1996 are the highest for the period (Figure 2). Other factors, including weather, fishing success for other species on other Great Lakes waters, and economic conditions have likely contributed to the decreased level of fishing effort since 1991.

Biological samples were collected from walleye and yellow perch during the 1996 on-site creel survey. Age 3 fish (1993 year class) dominated the walleye harvest, comprising 52% of the catch (Figure 3). Harvested age 3 walleye averaged 414 mm (16.3 in.) total length. Age 2 fish (1994 year class) accounted for 21% of the total walleye harvest. Harvested age 2 walleye averaged 348 mm (13.7 in.) total length. As expected, the extremely weak 1992 walleye year class contributed little to the fishery (2.9%).

Yellow perch harvest was dominated by age 2 and age 3 fish (1994 and 1993 year-classes), which combined for over 90% of the total harvest (Figure 3). Average lengths of harvested age 2 and 3 yellow perch were 193 mm (7.4 in.) and 212 mm (8.1 in.), respectively. The observed mean length at age for yellow perch taken in the Michigan sport fishery increased quite dramatically for ages 2-6 after 1991, but has declined somewhat for ages 2-4 since 1994 (Figure 4). In general, it appears that yellow perch growth in Lake Erie has improved slightly since 1991.

Since 1989, Michigan charter boat operators have been required to report their charter fishing catch and effort to the MDNR. In 1996, Michigan charter boat anglers harvested 77,809 fish from



Lake Erie (Table 2). Walleye (50%) and yellow perch (48%) were the major species in the charter boat harvest, accounting for 98% of the catch. While charter boat catch rates for walleye were over four times higher than those estimated for non-charter anglers in 1996, yellow perch catch rates were quite similar for charter and non-charter anglers.

On Lake St. Clair and the St. Clair River, charter boat anglers harvested 15,737 fish (Table 3). Yellow perch (67%) and "other" species (24%) made up the bulk of the catch, accounting for about 91% of the total harvest. The "other" species category is thought to consist mainly of smallmouth bass and muskellunge. Walleye accounted for about 8% of the 1996 charter boat harvest on Lake St. Clair.

During the period since 1990, walleye catch rates have remained relatively high for Lake Erie charter boat anglers (Figure 5), but declined markedly after 1990 for Lake St. Clair charters (Figure 6). In 1996, the charter catch rate for Lake St. Clair walleye declined to the lowest level observed during the period. However, the number of charter excursions for Lake St. Clair increased 60% in 1996 (Figure 7). This may be the result of a shift in charter boat angling effort away from walleye toward yellow perch and other species including smallmouth bass and muskellunge.

Charter boat catch rates for yellow perch improved for both Lake Erie and Lake St. Clair in 1996 (Figures 5 and 6). In fact, yellow perch catch rates for Lake St. Clair charter boats have increased over seven-fold since 1990 and have more than doubled for Lake Erie since 1994. Lake St. Clair charter boat catch rates for yellow perch have exceeded that for Lake Erie charter boats for three consecutive years. This is likely a result of improved yellow perch fishing in Lake St. Clair and a shift in charter boat fishing effort to yellow perch.

Despite the lack of creel survey data for Lake St. Clair, it is apparent that the muskellunge fishery exceeds that of any other period in modern history. Angler reports indicate that catch rates in the 1990's are spectacular. We believe that the quality of the Lake St. Clair muskellunge fishery is also reflected in the MDNR's Master Angler Program. The total number of muskellunge from Lake St. Clair entered for Master Angler Awards in 1996 was the second highest since 1986 (Figure 8). The number of fish over 30 pounds was fourth highest for the same period. 1996 was also the sixth consecutive year in which the heaviest Master Angler muskellunge entry from Lake St. Clair exceeded 35 pounds. We believe that factors contributing to the dramatic improvement in this fishery include: 1) a positive response to increased minimum size limits on both sides of the lake since the mid-1980's; 2) physical and biological changes in the lake such as clearer water and increased aquatic plant growth resulting in improved habitat for Great Lakes muskellunge; and, 3) increased voluntary catch and release fishing for muskies in Lake St. Clair by both sport and charter anglers.

Commercial Fishery Summary

Three state licensed commercial seine operations in the shallow embayments along Michigan's Lake Erie shoreline harvested 12 species of fish for a total of 580,810 pounds (Table 4), a 32% increase over the total harvest of 426,821 pounds in 1995. In combination, common carp (66%), quillback (13%), and freshwater drum (8%) accounted for 87% of the total harvest by weight. The total value of the 1996 Lake Erie commercial harvest from Michigan waters was estimated at \$115,334.

Summary of Netting Surveys

The Michigan waters of the western basin of Lake Erie have been monitored with spring trap net surveys since 1978. In 1996, total catch per net lift (CPUE) for all species combined was highest



since 1991 (Table 5). Walleye, smallmouth bass, channel catfish, white sucker, redhorse, freshwater drum, common carp, and quillback exhibited CPUE values above the 19 year means. Yellow perch CPUE recovered somewhat from the low in 1995, but remained well below the 19 year mean. Comparison of yellow perch mean CPUE for the 1978-89 period (254.6/lift) with the 1990-96 period (41.7/lift) clearly illustrates the dramatic change in yellow perch catches at the spring trap net sites. This change is likely the result of a substantial decline in yellow perch abundance since 1990. In addition, we also suspect that increased net avoidance due to improved water clarity has contributed to low total CPUE since 1990.

Walleye from the strong 1993 year class (age 3) accounted for 25% of the trap net walleye catch (Figure 9). The 1990 and 1991 year class were also well represented, accounting for 15% and 20% of the total catch respectively. Conversely, the 1992 year class (age 4) was very poorly represented in the trap net catch in 1996, indicating it is very weak. Based on mean length at age, no trend is evident for Lake Erie walleye growth rates. A total of 2,269 walleye captured in the trap nets were tagged and released as part of the ongoing interagency tagging project.

The yellow perch age distribution from the index trap nets was quite evenly distributed across ages 3 -7 (Figure 10). This even distribution reflects the lack of a particularly strong yellow perch year class during the 1990's. Based on mean length at age from trap net samples, growth of Lake Erie yellow perch continues to improve (Figure 11). This improvement is most notable for males age 3 to age 6, and females age 4 to age 7. The appearance of age 2 males in the trap nets in recent years may be due to improved growth and subsequent earlier recruitment to our index trap nets. Improved growth for yellow perch in western Lake Erie is presumably the result of a major decline in yellow perch abundance and improved forage.

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 1996, a total of 409 walleye were caught in eight net lifts. The total walleye catch-per-effort for the index sites was the second lowest recorded during the 19 year time series (Table 6). The very low catch rate for age 1 fish indicates that the 1995 year class may be quite weak, similar to the 1992 year class. No trend in walleye growth is obvious from the mean length at age data for walleye taken in the fall index gill net survey.

The fish community of Lake St. Clair was surveyed with bottom trawls in 1996 by the MDNR. Over 200 trawl tows were conducted at locations randomly selected across the lake. The biological diversity of Lake St. Clair was obvious during the sampling, with 49 fish species represented among the total of 72,000 fish collected. By number, yellow perch were the most abundant species, accounting for over 30% of the total catch (Figure 12). Round gobies were collected from all areas of the lake, but tubenose gobies remain much less abundant. A surprisingly high total of 75 lake sturgeon were collected with trawls from Lake St. Clair. These fish ranged in length from 17 inches to 72 inches, and weighed from 1 to 94 pounds. All sturgeon were tagged with metal opercle tags and released. If we are able to continue capturing and tagging sufficient numbers of sturgeon, we should gain valuable insight into the population status of sturgeon in Lake St. Clair.

Fish Tagging Studies

In 1996, a total of 6,657 walleye were tagged by Ohio, New York, and Michigan at 8 different Lake Erie sites. A total of 247 of those tags were recovered by fishermen for a single season reporting rate of 3.7%. The 1996 site-specific reporting rate varied from a low of 3.0% at the Raisin River site, to a high of 6.7% for the Grand River tag site in Ohio. Other sites with reporting rates over



3.0% were Sandusky Bay site (3.6%), Maumee River (5.2%), and Sugar Rock (4.3%) in Ohio.

The Livonia District Office conducted a walleye tagging study in the Huron River near Flat Rock from 1992 to 1994. A total of 1,469 walleye were tagged and released during the spring spawning run in the river. Since no walleye were tagged at the site in 1995 or 1996, recoveries of Huron River site fish declined considerably. However, this project continues to produce some interesting results. A comparison of the areal distribution of 1996 tag recoveries from the Huron River and Monroe tag sites is shown in Figure 13. It is quite evident that Huron River fish have a stronger tendency than Monroe-tagged fish to move north out of Lake Erie. The importance of small walleye stocks to the walleye fishery in the Great Lakes waters of southeast Michigan is unclear at this time. Continued tagging efforts targeting relatively small walleye spawning runs, such as the Huron River run, can provide further insight into their importance.

In 1996, MDNR began a yellow perch tagging study in Lake St. Clair to document yellow perch movements and exploitation. Small monel tags were placed on the lower jaw of 1,366 yellow perch during the spring. A total of 29 tags were reported by anglers through February, 1997. The geographical distribution of the tag recoveries (Figure 14), appears to differ between the two main tag sites. We plan to continue this tagging study for at least four more years to further evaluate movement, exploitation, and mortality rates.

Sport Fishing Regulations

Fisheries biologists with the Ontario Ministry of Natural Resources (OMNR) are concerned about the status of the walleye spawning stock in the Thames River, the major walleye spawning site for Lake St. Clair. Their concerns are based on an apparent decline in spawning success for walleye in the Thames River. Based on these concerns, the OMNR has initiated the implementation of a walleye size limit in Ontario waters of Lake St. Clair and the St. Clair River. They have recommended a 17 inch maximum size limit, with one "trophy" fish over 25 inches be established for these waters in 1997. Michigan DNR, however, will not recommend or implement this regulation for the Michigan portion of these water bodies. We believe the extensive movements of walleye throughout this system, combined with uncertainties of changing environmental conditions affecting index survey programs, and no evidence of excessive exploitation, prevent us from recommending such a radical regulation change. Michigan will continue to enforce a 13 inch minimum size limit for these waters. We also recommend no change in the present daily bag limit of six walleye for Lake St. Clair and the St. Clair River.

Walleye in Lake Erie are managed cooperatively with the other jurisdictions under a harvest quota system. Michigan's sport fishery has consistently harvested below the quota since 1991. This underutilization of the available resource appears to be mainly a result of reduced fishing effort in Michigan waters. Therefore, the daily walleye bag limit in Michigan's waters of Lake Erie has been increased from six fish per day, to 10 fish per day, beginning April 1, 1997. If harvest exceeds the harvest quota in the future, the daily bag limit will be adjusted downward.



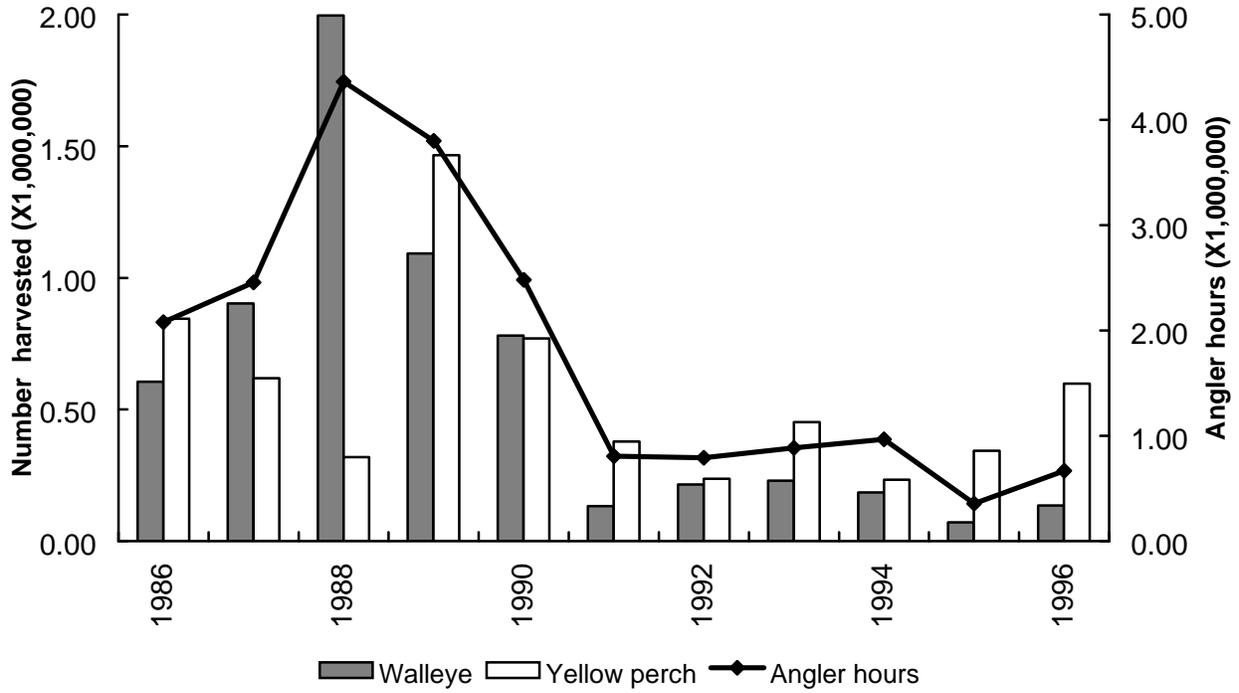


Figure 1.—Estimated harvest and effort for Michigan’s Lake Erie sport fishery, 1986-1996.

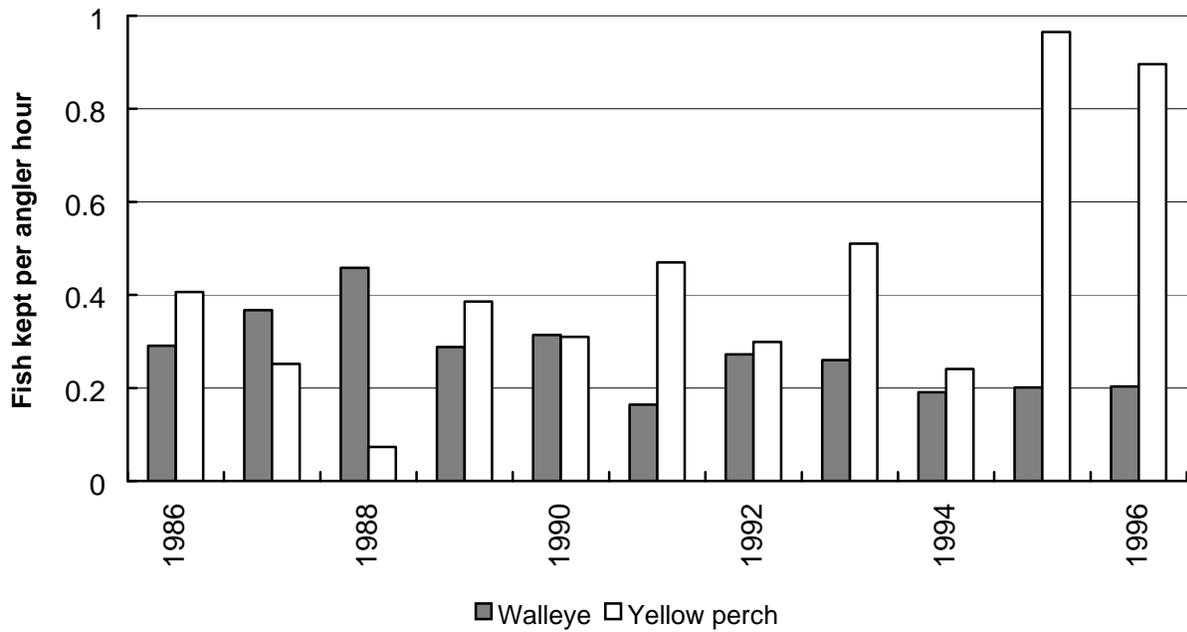


Figure 2.—Walleye and yellow perch catch per effort for Michigan’s Lake Erie sport fishery, 1986-1996.

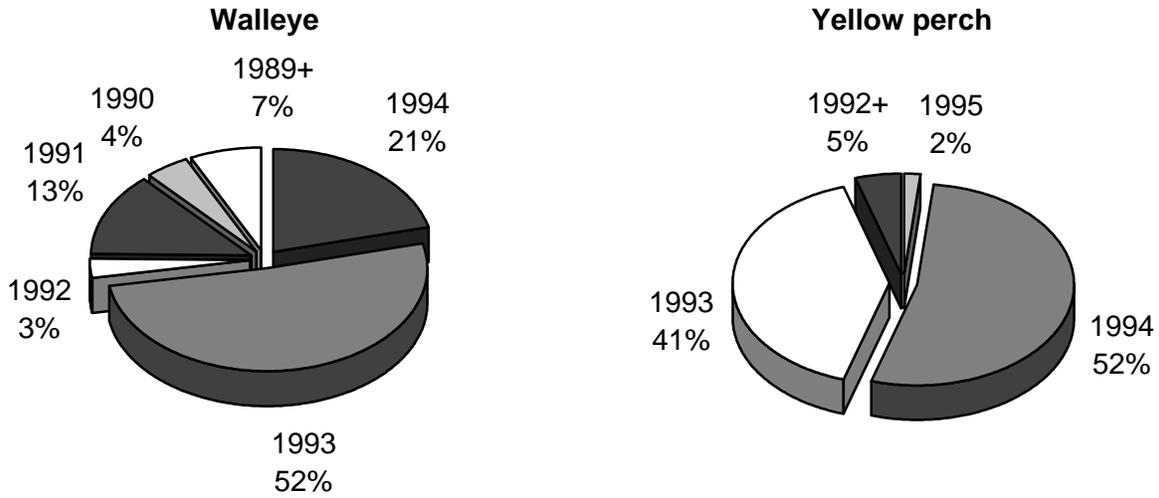


Figure 3. —Year-class contribution to Michigan sport harvest for walleye and yellow perch from Lake Erie in 1996.

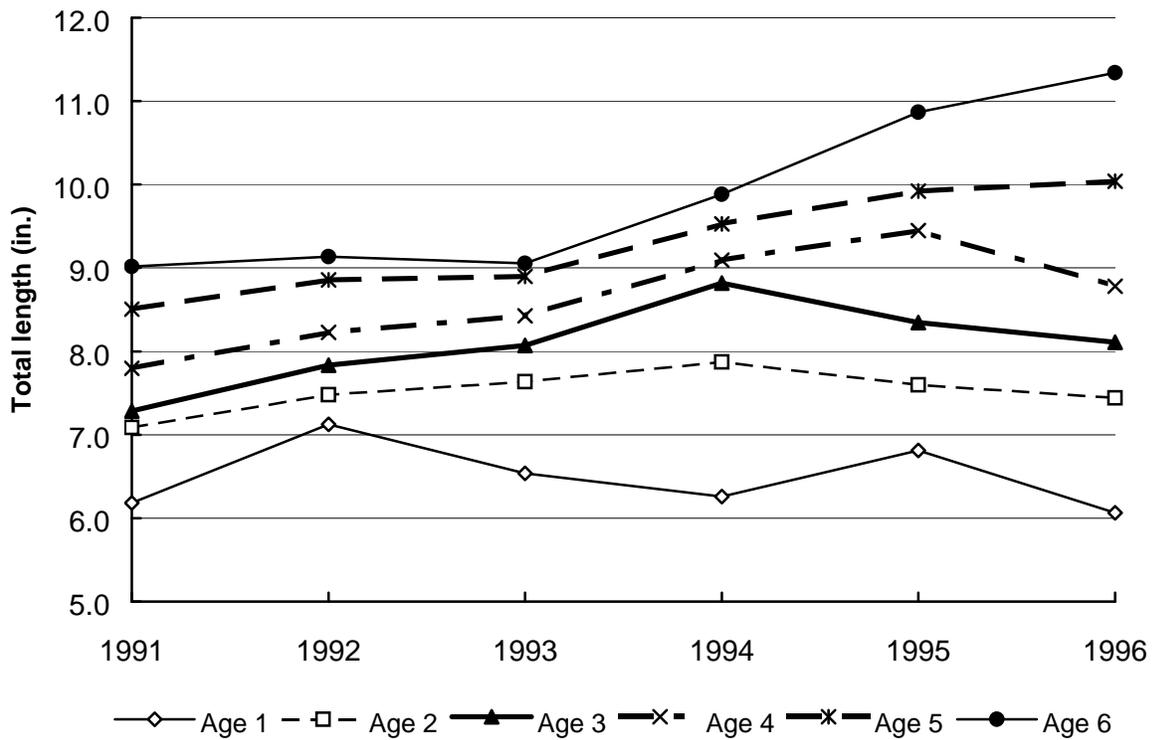


Figure 4. —Mean length at age for sport caught yellow perch from Michigan's waters of Lake Erie, 1991-1996.

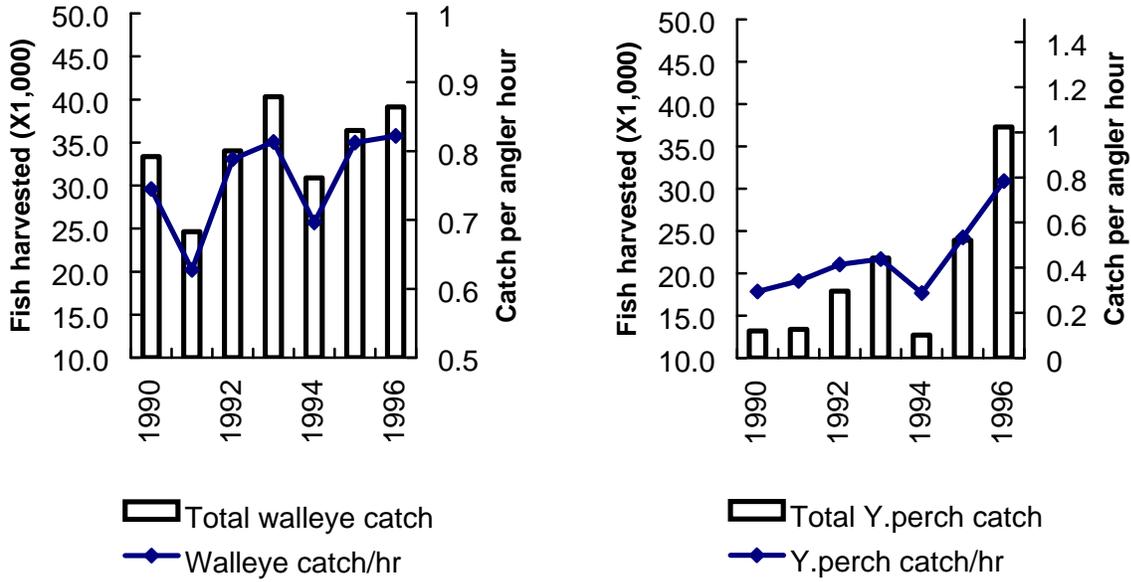


Figure 5. —Michigan charter boat harvest and catch rates for Lake Erie, 1989-1996.

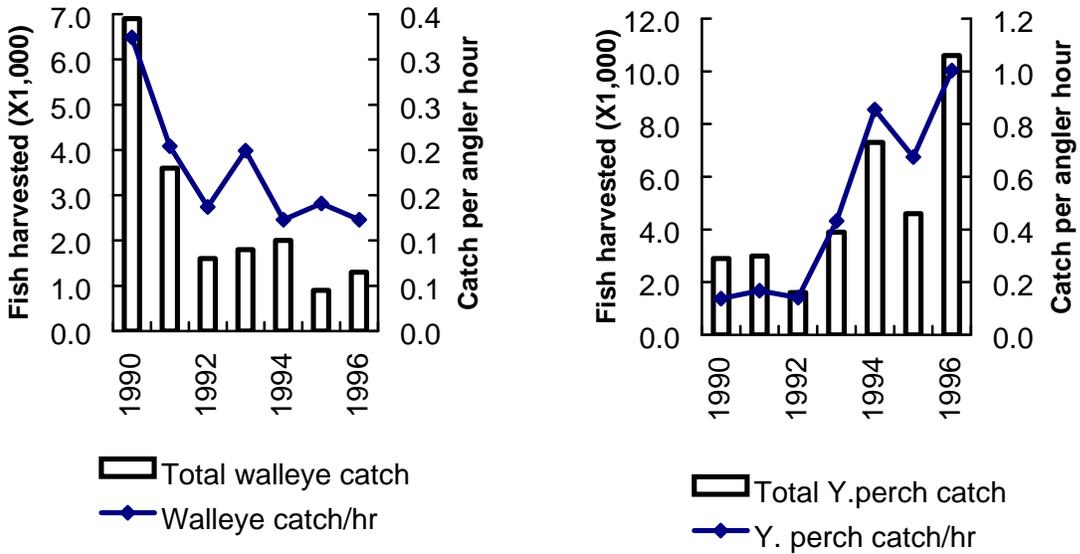


Figure 6. —Michigan charter boat harvest and catch rates for Lake St. Clair, 1989-1996.



Figure 7. —Reported charter boat excursions on Lake Erie and Lake St. Clair, 1989-96.

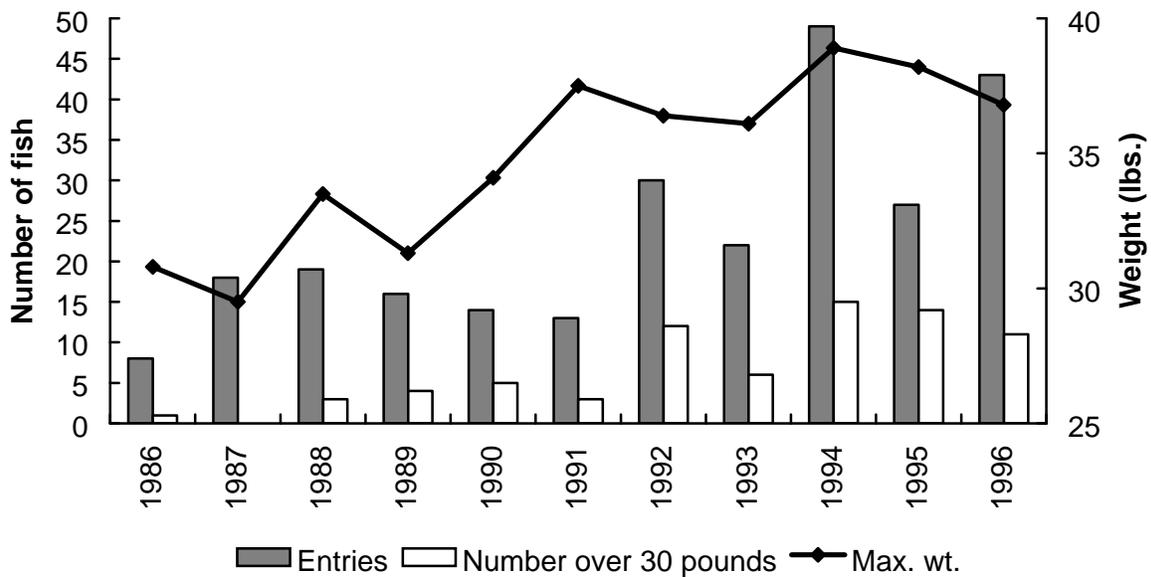


Figure 8. —Lake St. Clair Great Lakes muskellunge entered in the Michigan DNR Master Angler Program, 1986-1996. Values for 1992-96 represent combined regular and catch-and-release Master Angler categories.



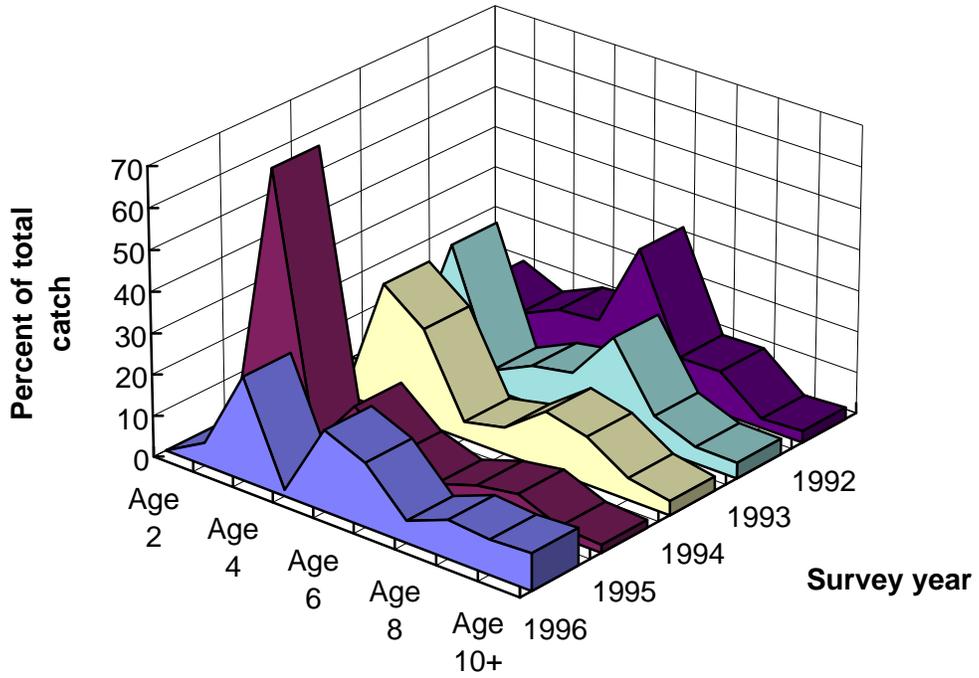


Figure 9. —Age composition of walleye from survey trap nets on Lake Erie, 1992-1996.

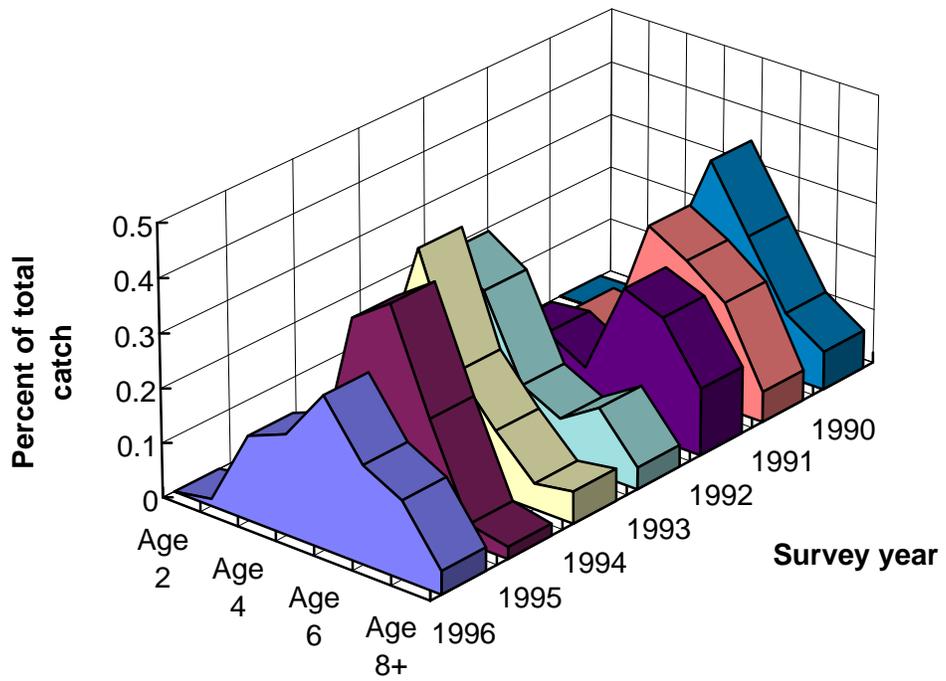


Figure 10. —Age composition of yellow perch from survey trap nets on Lake Erie, 1990-1996.

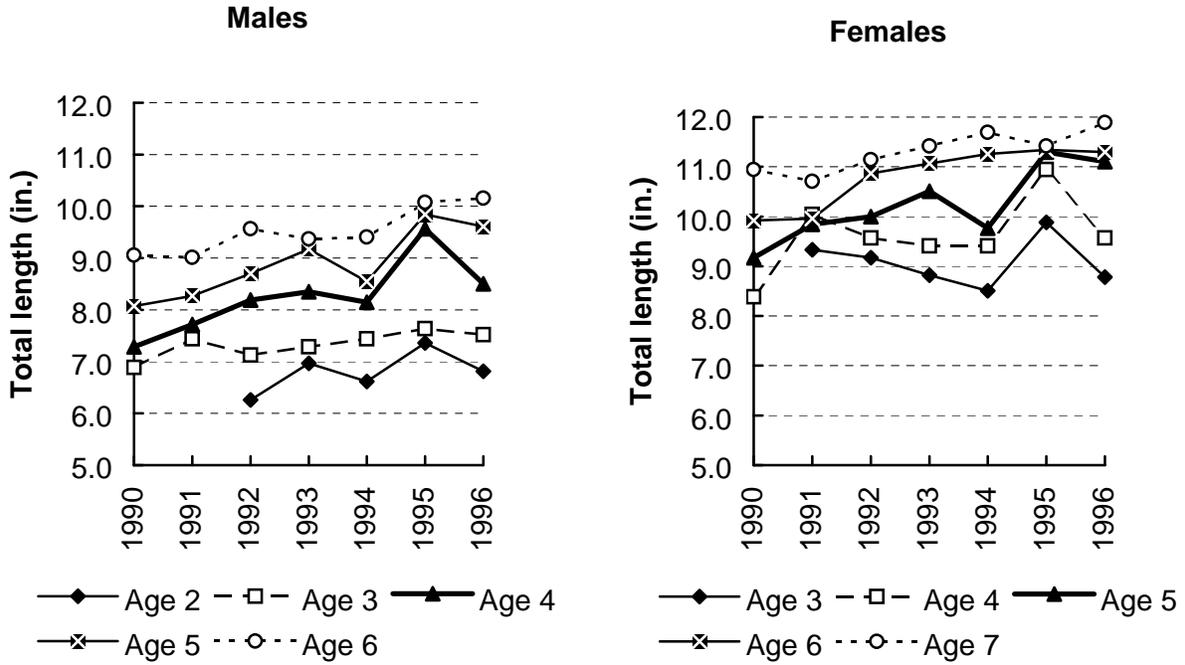


Figure 11. —Mean length-at-age for yellow perch from index trap nets, Lake Erie, 1990-96.

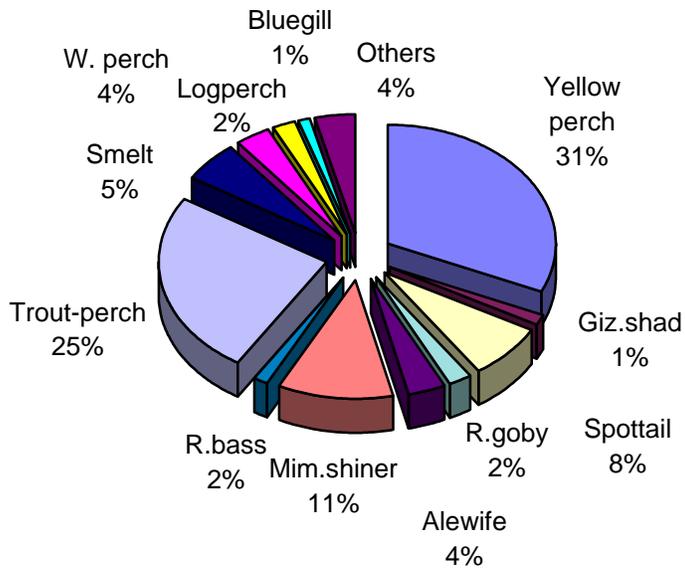


Figure 12. —Catch composition for trawls on Lake St. Clair in 1996.

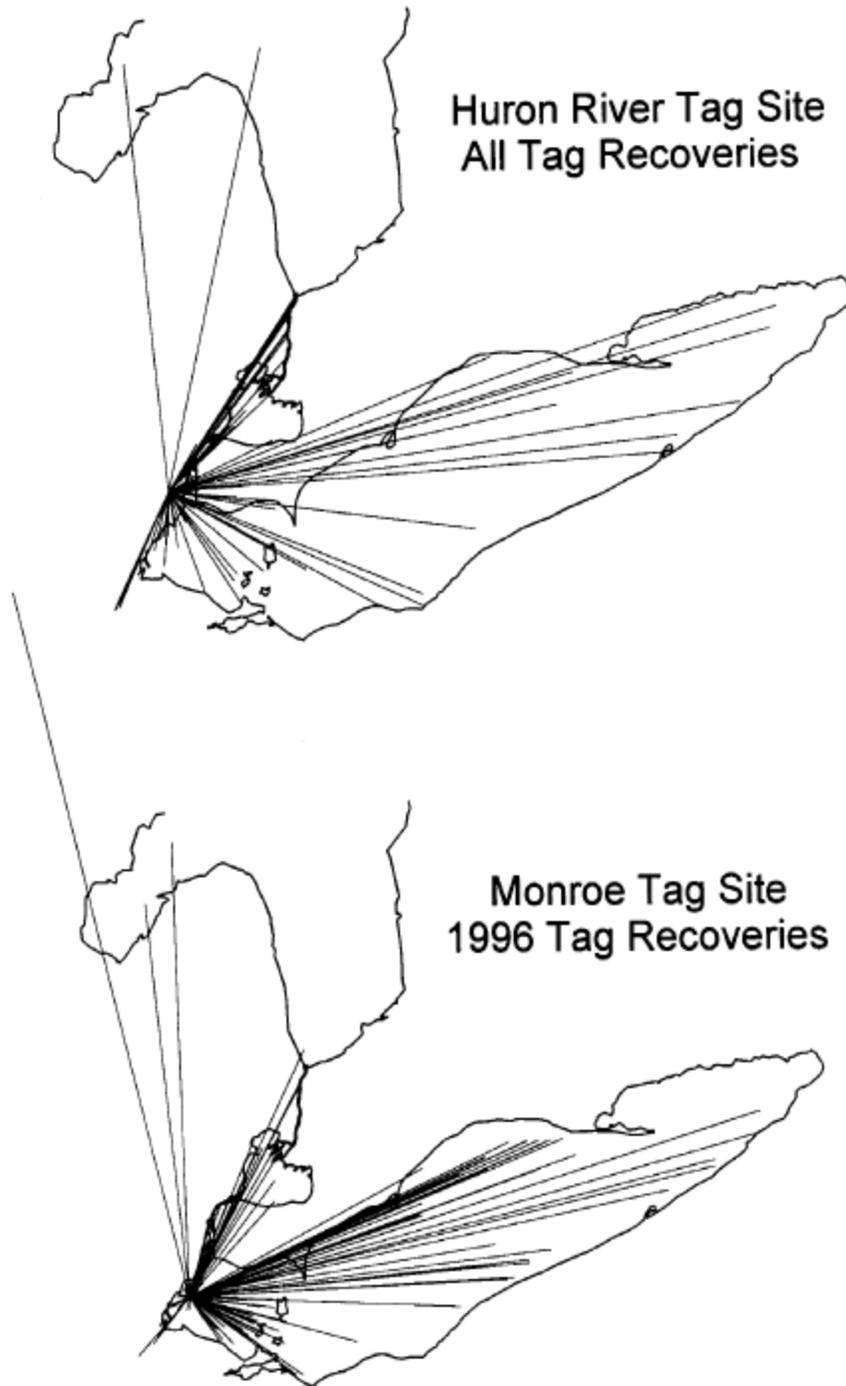


Figure 13. —Geographical distribution of walleye tag recoveries from fish tagged during all years at the Huron River, and during 1996 at the Monroe, Lake Erie tag sites.

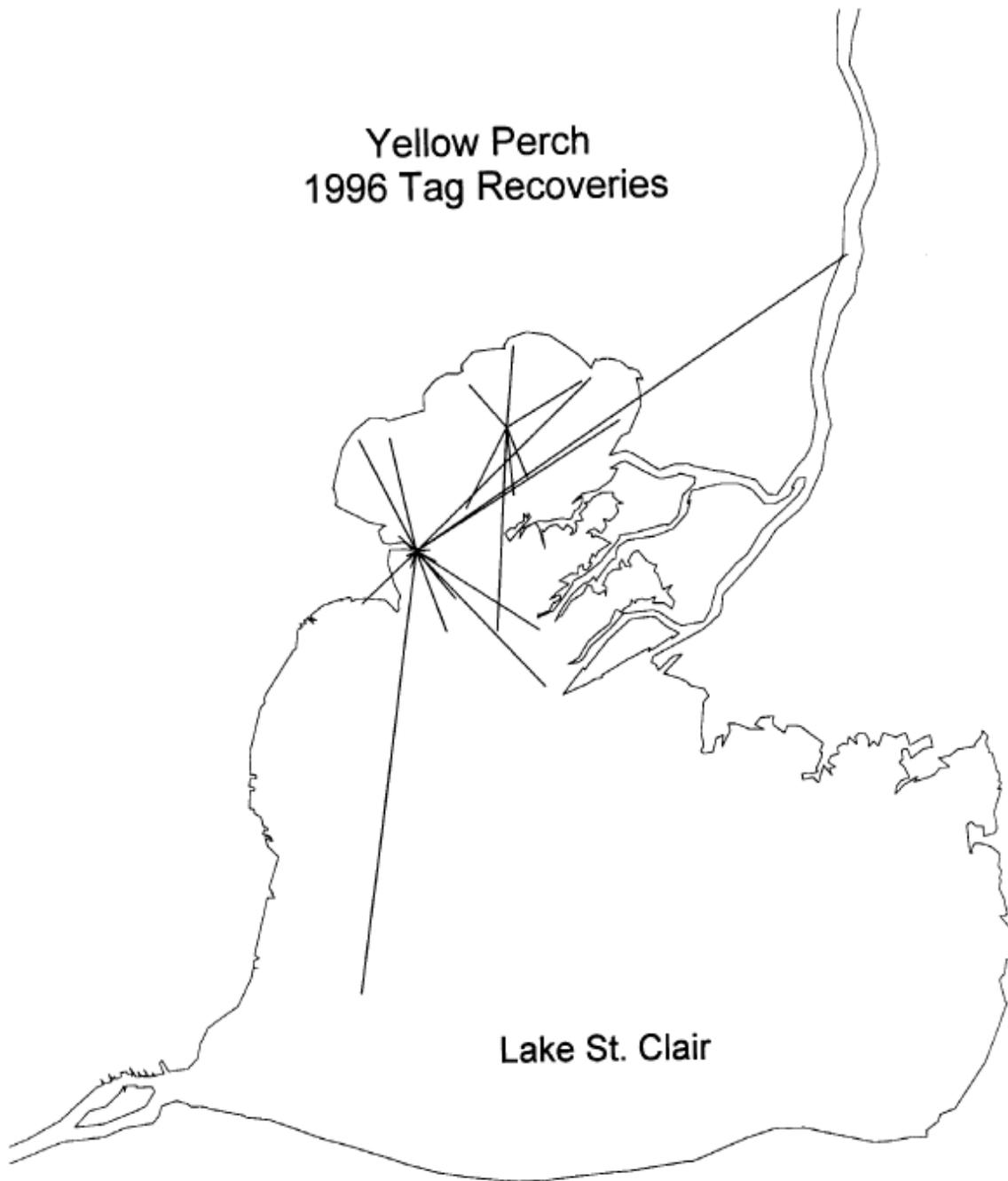


Figure 14. —Geographical distribution of yellow perch tag recoveries from fish tagged during the spring of 1996 at the Clinton River and Grassy Island tag sites on Lake St. Clair.

Table 1.—Estimated sport harvest, catch rate, and effort for Michigan's 1996 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	0.8962 (0.209)	11 (17)	3,891 (3,492)	12,594 (6,926)	25,488 (10,645)	342,655 (79,904)	128,786 (79,558)	84,471 (41,222)	597,896 (120,776)
Walleye	0.203 (0.0405)	1,176 (1,209)	14,584 (5,750)	43,261 (13,270)	69,226 (16,242)	7,047 (2,426)	159 (240)	5 (7)	135,458 (21,917)
Channel catfish	0.0459 (0.0211)	534 (696)	1,298 (836)	2,377 (1,791)	23,166 (13,420)	2,181 (1,025)	636 (660)	440 (341)	30,632 (13,641)
White bass	0.0208 (0.01)	70 (135)	4,349 (2,331)	1,406 (695)	5,950 (5,738)	141 (153)	130 (252)	1,833 (1,688)	13,879 (6,465)
White perch	0.0142 (0.0096)	12 (29)	237 (228)	519 (349)	1,450 (759)	5,993 (6,148)	714 (651)	527 (824)	9,452 (6,297)
Freshwater drum	0.0048 (0.0018)	68 (174)	319 (272)	593 (388)	1,182 (820)	683 (484)	187 (191)	149 (120)	3,181 (1,101)
Rock bass	0.0011 (0.0009)	0 (---)	55 (65)	77 (150)	140 (135)	186 (135)	258 (546)	34 (34)	750 (602)
Smallmouth bass	0.0009 (0.0005)	0 (---)	0 (---)	135 (131)	327 (242)	0 (---)	43 (73)	66 (59)	571 (291)
Bluegill	0.0005 (0.0004)	0 (---)	49 (69)	0 (---)	50 (107)	23 (35)	25 (41)	165 (170)	312 (219)
Largemouth bass	0.0002 (0.0003)	0 (---)	0 (---)	71 (147)	0 (---)	0 (---)	4 (8)	30 (42)	105 (153)
Rainbow trout	0.0001 (0.0002)	0 (---)	0 (---)	13 (27)	35 (72)	0 (---)	0 (---)	0 (---)	48 (77)
Other	0.0008 (0.0006)	38 (54)	146 (151)	14 (21)	22 (47)	102 (142)	41 (79)	111 (133)	474 (382)
Total	1.1883 (0.2315)	1,909 (1,413)	24,928 (7,179)	61,060 (15,103)	127,036 (24,320)	359,011 (80,185)	130,983 (79,566)	87,831 (41,267)	792,758 (123,840)
Angler hours		14,179 (8,761)	96,175 (38,100)	142,197 (43,433)	197,892 (38,192)	137,042 (20,278)	55,343 (25,724)	24,296 (9,320)	667,124 (77,674)
Angler trips		2,621 (1,515)	18,380 (7,043)	24,844 (7,392)	34,226 (6,836)	25,924 (4,009)	13,108 (5,562)	5,162 (1,988)	124,265 (14,291)
Angler days		2,621 (1,515)	18,380 (7,043)	24,467 (7,301)	33,928 (6,783)	25,907 (4,007)	13,103 (5,560)	5,149 (1,986)	123,555 (14,217)

Table 2. –Total catch per hour, catch per excursion, number caught, and fishing effort (angler hours, trips, and charter excursions) for charter boats on Lake Erie, 1996.

Species	Total catch per hour	Total catch per excursion	Month							Season Total
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Walleye	0.8221	22.0558	401	4,524	20,118	12,321	1,783	2	0	39,149
Yellow perch	0.7841	21.0349	0	205	369	726	15,852	14,228	5,956	37,337
Rainbow trout	0.0001	0.0039	0	0	6	1	0	0	0	7
Chinook salmon	0.0000	0.0005	1	0	0	0	0	0	0	1
Other	0.0276	0.7408	0	131	644	296	3	169	72	1,315
Angler hours			605	6,708	20,743	11,785	4,422	2,412	945	47,620
Angler trips			107	1,199	3,872	2,265	804	456	180	8,883
Anglers										
Resident			96	980	3,439	2,035	722	412	157	7,841
Nonresident			11	219	433	230	82	44	23	1,042
Charter excursions			23	246	760	454	165	90	37	1,775

Table 3. –Total catch per hour, catch per excursion, number caught, and fishing effort (angler hours, trips, and charter excursions) for charter boats on Lake St. Clair and the St. Clair River, 1996.

Species	Total catch per hour	Total catch per excursion	Month							Season Total
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Yellow perch	1.0032	26.0319	0	521	1,516	2,112	2,185	837	3,424	10,595
Walleye	0.1231	3.1941	52	11	335	618	218	66	0	1,300
Brown trout	0.0002	0.0049	0	0	0	2	0	0	0	2
Chinook salmon	0.0002	0.0049	0	2	0	0	0	0	0	2
Rainbow trout	0.0001	0.0025	0	0	0	0	0	1	0	1
Other	0.3633	9.4275	0	16	1,110	865	1,247	596	3	3,837
Angler hours			72	348	2,592	3,134	2,645	1,254	516	10,561
Angler trips			18	63	433	491	406	196	81	1,688
Anglers										
Resident			18	63	423	479	398	192	81	1,654
Nonresident			0	0	10	12	8	4	0	34
Charter excursions			5	14	104	115	95	50	24	407

Table 4.–Commercial harvest (expressed as weight in pounds) from Michigan waters of Lake Erie in 1996.

	Carp	Quillback	Drum	Channel catfish	Goldfish	Other ¹	Total
Harvest	381,641	73,662	48,219	24,969	7,138	45,209	580,810
% of total	66%	13%	8%	4%	1%	8%	
Economic value	\$49,232	\$30,201	\$7,570	\$14,981	\$2,976	\$10,374	\$115,334

¹ Others category includes buffalo, bullhead, gar, gizzard shad, sucker, white bass, white perch

Table 5. —Mean catch per trap net lift for all species commonly taken during spring trap net surveys in Michigan waters of Lake Erie.

Species	Survey year											
	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
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
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
Yellow perch	377.0	320.0	669.0	512.0	146.0	257.0	129.0	156.0	40.3	174.0	22.9	251.5
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
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
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
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
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
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
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
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
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
Redhorse sp.	2.4	1.2	0.6	1.0	0.8	1.5	1.7	1.4	1.3	1.7	1.8	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
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
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
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
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
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
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
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
Total	477.9	510.3	731.8	613.9	278.8	422.4	248.7	368.5	193.6	279.7	236.4	546.2
% yellow perch	78.9	62.7	91.4	83.4	52.4	60.8	51.9	42.3	20.8	62.2	9.7	46.0
% white perch	0.0	0.0	0.0	0.1	8.8	8.3	4.4	10.6	15.7	15.6	26.7	42.7
Net lifts	50	46	48	36	37	53	57	51	49	55	51	55

Table 5.—Continued.

Species	Survey year							78-89 mean	90-96 mean	Overall mean
	1990	1991	1992	1993	1994	1995 ¹	1996			
Walleye	23.8	95.9	37.7	39.2	53.0	26.2	52.0	42.3	46.8	44.0
Smallmouth bass	0.1	0.2	0.1	0.2	0.8	2.2	2.1	0.1	0.8	0.4
Yellow perch	41.7	94.6	35.0	50.2	23.2	10.3	36.6	254.6	41.7	176.1
Rock bass	0.3	0.8	0.5	1.2	1.0	4.1	1.1	1.2	1.3	1.2
White bass	0.9	1.6	0.5	0.1	1.1	2.1	0.6	3.9	1.0	2.8
White perch	40.5	56.8	5.1	0.0	14.7	72.8	5.9	40.0	28.0	35.6
Pumpkinseed	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0
Bluegill	0.0	0.2	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0
Black crappie	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.1
Channel catfish	9.0	6.0	4.6	4.6	5.4	3.7	8.8	5.5	6.0	5.7
Brown bullhead	13.1	4.3	4.0	1.6	1.1	0.2	1.1	2.7	3.6	3.1
White sucker	4.3	13.5	14.6	9.0	5.8	7.4	14.0	10.1	9.8	10.0
Redhorse sp.	0.4	0.6	3.1	3.6	1.8	1.0	5.5	1.3	2.3	1.7
Freshwater drum	5.1	25.6	8.9	20.7	8.8	13.0	15.4	25.8	13.9	21.5
Common carp	2.3	2.3	1.3	1.4	3.7	2.9	8.2	6.7	3.1	5.4
Goldfish	0.1	0.1	0.1	0.0	4.4	0.1	0.5	1.0	0.8	0.9
Gizzard shad	2.3	0.0	0.6	0.3	0.3	1.7	0.3	9.9	0.8	6.5
Longnose gar	0.0	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
Quillback	1.9	2.9	4.4	3.2	4.6	6.7	8.9	3.7	4.7	4.0
Stonecat	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	145.8	305.5	120.5	135.2	129.6	155.2	161.2	409.0	164.6	319.0
% yellow perch	28.6	31.0	29.0	37.1	17.9	6.2	22.7	55.2	25.1	44.0
% white perch	27.8	18.6	4.2	0.0	11.3	46.9	3.6	11.1	18.2	12.9
Net lifts	82	29	55	40	45	39	45	49	48	49

¹Sampling period delayed two weeks.

Table 6.--Walleye CPUE (number per net lift) in multi-filament gill nets during fall surveys on Michigan waters of Lake Erie.

Year class	Total CPUE	Survey year																	
		1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
1972	1.0	0.2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1973	1.0	0.3	0.2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1974	13.6	3.5	0.3	1.5	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1975	42.8	10.5	3.5	2.0	0.5	0.5	—	—	—	—	—	—	—	—	—	—	—	—	—
1976	18.4	5.3	2.8	1.0	1.5	0.3	0.0	0.5	—	—	—	—	—	—	—	—	—	—	—
1977	171.0	37.0	22.7	9.0	5.0	2.5	3.0	0.5	0.3	—	—	—	—	—	—	—	—	—	—
1978	61.6	19.0	25.0	6.0	5.5	2.5	1.8	0.5	1.3	—	—	—	—	—	—	—	—	—	—
1979	72.4	—	44.0	13.5	5.0	4.3	2.3	2.0	0.5	0.5	0.3	—	—	—	—	—	—	—	—
1980	92.7	—	—	43.0	21.5	14.5	5.0	5.3	2.3	0.5	0.3	0.0	0.3	—	—	—	—	—	—
1981	72.3	—	—	—	33.5	21.3	7.8	3.8	2.8	2.3	0.5	0.3	0.0	—	—	—	—	—	—
1982	306.2	—	—	—	—	29.0	91.8	95.8	44.3	28.5	5.3	7.5	3.5	0.5	—	—	—	—	—
1983	34.6	—	—	—	—	—	4.5	12.0	4.0	5.0	3.5	1.8	1.8	2.0	—	—	—	—	—
1984	147.7	—	—	—	—	—	—	69.8	34.3	20.5	3.5	8.0	8.3	2.0	0.5	0.3	0.5	—	—
1985	177.2	—	—	—	—	—	—	—	98.0	42.5	9.3	14.3	8.5	1.5	1.3	0.8	1.0	—	—
1986	297.5	—	—	—	—	—	—	—	—	96.8	30.3	90.3	43.5	19.5	11.0	3.8	2.0	0.3	—
1987	126.7	—	—	—	—	—	—	—	—	—	4.5	53.8	26.8	20.0	13.8	2.5	3.8	1.0	0.5
1988	124.2	—	—	—	—	—	—	—	—	—	—	61.5	35.8	9.3	7.3	4.5	4.5	0.5	0.8
1989	51.2	—	—	—	—	—	—	—	—	—	—	—	16.0	17.0	10.0	2.8	3.3	1.3	0.8
1990	134.8	—	—	—	—	—	—	—	—	—	—	—	—	54.5	48.0	13.0	16.5	1.5	1.3
1991	189.9	—	—	—	—	—	—	—	—	—	—	—	—	—	63.0	47.3	61.5	11.3	6.8
1992	11.6	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.0	7.3	2.0	0.3
1993	156.1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	73.3	71.0	11.8
1994	106.3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	63.3	43.0
1995	3.3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3.3
Total		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	76.8	173.8	152.0	68.6
Net lifts		4	6	2	2	4	4	4	4	4	4	4	4	4	4	4	4	4	4

