MICHIGAN DEPARTMENT OF NATURAL RESOURCES
FISHERIES DIVISION

STATUS OF THE FISHERIES

IN MICHIGAN WATERS OF

LAKE ERIE AND LAKE ST. CLAIR

2010

Trawl catch dominated by yellow perch during May 2010 survey on Lake St. Clair

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Website: http://www.michigan.gov/dnr/0,1607,7-153-10364_10951_11304---,00.html

May 18, 2011

Highlights for 2010

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, an angler diary program, the Master Angler program, and commercial fishery records, as well as fisheries research studies. Some of the highlights described in detail include:

- Lake Erie yellow perch abundance has been steady in recent years, while walleye abundance has been highly variable. Walleye experienced very good reproduction in 2003, but very poor or below average reproduction in 2004, 2005, 2006, 2008, and 2009.
- Non-charter angler harvest rates for Lake Erie yellow perch were the highest recorded since 1998.
- Michigan non-charter anglers on Lake Erie caught over 54,000 walleye and harvested about 48,000 of those fish. Anglers reported releasing lower numbers of sub-legal size walleye in 2010 (5,388 released). The strong 2003 year class accounted for 43% of the Michigan sport harvest.
- Charter boat harvest rates for Lake Erie walleye were more than 4 times those estimated for non-charter anglers, while yellow perch charter boat harvest rates were similar to those estimated for non-charter anglers.
- Lake St. Clair is the premier Michigan water for trophy muskellunge and smallmouth bass based on the number of entries recorded in the Master Angler program in 2010.
- 2010 Lake Erie index gill net catch rates for Michigan waters were the lowest recorded since 1978.
- Rock bass, smallmouth bass, and channel catfish were the dominant species in the Lake St. Clair trap net survey in 2010. Many of the channel catfish exceed Master Angler minimum length.
- Long-term tagging studies on Lake Erie walleye stocks clearly illustrate the important contribution of Lake Erie walleye to the Great Lakes sport fishery of Southeast Michigan, from Port Huron to Toledo.
- Tagging studies of lake sturgeon in the connecting waters since 1997 have demonstrated that lake sturgeon routinely move between Lake St. Clair and the St. Clair River. Longer range movements between the St. Clair system and southern Lake Huron are also frequent.

Fishery Forecast for 2011

Annual variation in reproductive success of walleye and yellow perch can result in substantial year to year changes in their abundance. Harvestable-size yellow perch abundance will be lower than last year in Lake Erie, with a strong contribution from the 2007 and 2009 year classes. Although Lake Erie walleye abundance is expected to remain about the same in 2011, the average size of walleye available for anglers will be smaller. Michigan anglers will find fewer walleye from the strong 2003 year class as the summer progresses, and will rely on contributions from the moderate 2007 year class and the comparatively weak 2008 and 2009 year classes. Muskellunge and bass numbers tend to remain more stable from year to year and both species should continue to provide excellent fishing opportunities in 2011, particularly in Lake St. Clair and the Detroit River. Still, weather conditions can affect sport fishing success as much as fish abundance. Therefore it is difficult to predict fishing success. Water levels are forecasted to remain below or near the long term average in 2011. Thus shallow waters may continue to restrict angler access to some fishing areas in the connecting waters.

Sport Fishery Summary

An on-site creel survey conducted by the Michigan Department of Natural Resources (MDNR) produced a total harvest estimate of 368,981 fish (Table 1) for Michigan's 2010 Lake Erie sport fishery (non-charter). In combination, walleye and yellow perch accounted for 94% of the total harvest, reflecting their importance in the sport fishery. Non-charter anglers caught an estimated 54,633 walleye in Michigan waters of Lake Erie, and harvested 47,954 of those fish. The low number of walleye released suggests that 2008 and 2009 year classes are relatively low in abundance. Although few bass are harvested by Michigan's Lake Erie anglers, over 20,000 legal-size largemouth and smallmouth bass were reported caught and released. Estimated angler effort in 2010 declined 19% from 2009, but remained within the range of effort observed since 1991 (Figure 1). The walleye harvest rate in 2010 declined 30% from 2009, and remained below the long-term mean of 0.23 walleye per angler hour (Figure 2). The yellow perch harvest rate increased by 8% in 2010, the highest level seen since 1998 and well above the long-term mean of 0.51 yellow perch per angler hour. Trends in angler effort and harvest rates for walleye and

yellow perch since the mid-1980's suggest that the level of angler effort on Lake Erie is affected by many factors in addition to harvest rates. Other factors, including weather, prey fish abundance, fishing success on other Great Lakes waters, and regional economic conditions have likely contributed to the comparatively low level of fishing effort since 1991.

Biological data were collected from walleye and yellow perch during the 2010 on-site creel survey. The walleye harvest was dominated by the 2003 year class (age 7), which represented 43% of the harvest (Figure 3). The 2007 year class (age 3) was also a strong contributor to the harvest, accounting for 38% of the total. The continued dominance of the 2003 year class reflects both the strength of that year class and the relative weakness of the other year classes in the fishery. Harvested age 7 walleye averaged 541 mm (21.3 in.) in total length. The overall average length of walleye harvested in the sport fishery in 2010 was 495 mm (19.5 in.).

Yellow perch harvest was dominated by age 3 fish (2007 year class), which accounted for 55% of the total harvest (Figure 3). Age 2 fish (2008 year class) were also a major portion of the harvest and accounted for 35% of the total harvest. Average lengths of harvested age 2 and 3 yellow perch were 201 mm (7.9 in.) and 218 mm (8.6 in.). The overall average length of yellow perch harvested in the sport fishery in 2010 was 216 mm (8.5 in.). The observed mean length at age for yellow perch taken in the Michigan sport fishery declined slightly for age 1 to 3 fish, but increased for age 4 and 5 fish in 2010 (Figure 4).

Since 1989, Michigan charter boat operators have been required to report their charter fishing harvest and effort to the MDNR. In 2010, Michigan charter boat anglers harvested 27,212 fish from Lake Erie (Table 2). In combination, walleye (34%) and yellow perch (62%) accounted for 96% of the total harvest by number. The walleye harvest rate in 2010 declined 7% from 2009 and remained below the long-term mean harvest rate of 0.73 walleye per hour for the 3rd consecutive year (Figure 5). Yellow perch harvest rate increased by 67% from 2009 and was the highest ever recorded for Michigan charter boats on Lake Erie. The charter boat walleye harvest rate (0.56) was about 4.6 times higher than those estimated for non-charter anglers (0.12) in 2010, while the yellow perch charter harvest rate (0.99) was only about 24% higher than the rate for non-charter boat anglers (0.75).

Beginning in 2010, Michigan charter boat operators are also required to report catch-and-release fishing activity as well as harvest. For Lake Erie, charter operators reported releasing 4,348 fish. While most of the released fish were yellow perch and walleye, operators reported 5 muskellunge were caught and released.

For the St. Clair-Detroit River system, charter boat anglers harvested 7,354 fish (Table 3). Yellow perch (42%), walleye (35%), and smallmouth bass (19%), made up the bulk of the harvest. In 2010, charter boat harvest rates for walleye declined by 64% from 2009 to the lowest level since 2004 (Figure 6). Yellow perch harvest rates, which had declined dramatically since 2007, increased 9% in 2009, but remained well below the long-term mean harvest rate of 0.56 yellow perch per hour.

Charter operators on the St. Clair-Detroit River system reported releasing 8,382 fish (Table 3). Smallmouth bass (62%) and muskellunge (15%) accounted for the majority of the fish caught-and-released. For smallmouth bass, charter operators released 79% of the 6,644 smallmouth bass caught in 2010. Of the 1,247 muskellunge reported caught, only 3 were harvested, for a release rate of 99.8%.

Over the last 10 years, the walleye charter harvest rate for Lake Erie has generally been about 2 to 3 times higher than the St. Clair-Detroit River system rate. In 2010, the Lake Erie walleye charter harvest rate was 2.7 times higher than the Lake St. Clair charter harvest rate for walleye. Overall, the lower harvest rate typical for the St. Clair system is a result of lower walleye densities. Both the decline of the Thames River walleye population and lower numbers of walleye migrating from Lake Erie spawning sites through the St. Clair-Detroit River system have been contributing factors in lower walleye abundance in St. Clair-Detroit River system since 1990.

The number of reported Michigan charter excursions on Lake Erie increased 7% in 2010, but remained well below the levels reported prior to 2004 (Figure 7). Charter boat excursions on the St. Clair-Detroit River system in 2010 increased 70% from 2009, but much of this increase was likely a product of the new reporting requirement for catch-and-release fishing activity. For many

years, much of the charter fishing activity on the St. Clair-Detroit River system has been catch-and-release oriented, and was largely unreported.

Muskellunge catch rates derived from the Sport Fishery Diary Program on Lake St. Clair improved through the late 1980's and early 1990's and have remained fairly steady over the past 10 years. In 2010, the catch rate declined 13%, but remained consistent with the range observed since about 1995 (Figure 8). We suspect the increased variability in catch rates seen over the last 5 years may be more reflective of the lower number of muskellunge anglers involved in the diary program, than of actual changes in the muskellunge population.

The quality of the Lake St. Clair muskellunge fishery is reflected in the MDNR's Master Angler Program. Lake St. Clair continued to dominate the statewide Master Angler entries for muskellunge in 2010, with 34 of the 51 total entries originating from the St. Clair system. However, the number of Lake St. Clair muskellunge Master Angler entries has generally declined since 2000 (Figure 9), while entries for muskellunge weighing over 30 pounds (or 50" in length) have been fairly stable. We suspect this trend is largely a reflection of waning interest in submitting Master Angler entries for muskellunge less than 50" in length, which has become a local benchmark for "trophy" status for muskellunge from the St. Clair-Detroit River system. By all accounts, the muskellunge population continues to provide excellent fishing opportunities. We expect that the following factors will continue to contribute to a strong muskellunge population and fishery in Lake St. Clair and the connecting waters: 1) a 44" minimum size limit (MSL) for Ontario waters and a 42" MSL for Michigan waters of the St. Clair system; 2) physical and biological changes in the lake such as clearer water and increased aquatic plant growth resulting in improved habitat for muskellunge; and, 3) extensive voluntary practice of catch and release fishing for muskellunge in Lake St. Clair by both sport and charter anglers.

Statistics from the Master Angler program also indicate that Lake St. Clair is one of the premier waterbodies in the state for trophy smallmouth bass. Lake St. Clair accounted for 31% of all smallmouth bass entries statewide in 2010 (catch/keep and catch/release programs combined). Since the early 1990's, both catch/keep and catch/release Master Angler smallmouth bass entries from Lake St. Clair have exhibited an increasing trend (Figure 10). Catch/release entries have outnumbered catch/keep entries for the last 11 years. The strong representation of Lake St. Clair smallmouth bass in the statewide Master Angler Program is likely a reflection of an abundance of trophy-size smallmouth bass in the lake, a high degree of angler effort targeting the species, and widespread practice of catch-and-release among smallmouth bass anglers.

Commercial Fishery Summary

In 2010, three Michigan commercial fishing licenses were active on Lake Erie. Since 1979, the commercial fishery in Michigan waters of Lake Erie has harvested rough fish species using seines in the shallow embayments along the shoreline. However, since 2006 a small-mesh trap net license has been active. The 2010 commercial harvest included 12 types of fish for a total of 752,956 pounds (Table 4). In combination, common carp (25%), freshwater drum (17%), quillback (14%), and goldfish (10%) accounted for 66% of the total harvest by weight. The major species in the trap net harvest included quillback, freshwater drum, and buffalo. The primary species in the seine harvest included common carp, goldfish, and bullhead. The reported harvest of bullhead and quillback in 2010 were the highest since at least 1981 (Table 5). The harvest of channel catfish, goldfish, freshwater drum, and suckers in 2010 were also near record harvests observed for those species since 1980. The total value of the 2010 Lake Erie commercial harvest from Michigan waters was estimated at $273,793.

Summary of Netting Surveys

During most years since 1978, the fish community in the Michigan waters of the western basin of Lake Erie has been monitored with spring trap net surveys. In 2010, the trap net survey was abbreviated due to an exceptionally early spring warm-up and very poor catches in the nets. As a result, catch rate data from the 2010 trap net survey can not be compared with data from prior years. While algae fouling of the trap nets in 2010 was not as extreme as in 2009, it remains a problem and could force the trap net locations to be moved to deeper water or termination of the trap net survey.

Walleye were collected with electrofishing gear in the Huron River near Flat Rock, Michigan during March, 2010. A total of 1,102 walleye were caught

between March 17 and March 31. The age of walleye captured ranged from 0 to 17, with age 7 (2003 year class) and age 3 (2007 year class) fish dominate age groups (Figure 11). As is typical for walleye, females were, on average, 2 or 3 inches longer than males of the same age (Figure 12). A total of 933 walleye were tagged and released.

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 walleye assessment program. During October 2010, four net lifts caught a total of 137 walleye. The total walleye catch-per-effort (CPE) for the index sites (33.5) decreased by 42% from 2009 (Table 6). Yearling walleye (2009 year class) accounted for 37% of the catch, with the yearling walleye CPE of 12.3 similar to the CPE recorded for the 2008 and 2005 year classes. The 2007 year class was the 2nd most abundant cohort in the survey, accounting for 34% of the catch. This year class will likely be the largest component of the Michigan Lake Erie walleye fishery in 2011.

In 2010, the MDNR surveyed adult fish populations in Anchor Bay, Lake St. Clair with trap nets. Four trap nets were fished from May 3 to May 24. A total of 6,244 fish representing 21 species were captured during the survey. Rock bass were numerically dominant, accounting for 73% of the total (Figure 13). Other common species in the nets included smallmouth bass (11%) and channel catfish (3%).

Ages were estimated for walleye (n=103) and smallmouth bass (n=725) based on interpretation of dorsal spine samples. The dominant walleye year class was the 2003 year class (Age 7), accounting for 42% of the total catch (Figure 14). For smallmouth bass, the 2005 (38%), 2006 (27%) and 2007 (14%) year classes accounted for 79% of the total trap net catch. A total of 96 walleye and 544 smallmouth bass were tagged and released at the Anchor Bay trap net site in 2010.

Ages were estimated for northern pike (n=91) and muskellunge (n=19) caught in the Anchor Bay trap nets, based on interpretation of dorsal fin ray sections (Figure 15). For northern pike, 92% of the fish were 6 years old or younger. In contrast, for muskellunge, 84% of the fish were 8 years old or older. The oldest muskellunge sampled in 2010 was 16 years old.

The trap net survey revealed an abundant population of channel catfish in Anchor Bay with many trophy size individuals. The average weight of channel catfish captured during the 2010 trap net survey was 7.1 pounds. Over 34% of the channel catfish exceeded the minimum size requirement (27 inches total length) for the MDNR Master Angler program. Anglers are discouraged from keeping large channel catfish for food due to consumption advisories as a result of PCB contamination. However, catch-and-release trophy channel catfish angling opportunities are clearly available in Anchor Bay during the spring. The high abundance of large channel catfish suggests that this population is currently experiencing low exploitation.

Over the 9 years of the trap net survey in Anchor Bay since 2002, rock bass have dominated the catch (Table 7). Smallmouth bass CPE has varied considerably, while walleye CPE has been fairly steady. We suspect smallmouth bass catch rates in the trap nets are related to spawning movements during the survey period and are likely affected by annual variations in the warming of the waters of Anchor Bay. Sturgeon catch rates are low, but a few are captured in the trap nets each year.

The forage fish community of Lake St. Clair has been surveyed with bottom trawls each year since 1996 by the MDNR. A total of 6 trawl tows were conducted at the Anchor Bay index trawling site in 2010. The spring samples were dominated by yellow perch, spottail shiner, and rainbow smelt (Table 8). The species with highest mean densities in the fall samples were yellow perch, spottail shiner, and bluntnose minnow (Table 9). Alewife catches have been low since 2003, likely a result of the alewife population crash in Lake Huron. Yellow perch age-specific catch rates from the trawl survey indicate highly variable recruitment in Lake St. Clair (Table 10). Yellow perch recruitment in 1998, 2003, 2007, and 2008 was strong, with total CPE values for those year classes all over 1,300 fish per tow. Anglers will find the strength of the 2007 and 2008 year classes clearly illustrated by the number of yellow perch in the 6 to 9 inch size range in 2011.

September trawling in Anchor Bay provides early indications of spawning success for yellow perch and smallmouth bass. Catch rates for young-of-year yellow perch from September trawls indicate the 2010 year class was the most abundant year class recorded since the survey began in 1996

(Figure 16). In combination with the strong 2007 and 2008 year classes, the 2010 year class will result in continued strong contributions of yellow perch to the Lake St. Clair fishery over the next 5 years.

Smallmouth bass recruitment patterns are variable based on September trawl catch rates of young-of-year (Figure 17). While the 2009 year class appeared to have been a complete failure, the 2010 September trawl CPE for age 0 smallmouth bass was the highest observed during this survey, suggesting the 2010 year class may be the most abundant since at least 1996. Population studies have suggested that mean length of young-of-year smallmouth bass in the fall can be more important than abundance in determining year class strength. Based on young-of-year mean length, the 2001, 2005, and 2006 year classes should be strong contributors to the smallmouth bass population in Lake St. Clair in 2011.

A total of 193 lake sturgeon were collected during assessment surveys on Lake St. Clair and the St. Clair River in 2010. Sturgeon captured averaged 1,114 mm (43.8 in.) in total length, with a range from 541 mm (21.3 in.) to 1,709 mm (67.3 in.) Ages were estimated for 144 sturgeon based on pectoral fin ray sections and a correction factor was applied based on the published relationship between otolith and fin ray ages for lake sturgeon. Thirty year classes were represented with ages ranging from 3 to 37 years. Combined age samples from 1997-2010 indicate that survival of lake sturgeon spawned in the 1970's and 1980's has been fairly consistent, but lake sturgeon spawned in the 1950's and 60's are less abundant (Figure 18). This may be a result of improved water quality after the Clean Water Act of 1972. More conservative lake sturgeon sport fishing regulations implemented by Michigan in 1983 could also be a factor in the increased survival.

Fish Tagging Studies

In 2010, a total of 1,104 walleye were tagged with non-reward jaw tags by Michigan at two Lake Erie sites and one Lake St. Clair site. A total of 45 non-reward tags placed on walleye in 2010 were recovered by fishermen for a single season reporting rate of 4.1%. This is considerably higher than the rate observed for 2009 tags (2.5%). The 2010 site-specific reporting rate varied from a high of 4.2% at the Huron River site, a tributary to western Lake Erie, to a low of 3.1% for the Anchor Bay site in Michigan waters of Lake St. Clair (5.4% in 2009). The distribution of tag recoveries from Michigan's tagging sites on Lake Erie (Figure 19) indicates that walleye tagged at separated locations at spawning time belong to different genetic stocks. Walleye tagged in the Huron River at Flat Rock tend to be captured along the south shore of Lake Erie and on Michigan's side of Lake St. Clair. In general, the interagency tagging study continues to provide evidence of substantial movement of walleye from spawning locations in Lake Erie through the St. Clair connecting waters.

Since 2002, a total of 1,349 legal size walleye and 3,155 smallmouth bass captured in survey trap nets in Anchor Bay have been tagged and released. Maps showing the geographical distribution of walleye and smallmouth bass tag recoveries since 2002 for fish tagged in Anchor Bay through 2009 are presented in Figure 20. The migratory nature of walleye is clearly illustrated by the wide dispersal of tag recoveries from Anchor Bay, with recoveries northward to Port Huron, and southward as far as the Bass Islands in Ohio waters of Lake Erie. In comparison, smallmouth bass movements are rather localized, with nearly all the smallmouth bass recoveries reported from the Michigan waters of Lake St. Clair. The northernmost smallmouth bass tag recovery has been from the Marine City area of the St. Clair River, and the southernmost recovery came from the Detroit River near the Ambassador Bridge. On average, recaptured walleyes tagged prior to 2010 had traveled 25.9 km from the Anchor Bay tag site, while smallmouth bass tagged prior to 2010 had traveled 8.9 km. We continue to think that the individual walleye tagged in Anchor Bay originate from Lake Erie spawning stocks and that they repeat individual movement patterns from year to year. However, it is obvious from tag recovery patterns that many individuals from the Lake Erie spawning stocks migrate within that lake, never venturing into the Detroit River and Lake St. Clair. Only one of the walleye tagged at the Anchor Bay site has been recovered in a subsequent year on a known spawning ground, the Maumee River, so their natal spawning site is still a matter of conjecture.

A total of 2,261 lake sturgeon have been tagged and released on the St. Clair River and Lake St. Clair since 1996. To date, 323 tagged lake sturgeon have been recaptured with survey gear or reported by fishermen. A total of 192 tagged sturgeon have been recovered with survey setlines in the North Channel. One was recovered

in survey trap nets in Anchor Bay, while 11 have been recaptured in assessment trawls on Lake St. Clair. Sport anglers have reported 79 recoveries, nearly all from the St. Clair River North Channel, except for one reported from Lake Erie, near Huron, Ohio. Twenty-one recoveries have been reported from the Ontario commercial trap net fishery in southern Lake Huron, approximately 70 km from the tag site. All other recaptures have occurred within 10 km of the tag sites. Trawling has accounted for the capture of 38% of the sturgeon tagged and released during this study, but only 27 recoveries (8%) have been fish originally caught in a trawl on Lake St. Clair. This may be an indication that fish residing year-around in the St. Clair River, or moving into Lake Huron, experience a higher level of exploitation than fish residing all year in Lake St. Clair.

Water Levels

Since 2001, anglers and boaters have experienced below or near-average water levels in the connecting waters and Lake Erie. Water levels in the connecting waters are expected to be below or near the long-term average again in 2011. The effect of lower water levels on fish populations remains unclear. For example, northern pike spawning may be negatively impacted because coastal wetlands are dewatered. Alternatively, surveys suggest that largemouth bass spawning has improved in the shallower conditions present in the canals and marshes around Lake St. Clair since 2000. In Lake St. Clair, recovery of beds of emergent bulrush and wild rice has been apparent over the past several years. Unfortunately, invasive common reed (*Phragmites australis)* has also expanded its distribution in the St. Clair Flats area during this period of low water. When above average water levels return, increased coastal wetland habitat is expected to positively impact many of the fish species in the connecting waters.

Sport Fishing Regulations

Walleye in Lake Erie are managed cooperatively with other jurisdictions under a harvest quota system. Beginning in 2011, the walleye daily bag limit for anglers in Michigan waters of Lake Erie will be directly related to the Total Allowable Catch (TAC) for walleye determined by the Great Lakes Fishery Commission Lake Erie Committee (LEC) in late March. The table below provides the quota thresholds used to determine the daily bag limit under this new regulation. The walleye daily bag limit regulation will be effective from May 1 through the end of April in the following year. For 2011, the LEC agreed upon a TAC of 2.9 million walleye, with a Michigan quota of 170,000 walleye. This quota sets the Michigan walleye daily bag limit at 6 fish from May 1, 2011 to April 30, 2012. The Michigan walleye minimum size limit (15 inches) and season (open all year) for Lake Erie waters remain unchanged for 2011.

MI walleye quota	Daily bag limit
more than 108,364 fish	6
96,958 to 108,364 fish	5
85,551 to 96,957 fish	4
74,144 to 85,550 fish	3
62,737 to 74,143 fish	2
less than 62,737 fish	1

In 2006, Michigan bass fishing seasons were changed to include a statewide early catch-and-immediate-release (CIR) season. This change remains in effect through at least 2011. The CIR season opens statewide the last Saturday in April (April 30, 2011) and extends to the opening day for the harvest season. The harvest season for smallmouth and largemouth bass fishing in the Michigan portion of the connecting waters is the third Saturday in June (June 18, 2011) to December 31. The harvest season for the Michigan waters of Lake Erie opens on the Saturday before Memorial Day (May 28 in 2011).

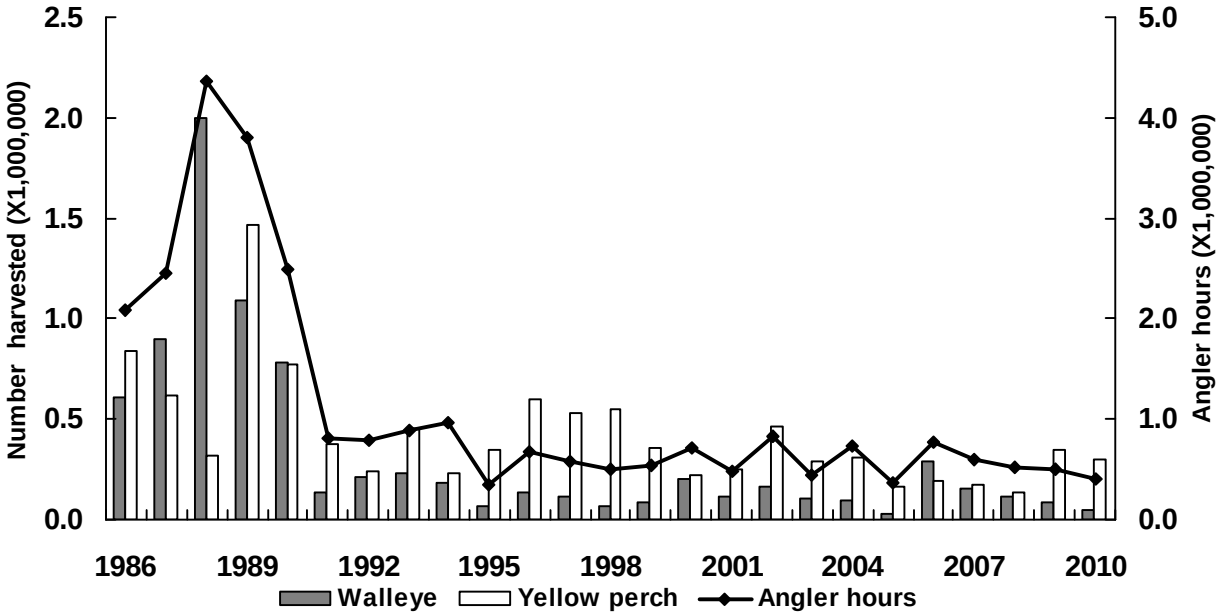


Figure 1.—Estimated harvest and effort for Michigan's Lake Erie sport fishery, 1986-2010.

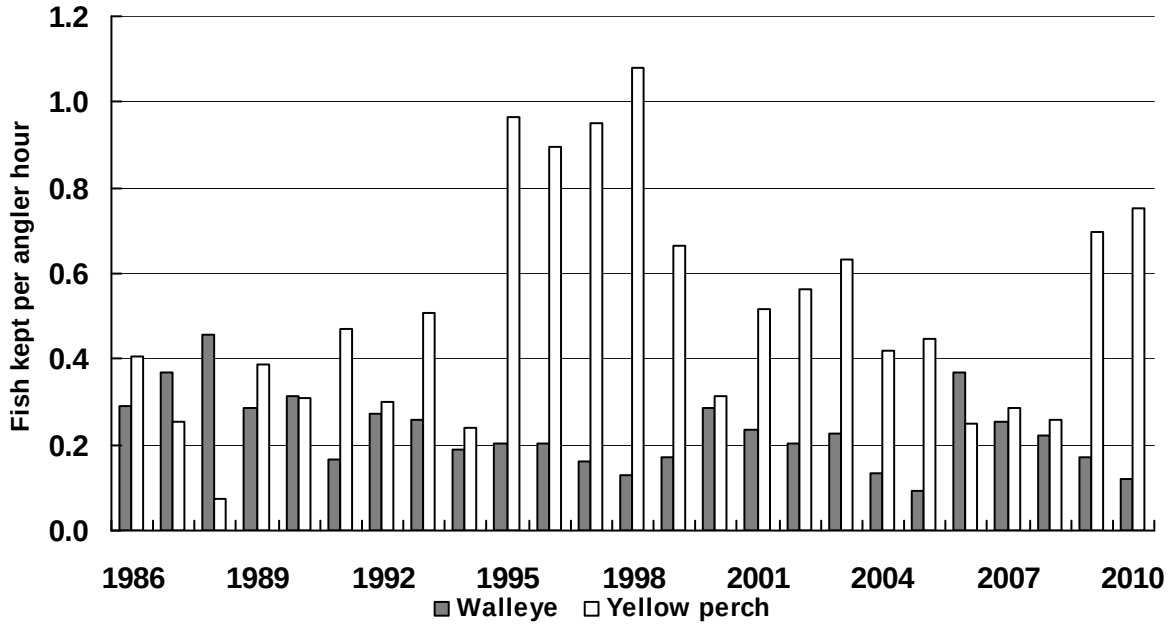
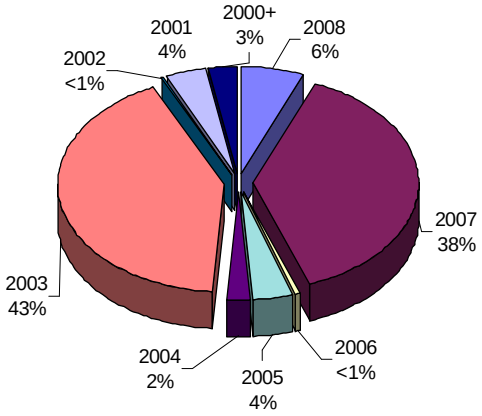
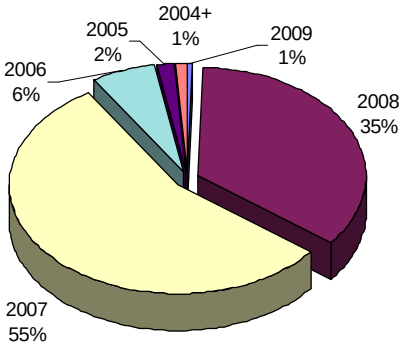


Figure 2.—Walleye and yellow perch harvest rates for Michigan's Lake Erie sport fishery, 1986-2010.



Walleye



Yellow Perch

Figure 3.—Year class contribution to Michigan sport harvest for walleye and yellow perch from Lake Erie in 2010.

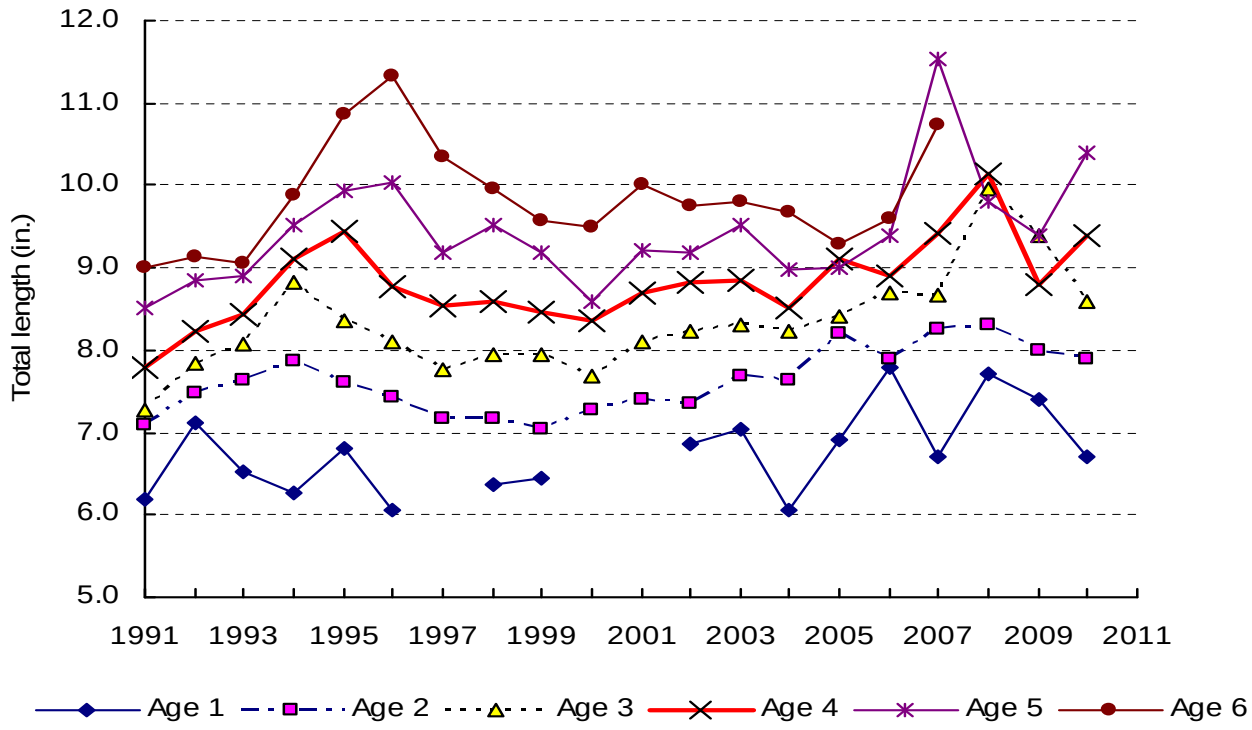


Figure 4.—Mean length at age for sport-harvested yellow perch from Michigan's waters of Lake Erie, 1991-2010.

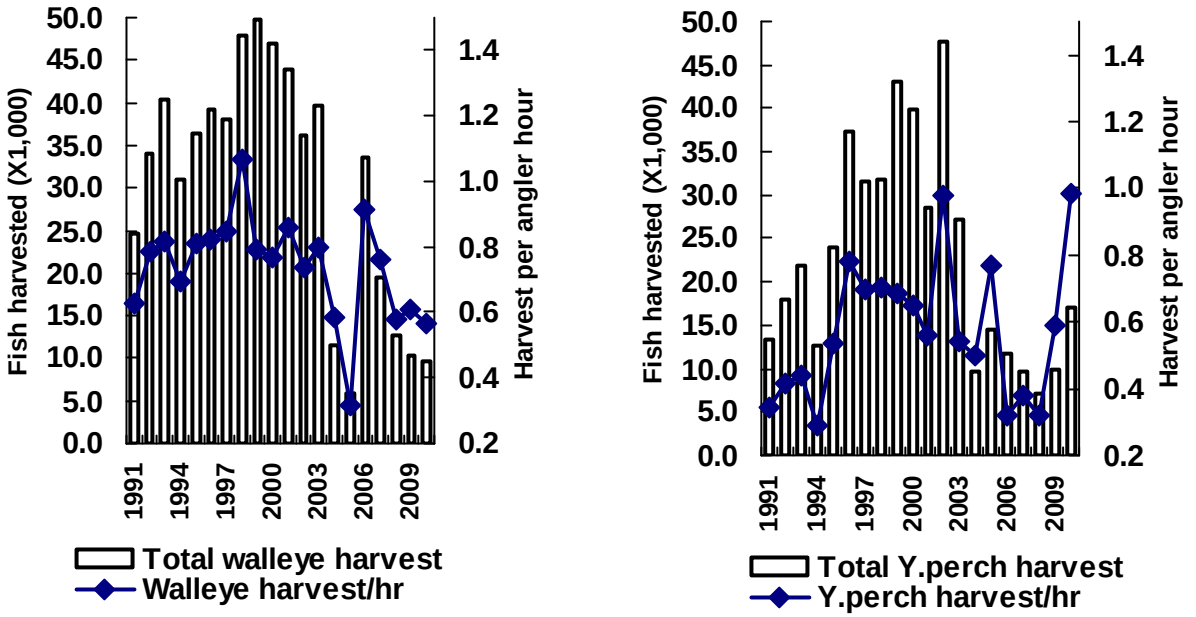


Figure 5.—Michigan charter boat harvest and harvest rates for Lake Erie, 1991-2010.

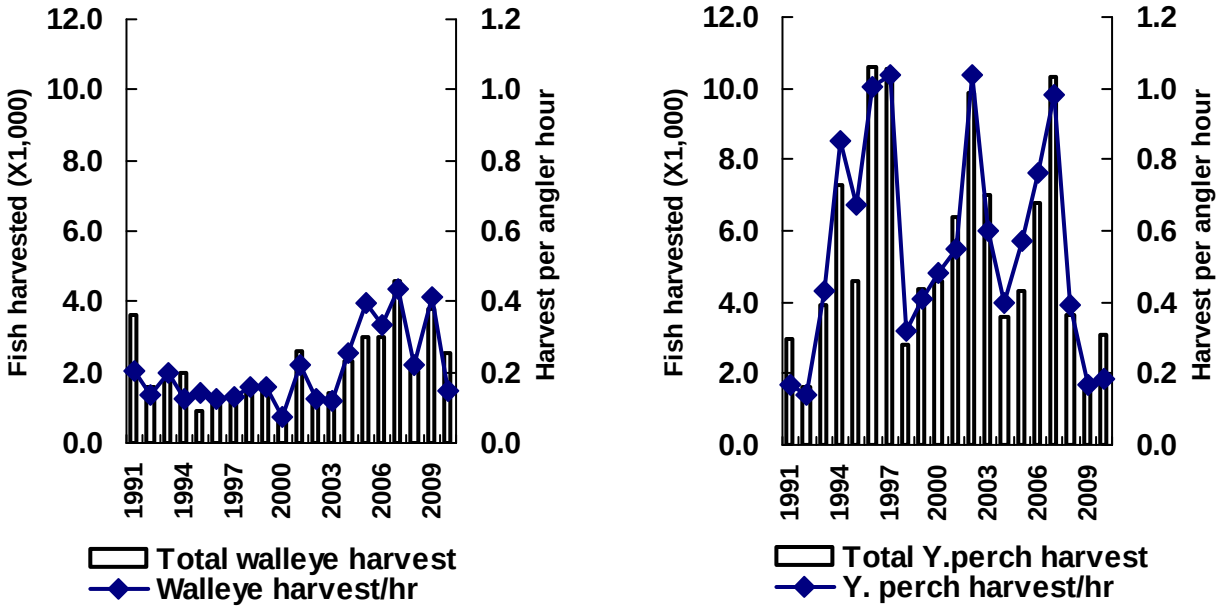


Figure 6.—Michigan charter boat harvest and harvest rates for the St. Clair-Detroit River system, 1991-2010.

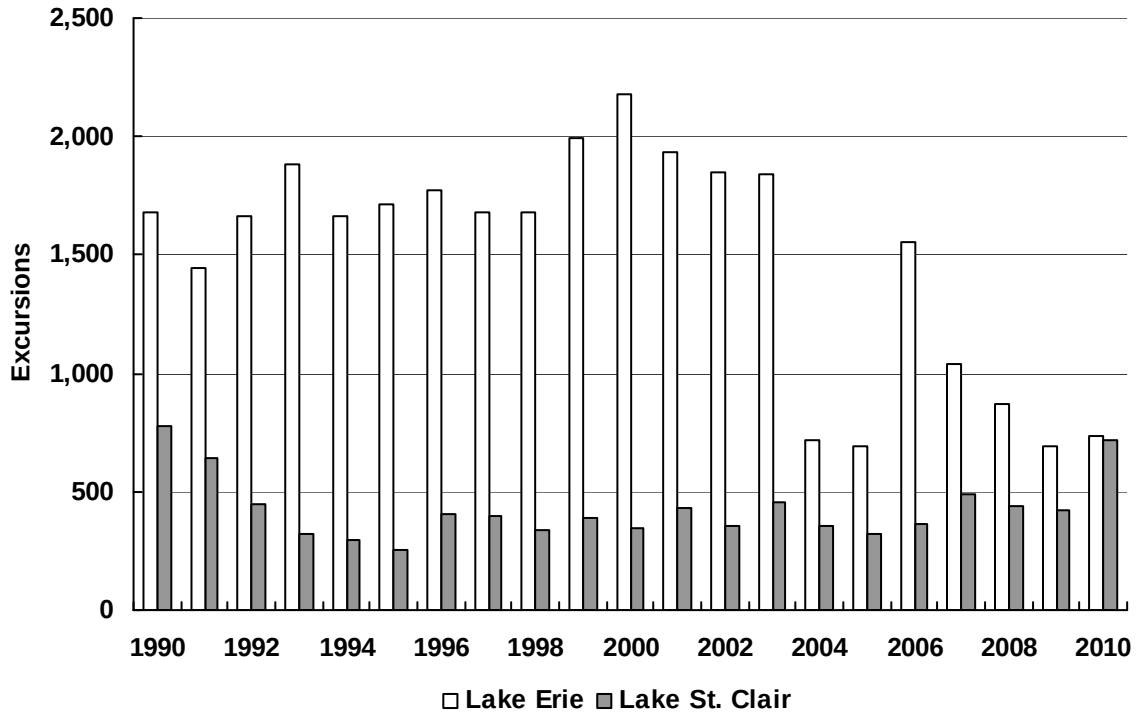


Figure 7.—Reported charter boat excursions on Lake Erie and the St. Clair-Detroit River system, 1990-2010.

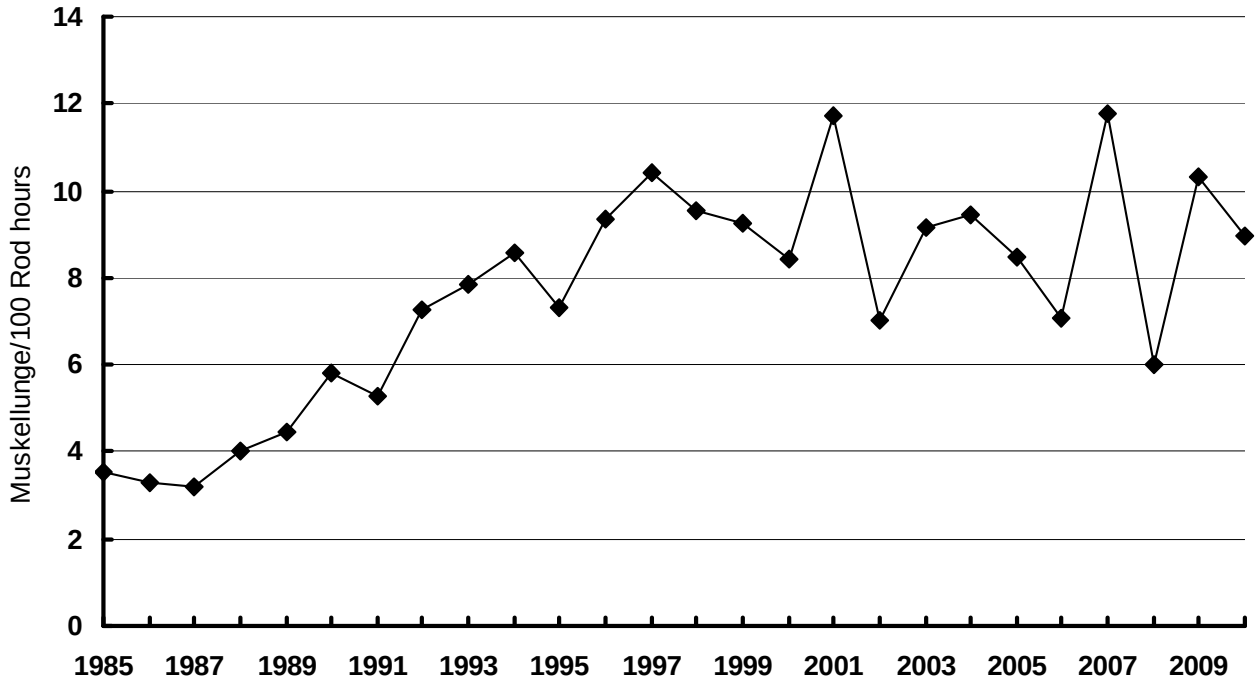


Figure 8.—Lake St. Clair muskellunge catch rate from Angler Diary Program, 1985-2009.

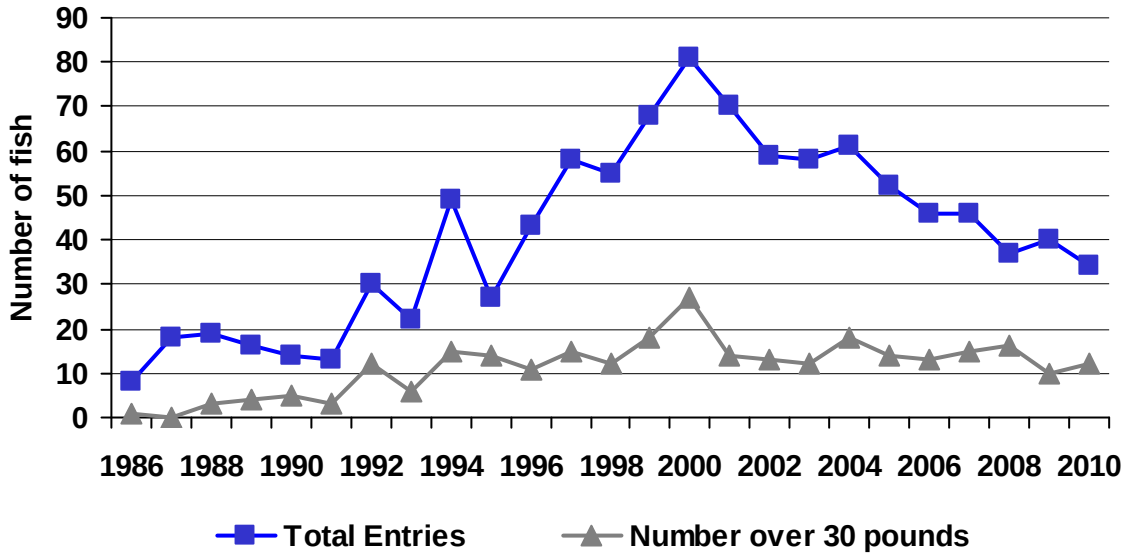


Figure 9.—Lake St. Clair muskellunge entered in the Michigan DNR Master Angler Program, 1986-2010. Values for 1992-2009 represent combined regular and catch-and-release Master Angler categories.

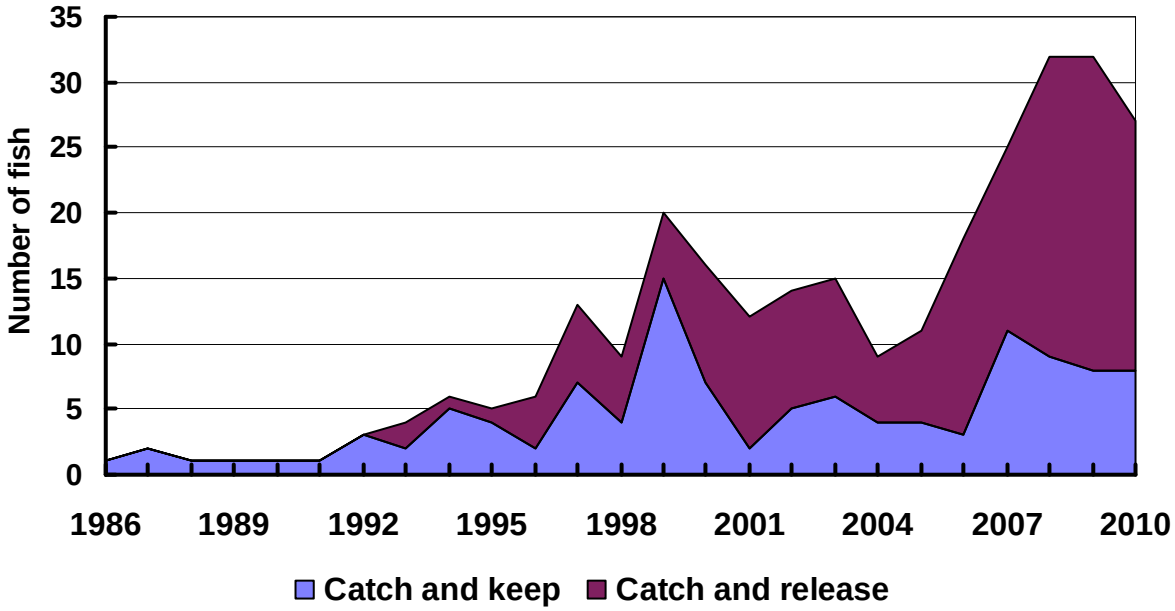


Figure 10.—Lake St. Clair smallmouth bass entered in the Michigan DNR Master Angler Program, 1986-2010.

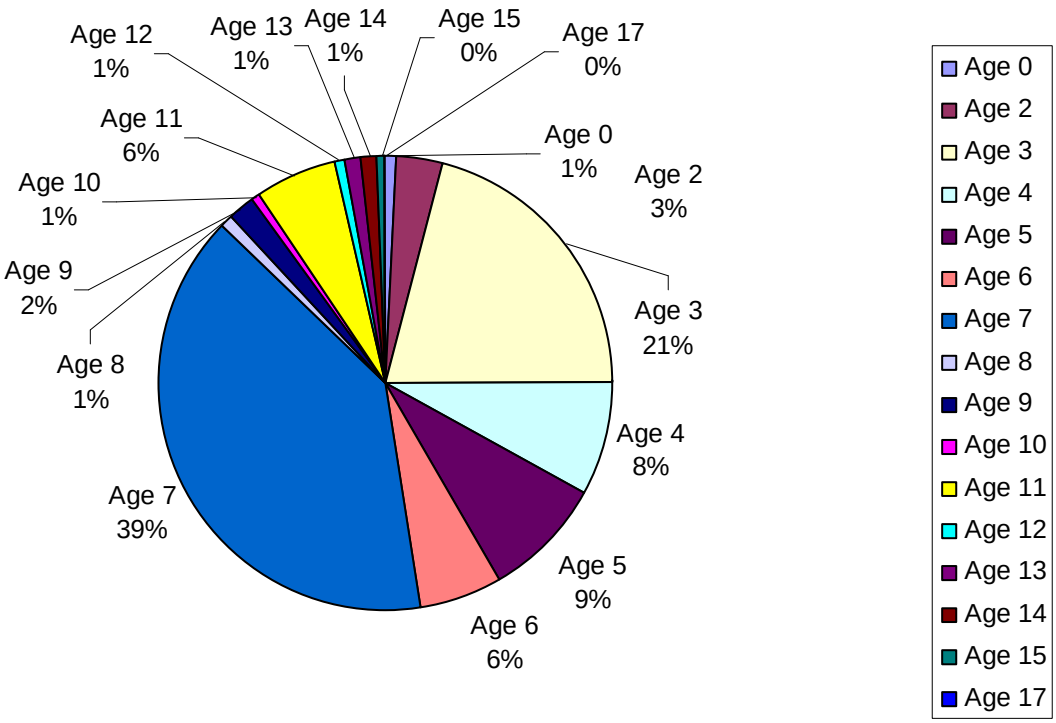


Figure 11.—Age composition for walleye captured with electrofishing gear in the Huron River, Michigan, during March, 2010.

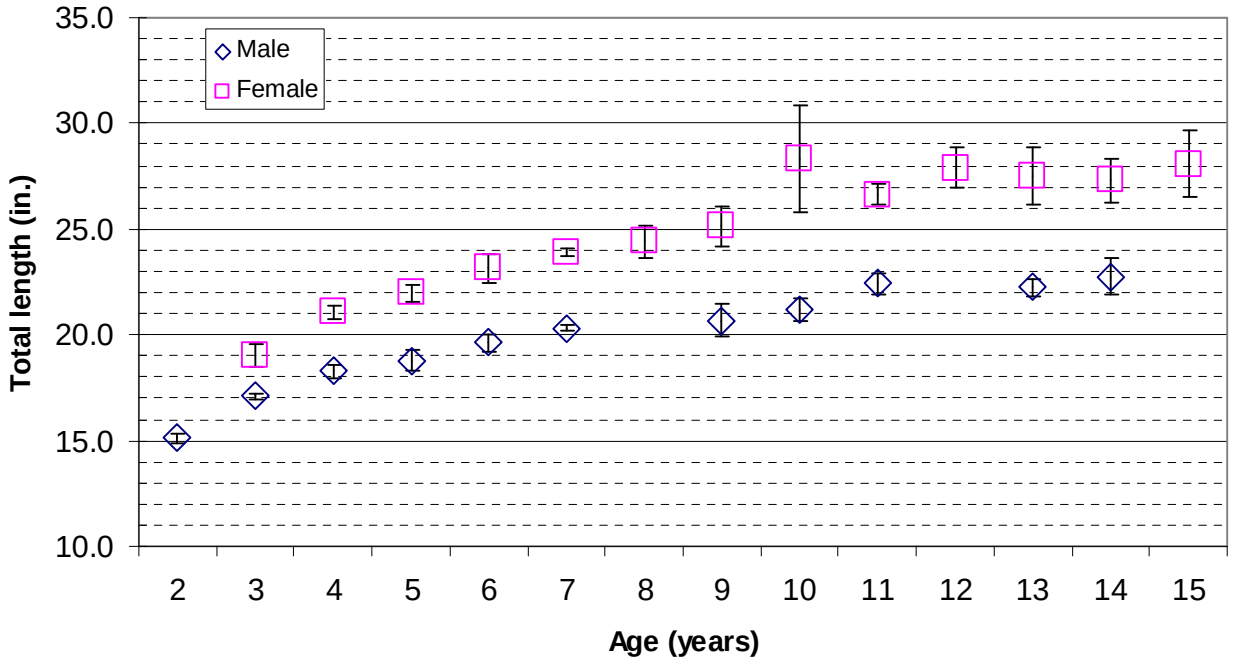


Figure 12.—Mean length at age by sex for walleye caught with electrofishing gear in the Huron River, Michigan, during March, 2010. Error bars are +/- 2 standard errors.

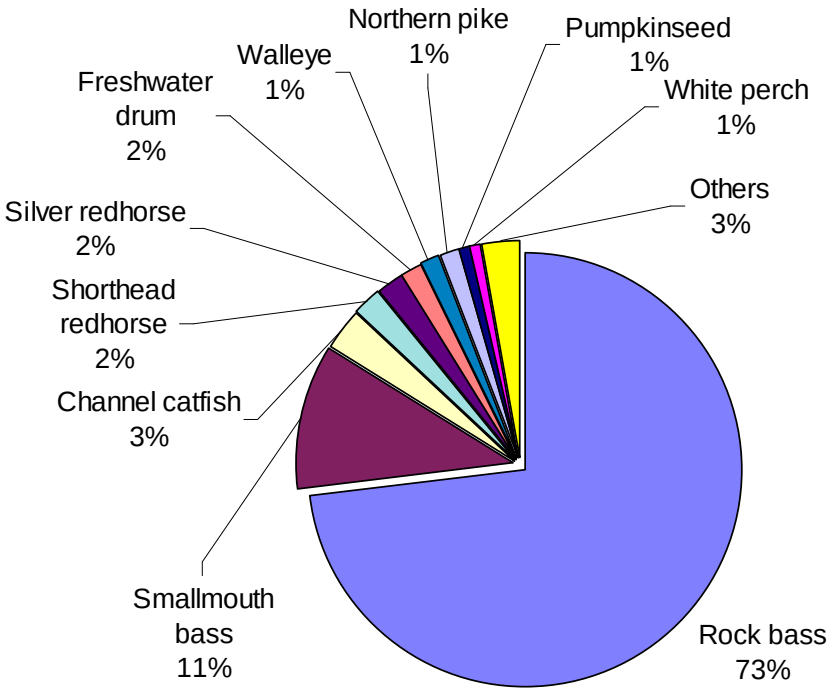
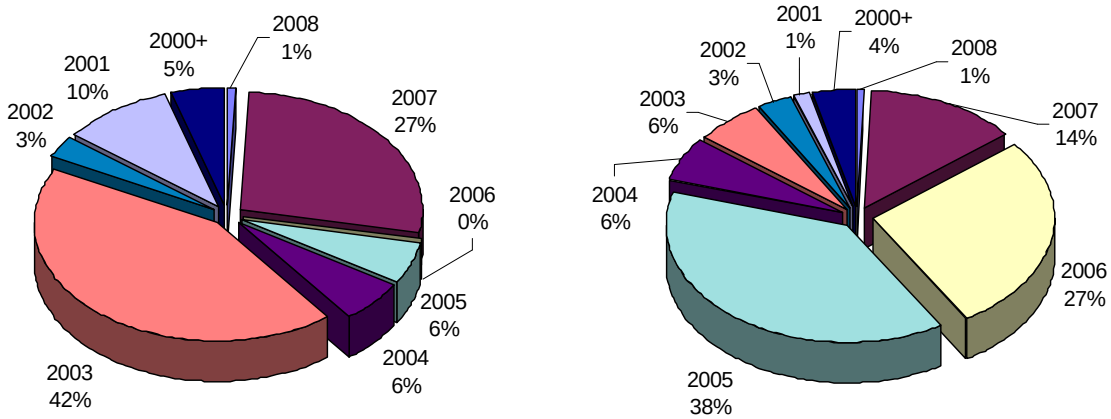


Figure 13.—Catch composition for trap nets fished in Lake St. Clair during May 2010.



Walleye **Smallmouth bass**

Figure 14.—Contribution by year class to catch in survey trap nets in Lake St. Clair during May 2010.

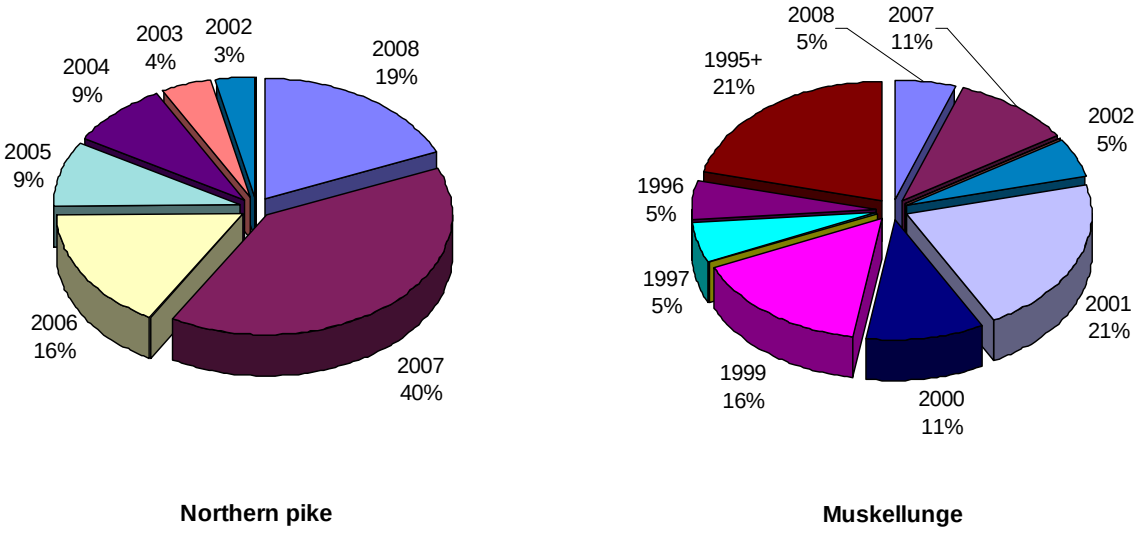


Figure 15.—Contribution by year class to catch in survey trap nets in Lake St. Clair during May 2010.

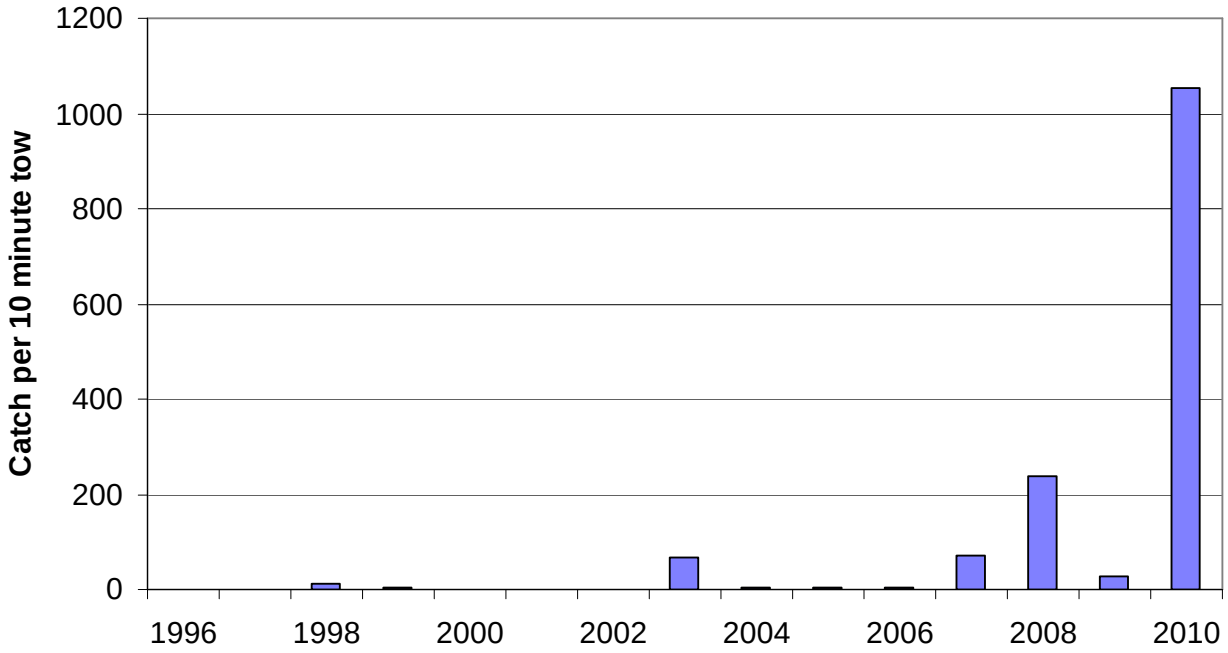


Figure 16.—Year-class strength for yellow perch in Lake St. Clair as indicated by September trawl age 0 catch rates, 1996 to 2010.

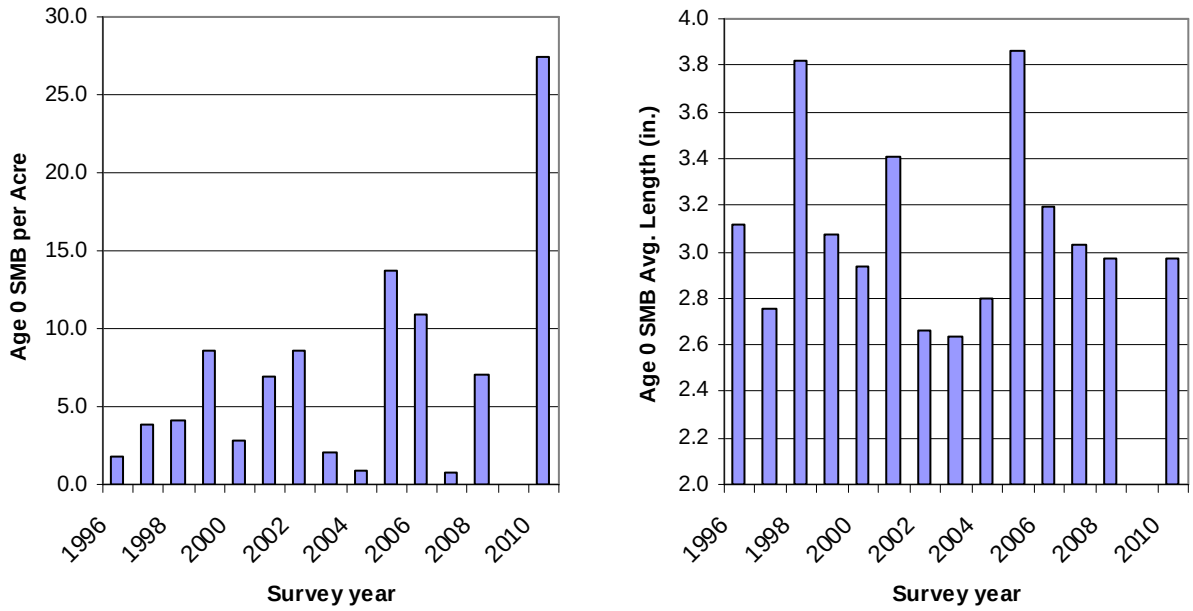


Figure 17.—Year-class strength for Lake St. Clair smallmouth bass as indicated by September trawl catch rates and mean length for young-of-year, 1996 to 2010.

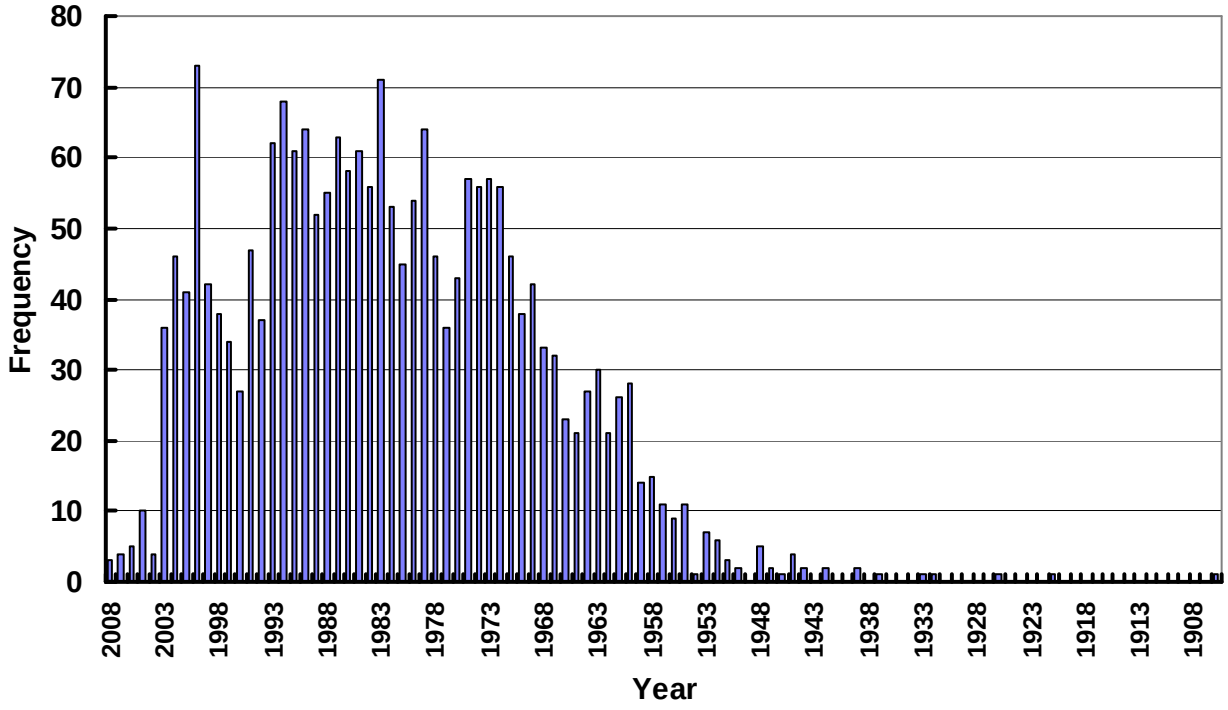


Figure 18.—Hatch year for lake sturgeon sampled from Lake St. Clair and St. Clair River from 1997 to 2010 by Lake St. Clair Fisheries Research Station (n=2,155) based on pectoral fin ray ages and otolith correction factor.

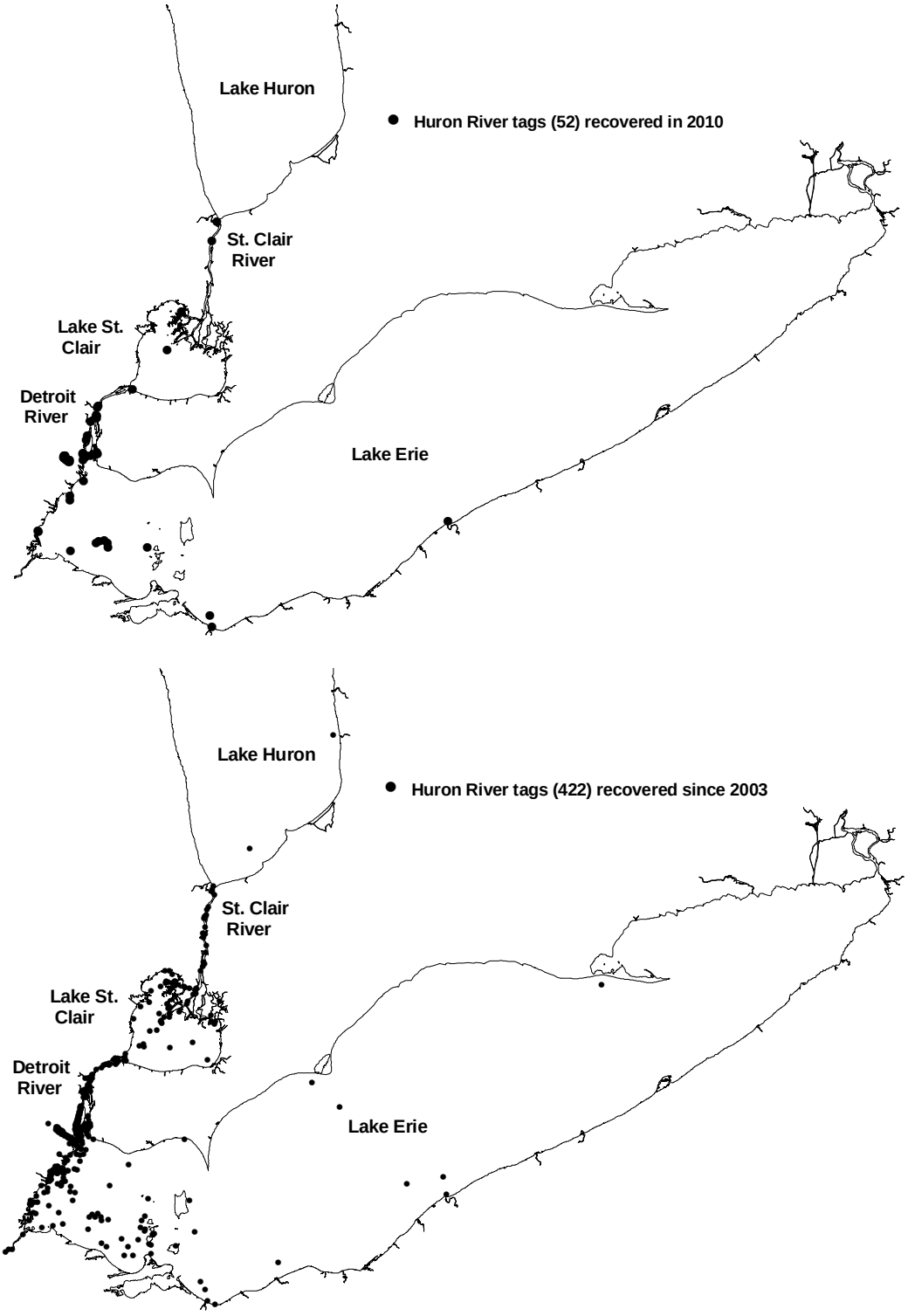


Figure 19. —Geographical distribution of walleye tag recoveries in 2010 from fish tagged during all years in the Huron River at Flat Rock, MI (top map) and for tag recoveries since 2003 for fish tagged during all years in the Huron River (bottom map).

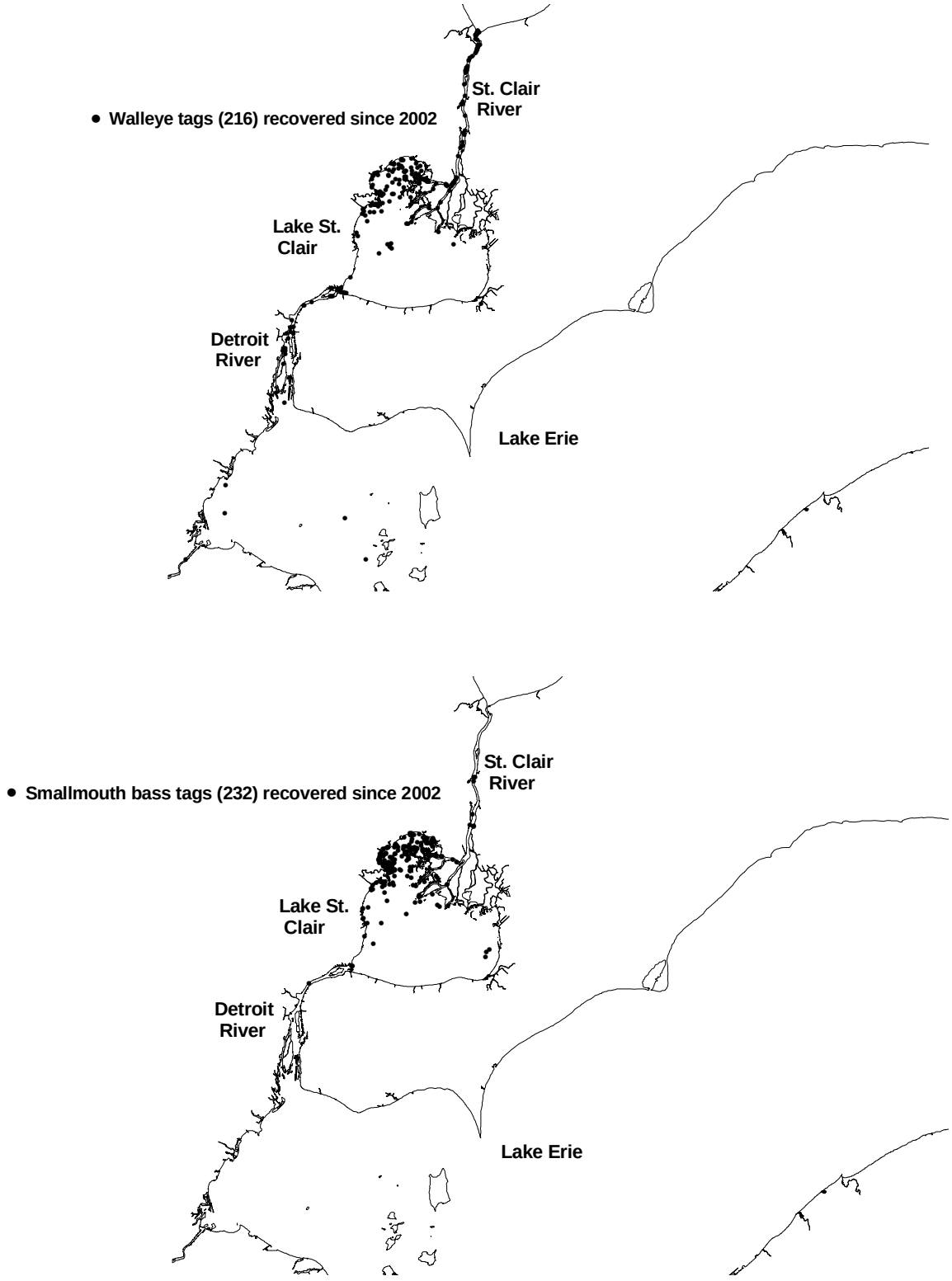


Figure 20.— Geographical distribution of walleye tag recoveries (top map) and smallmouth bass tag recoveries (bottom map) since 2002 for fish tagged during all years at the Anchor Bay site in Lake St. Clair.

Table 1. —Estimated harvest, harvest rate, effort, and released catch for Michigan's 2010 Lake Erie non-charter boat fishery. Two standard errors in parentheses.

		Month							
Species	C/H	Apr	May	Jun	Jul	Aug	Sep	Oct	Season
HARVEST									
Yellow perch	0.7517	100	2,273	8,197	25,094	100,934	113,438	50,539	300,574
	(0.1912)								(59,378)
Walleye	0.1199	7,908	16,639	20,736	2,333	83	255	0	47,954
	(0.1233)								(10,594)
White perch	0.0029	0	646	54	260	214	0	0	1,175
	(0.1204)								(1,041)
Channel	0.0366	0	1,690	10,188	1,430	961	157	207	14,634
catfish	(0.1242)								(12,193)
White bass	0.0078	0	1,770	460	0	15	51	827	3,123
	(0.1206)								(2,872)
Freshwater	0.0032	0	147	1,093	0	0	36	0	1,276
drum	(0.1204)								(1,701)
Largemouth	0.0001	0	0	0	0	0	0	51	51
bass	(0.1204)								(100)
Smallmouth	0.0003	0	0	116	16	0	0	0	132
bass	(0.1204)								(152)
Total Harvest	0.9231	8,008	23,165	40,844	29,133	102,207	113,937	51,624	368,918
	(0.0096)								(88,031)
EFFORT									
Angler hours		22,460	90,715	110,394	33,544	59,651	46,770	36,337	399,871
									(48,134)
Angler trips		4,559	16,503	20,784	6,302	11,654	9,867	7,732	77,402
									(9,123)
RELEASED									
Walleye	0.0032	0	965	163	0	46	58	59	1,291
Legal size	(0.1204)								(1,649)
Walleye	0.0135	105	622	2,231	305	2,053	72	0	5,388
Sub-legal	(0.1210)								(5,001)
Largemouth	0.0406	2,946	1,561	1,344	97	818	2,555	6,922	16,245
Bass	(0.1216)								(6,766)
Smallmouth	0.0109	2,136	623	54	78	875	361	236	4,364
bass	(0.1204)								(1,218)
White bass	0.1478	806	29,639	16,730	3,349	2,646	5,699	232	59,100
	(0.1290)								(18,587)

Table 2.—Total harvest per hour, harvest per excursion, number harvested, and fishing effort (angler hours, trips, and charter excursions) for charter boats on Lake Erie, 2010.

Species	Total catch per hour	Catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct[1]	
Harvested										
Brown trout	0.0001	0.0027	0	1	1	0	0	0	0	2
Rainbow trout	0.0002	0.0041	0	2	1	0	0	0	0	3
Yellow perch	0.9867	23.0325	0	208	69	1,252	4,718	6,566	4,185	16,998
Walleye	0.5632	13.1463	234	2,205	5,115	2,148	0	0	0	9,702
Small. bass	0.0012	0.0027	0	1	10	9	0	0	0	20
Muskellunge	0.0000	0.0000	0	0	0	0	0	0	0	0
Other	0.0283	0.6599	16	163	294	11	3	0	0	487
Released										
Yellow perch	0.0975	2.2751	0	31	0	10	331	742	565	1,679
Walleye	0.0280	0.6545	29	92	290	71	0	1	0	483
Small. bass	0.0021	0.0501	3	10	18	4	0	2	0	37
Muskellunge	0.0003	0.0068	0	0	3	2	0	0	0	5
Other	0.1245	2.9051	19	687	922	197	152	86	81	2,144
Angler hours			397	3,601	7,068	3,355	1,066	1,123	617	17,227
Angler trips			75	666	1,362	647	212	233	127	3,322
Charter excursions			24	161	293	137	46	47	30	738

[1]October and November values combined.

Table 3.—Total harvest per hour, harvest per excursion, number harvested, and fishing effort (angler hours, trips, and charter excursions) for charter boats on the Detroit River, Lake St. Clair, and the St. Clair River, 2010.

Species	Total catch per hour	Catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct[1]	
Harvested										
Yellow perch	0.1825	4.3282	2	277	1,466	431	112	452	372	3,112
Walleye	0.1488	3.5285	1,281	743	122	138	142	10	101	2,537
Small. bass	0.0832	1.9736	0	6	110	601	599	103	0	1,419
Muskellunge	0.0002	0.0042	1	0	0	0	0	0	2	3
Other	0.0166	0.3936	2	117	70	48	22	18	6	283
Released										
Yellow perch	0.0513	1.2170	1	0	370	95	17	101	291	875
Walleye	0.0127	0.3004	164	36	4	4	2	0	6	216
Small. bass	0.3040	7.2114	440	2,177	912	816	478	167	195	5,185
Muskellunge	0.0729	1.7302	18	14	438	388	253	53	80	1,244
Other	0.0505	1.1989	182	491	25	54	83	21	6	862
Angler hours			2,508	2,649	3,117	3,447	3,384	918	1,031	17,054
Angler trips			459	449	458	494	475	145	161	2,641
Charter excursions			130	140	127	129	113	37	43	719

[1]October and November values combined.

Table 4.—Commercial harvest from Michigan waters of Lake Erie in 2010.

Species	Harvest (lbs.)	% of total harvest	Reported market value
Carp	191,321	25%	$45,042
Freshwater drum	130,533	17%	$26,485
Quillback	107,037	14%	$23,611
Goldfish	77,550	10%	$61,759
Buffalo	68,511	9%	$35,193
Channel catfish	64,913	9%	$25,958
Bullhead	47,612	6%	$20,337
White bass	37,021	5%	$25,477
White perch	19,524	3%	$7,646
Sucker	7,919	1%	$1,304
Whitefish	963	<1%	$963
Gars	52	<1%	$18
Grand Total	752,956	100%	$273,793

Table 5.—Commercial harvest from Michigan waters of Lake Erie, 1981 to 2010. Harvest reported in pounds sold.

Year	Buffalo	Bull-head	Common carp	Channel catfish	Gizzard shad	Goldfish	Quillback	Fresh-water drum	Sucker	White bass	White perch	White-fish	Grand Total
1981	29,774	10,183	661,868	49,147	0	0	0	0	0	14,322	0	0	765,294
1982	22,474	58	676,896	20,354	76,000	0	1,430	608	178	1,742	0	0	799,740
1983	7,837	997	622,604	28,990	665,000	0	1,510	3,555	185	12,042	0	0	1,342,720
1984	789	152	422,571	9,208	1,265,200	0	56,061	116	44	2,041	0	0	1,756,182
1985	7,885	7,340	738,857	9,253	878,000	0	80,018	905	1,378	4,764	0	0	1,728,400
1986	14,732	7,687	367,310	11,183	0	0	2,217	2,032	123	1,397	0	0	406,681
1987	17,814	4,462	685,395	39,603	0	551	1,062	1,825	88	4,142	0	0	754,942
1988	9,471	5,421	417,365	15,208	0	188	1,380	1,180	0	1,049	0	0	451,262
1989	19,549	3,572	194,320	11,481	0	2,951	568	0	0	991	0	0	233,432
1990	40,064	488	158,151	2,025	0	877	0	0	0	0	0	0	201,605
1991	0	704	206,244	1,941	0	466	6,894	0	0	19	8	0	216,276
1992	0	444	251,365	2,929	2,845	1,025	30,204	290	0	357	10	0	289,469
1993	0	844	238,805	9,152	395	501	28,175	4,206	0	1,180	0	0	283,258
1994	0	659	94,662	5,760	2,103	111	8,930	111	0	1,819	0	0	114,155
1995	0	827	329,262	16,168	23	517	66,013	39,673	436	1,850	64	0	454,833
1996	104	828	387,671	24,969	36,996	7,138	73,662	48,218	4,286	2,923	45	0	586,840
1997	91,877	744	325,433	17,936	24,494	10,497	33,937	8,823	72	7,306	4	0	521,123
1998	15,721	2,139	620,015	16,573	4,988	6,862	22,990	24,507	6,180	1,326	0	0	721,301
1999	25,894	7,050	211,055	7,561	6,200	0	0	265	1,945	23	0	0	259,993
2000	27,843	1,742	313,200	14,400	4,595	3,025	0	0	0	1,776	0	0	366,581
2001	24,393	1,197	185,495	16,328	55	8,281	310	2,935	0	492	0	0	239,486
2002	45,367	6,500	336,820	39,778	6,655	4,660	1,300	4,035	0	3,810	0	0	448,925
2003	9,350	900	65,020	7,890	0	0	2,150	0	0	0	0	0	85,310
2004	18,883	1,650	97,380	23,600	5,120	0	3,400	0	550	1,973	0	0	152,556
2005	96,621	5,495	319,700	15,657	14,910	78,333	1,600	331	2,390	1,338	0	0	536,375
2006	85,269	7,277	378,123	42,931	52,382	67,171	5,030	7,876	1,410	5,237	796	10,693	664,195
2007	215,282	12,536	241,356	98,979	242,695	39,140	9,900	67,072	9,712	77,249	35,946	8,800	1,058,667
2008	142,726	31,969	204,881	71,385	134,008	84,361	2,257	137,304	11,244	98,041	56,867	0	975,043
2009	130,295	45,294	196,888	63,725	122,379	90,771	3,900	116,312	11,339	96,456	34,522	9,439	921,320
2010	68,511	47,612	191,321	64,913	0	77,550	107,037	130,533	7,919	37,021	19,524	963	752,956
Grand Total	1,168,525	216,771	10,140,033	759,027	3,545,043	484,976	551,935	602,712	59,479	382,686	147,786	29,895	18,088,920

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																	
		1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
1978	61.6	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1979	72.4	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1980	92.7	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1981	72.3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1982	306.2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1983	34.6	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1984	147.7	0.3	0.5	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1985	177.2	0.8	1.0	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1986	297.5	3.8	2.0	0.3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1987	127.8	2.5	3.8	1.0	0.5	0.8	–	0.3	–	–	–	–	–	–	–	–	–	–	–
1988	125.0	4.5	4.5	0.5	0.8	0.8	0.0	–	–	–	–	–	–	–	–	–	–	–	–
1989	52.6	2.8	3.3	1.3	0.8	0.8	0.3	0.3	–	–	–	–	–	–	–	–	–	–	–
1990	136.4	13.0	16.5	1.5	1.3	1.3	0.0	0.3	–	–	–	–	–	–	–	–	–	–	–
1991	194.3	47.3	61.5	11.3	6.8	2.8	1.3	0.3	–	–	–	–	–	–	–	–	–	–	–
1992	17.0	2.0	7.3	2.0	0.3	1.5	2.3	1.0	0.3	–	–	–	0.3	–	–	–	–	–	–
1993	170.3	–	73.3	71.0	11.8	8.0	3.3	1.5	0.3	0.5	–	–	0.3	0.3	–	–	–	–	–
1994	131.8	–	–	63.3	43.0	14.0	4.8	2.8	1.8	0.8	–	–	0.8	0.5	–	–	–	–	–
1995	10.7	–	–	–	3.3	1.3	0.8	1.0	0.8	0.8	0.3	–	0.8	0.8	0.5	0.3	–	–	–
1996	180.0	–	–	–	–	37.5	84.3	30.5	13.3	9.8	1.8	1.0	1.5	0.3	0.0	0.0	–	–	–
1997	134.1	–	–	–	–	–	54.3	34.3	20.3	15.3	3.0	1.0	3.8	1.0	0.3	0.5	–	–	0.3
1998	83.2	–	–	–	–	–	–	26.0	29.5	14.8	6.3	1.0	3.8	1.0	0.3	0.0	–	–	0.5
1999	181.3	–	–	–	–	–	–	–	57.0	73.3	21.5	5.8	13.0	6.8	1.5	1.3	0.3	0.5	0.3
2000	21.7	–	–	–	–	–	–	–	–	6.5	6.3	0.8	4.0	2.0	0.8	1.0	0.0	0.0	0.3
2001	134.0	–	–	–	–	–	–	–	–	–	42.8	32.5	43.8	10.0	1.8	1.8	1.0	0.0	0.3
2002	14.4	–	–	–	–	–	–	–	–	–	–	0.8	4.0	6.5	2.3	0.8	0.0	0.0	0.0
2003	331.3	–	–	–	–	–	–	–	–	–	–	–	81.2	157.5	48.3	28.0	7.5	7.8	1.0
2004	10.7	–	–	–	–	–	–	–	–	–	–	–	–	3.8	2.3	3.3	0.5	0.3	0.5
2005	36.1	–	–	–	–	–	–	–	–	–	–	–	–	–	12.3	17.0	2.5	3.8	0.5
2006	4.4	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1.8	1.3	0.8	0.5
2007	113.3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	69.0	32.8	11.5
2008	17.3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	11.8	5.5
2009	12.3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	12.3
Total		77.0	173.7	152.2	68.6	68.8	151.4	98.3	123.3	121.8	82.0	42.9	157.3	190.5	70.0	55.8	82.1	57.8	33.5
Net lifts		4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4

Table 7. —Mean catch per trap net lift for species commonly taken during spring trap net surveys in Anchor Bay, Lake St. Clair.

	Survey year									
Species	2002	2003	2004	2005	2006	2007	2008	2009	2010	Mean
Black crappie	0.00	0.02	0.35	0.00	0.00	0.00	0.00	0.05	0.02	0.05
Bluegill	0.08	0.00	0.11	0.03	0.05	0.00	0.11	0.00	0.02	0.04
Bowfin	0.00	0.04	0.05	0.00	0.02	0.00	0.00	0.00	0.00	0.01
Brown bullhead	0.03	0.02	0.03	0.00	0.02	0.02	0.00	0.05	0.04	0.02
Channel catfish	3.81	4.14	3.92	2.50	4.33	4.24	6.31	5.41	4.06	4.30
Common carp	0.52	0.62	1.30	0.32	0.88	0.60	0.26	0.86	0.87	0.69
Freshwater drum	2.07	10.80	3.65	0.70	8.24	1.10	0.80	1.32	2.20	3.43
Gizzard shad	0.05	0.08	0.02	0.06	0.02	0.02	0.00	0.00	0.00	0.03
Golden redhorse	0.02	0.04	0.04	0.06	0.05	0.02	0.00	0.14	0.00	0.04
Lake sturgeon	0.03	0.14	0.07	0.03	0.10	0.00	0.17	0.09	0.04	0.07
Largemouth bass	0.36	0.10	0.25	0.06	0.07	0.18	0.20	0.23	0.18	0.18
Muskellunge	0.64	0.56	1.41	1.64	1.09	1.02	0.29	1.77	0.37	0.98
Northern pike	1.87	0.30	1.30	2.00	2.05	1.30	1.03	1.59	1.72	1.46
Pumpkinseed	4.96	1.54	1.12	0.05	0.52	0.82	0.91	0.82	1.00	1.30
Quillback carpsucker	0.38	0.30	0.60	0.15	0.91	0.12	0.60	0.86	0.72	0.52
Rock bass	49.50	32.00	33.80	12.30	35.10	42.50	40.43	62.91	93.46	44.67
Shorthead redhorse	1.84	4.08	1.53	1.44	4.00	0.80	1.97	1.68	2.87	2.25
Silver redhorse	0.50	0.66	1.29	1.26	2.98	0.62	1.91	2.91	2.37	1.61
Smallmouth bass	6.23	19.20	5.49	3.32	8.21	11.80	5.29	6.91	13.63	8.90
Walleye	3.79	3.60	2.67	5.50	5.12	3.58	2.54	4.27	1.91	3.66
White bass	0.03	0.10	0.07	0.00	0.14	0.12	0.54	1.00	0.26	0.25
White perch	0.20	0.10	0.80	0.12	2.38	0.20	1.17	0.96	0.93	0.76
White sucker	0.28	0.20	0.27	0.20	0.43	0.52	0.31	0.14	0.15	0.28
Yellow perch	4.89	1.14	5.01	0.97	1.26	2.54	2.94	1.00	0.54	2.25
Total all species	82.07	79.78	68.00	32.71	77.97	72.12	67.80	94.95	127.36	78.08
Number of net lifts	64	50	55	34	42	50	35	22	54	
Starting date	5/3	5/28	5/3	5/11	5/5	5/3	5/6	5/8	5/3	
Ending date	5/30	6/20	5/26	5/25	5/24	5/22	5/20	5/20	5/24	
Starting water temperature (^{0}C)	9	12	8	9	13	9	13	12	14	
Ending water temperature (^{0}C)	15	16	15	13	13	13	11	14	17	
Average secchi depth (m)	1.8	2.2	1.2	2.2	1.7	2.6	2.1	1.5	1.7	

Table 8.—Mean density (number of fish caught per hectare trawled) for all fish species caught during spring (June) with 10 m headrope index trawls in Anchor Bay, Lake St. Clair.

	Year														
Species	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Mean
Alewife	11	3	2	4	3	3	0	0	0	0	0	0	0	0	4
Bluntnose minnow	0	0	0	11	10	7	1	6	118	1	13	0	3	2	12
Common carp	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
Emerald shiner	0	0	0	5	0	11	0	2	0	0	0	32	39	4	6
Freshwater drum	13	5	2	1	5	1	4	3	6	4	3	0	0	0	4
Johnny darter	3	7	0	0	0	0	0	3	2	0	7	2	17	3	4
Lake sturgeon	0	0	0	0	0	1	1	0	0	2	1	0	0	0	0
Largemouth bass	0	0	0	0	1	0	0	0	0	0	4	0	0	1	0
Logperch	76	83	8	0	2	8	0	42	6	0	1	3	29	13	19
Mimic shiner	26	2	0	14	20	362	0	118	45	2	640	4	15	0	84
Muskellunge	0	0	0	0	1	1	0	0	0	0	0	0	1	1	0
Northern pike	0	0	0	0	1	0	1	0	1	1	0	0	0	0	0
Shorthead redhorse	7	1	7	3	4	7	4	2	6	9	1	0	0	4	4
Pumpkinseed	1	0	0	0	2	0	0	0	0	1	1	0	0	0	0
Quillback	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rainbow smelt	656	4	4	4	61	0	14	53	11	6	1	68	110	122	114
Rock bass	18	5	1	13	30	39	18	5	10	33	73	4	2	21	21
Round goby	14	28	6	11	1	30	6	53	10	0	30	1	14	33	16
Silver lamprey	0	0	1	0	0	0	1	1	0	5	2	0	0	1	1
Silver redhorse	2	0	0	1	0	2	5	2	1	1	2	0	0	1	1
Smallmouth bass	3	1	0	1	3	4	2	2	10	4	13	0	0	2	3
Spottail shiner	123	8	69	935	7	5,730	211	1,777	524	769	53	90	2,705	495	912
Trout-perch	346	99	154	34	11	265	13	108	65	248	7	2	3	23	107
Walleye	10	1	2	1	1	1	1	0	2	12	2	0	1	0	3
White perch	1	0	0	13	1	1	1	2	1	2	0	1	1	0	2
White sucker	4	4	0	3	1	61	2	68	22	5	1	20	16	95	20
Yellow perch	560	250	867	158	1,132	725	306	888	1,107	869	303	3,137	7,144	3,120	1,450

Table 9.—Mean density (number of fish caught per hectare trawled) for all fish species caught during fall (September or October) with 10 m headrope index trawls in Anchor Bay, Lake St. Clair.

	Year														
Species	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Mean
Alewife	31	12	2	3	32	0	0	0	1	1	0	0	5	0	8
Bluntnose minnow	34	0	9	15	54	33	13	43	238	61	36	65	198	821	108
Common carp	1	0	0	0	1	2	0	0	1	0	0	0	0	0	0
Emerald shiner	1	8	0	0	0	1	0	41	36	608	0	1	8	2	47
Freshwater drum	1	0	1	1	2	0	1	5	2	3	2	0	2	2	2
Johnny darter	4	0	0	0	0	0	7	0	0	0	1	1	0	0	2
Lake sturgeon	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0
Largemouth bass	0	0	3	2	16	36	13	13	29	22	58	50	45	23	21
Logperch	40	21	1	5	18	6	14	38	113	34	9	175	288	120	61
Mimic shiner	1,095	0	30	15	10	44	507	8,909	3,072	109	29	408	0	0	966
Muskellunge	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
Northern pike	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0
Shorthead redhorse	0	0	0	1	2	0	0	0	1	2	1	0	0	0	0
Pumpkinseed	4	0	2	0	5	5	3	1	0	5	8	24	0	0	4
Quillback	0	1	0	1	0	2	1	1	0	0	0	5	0	0	1
Rainbow smelt	17	0	0	1	0	0	4	26	0	1	0	1	139	0	13
Rock bass	82	1	89	93	40	41	35	25	77	67	71	211	21	104	65
Round goby	10	22	10	10	10	99	2	28	14	10	4	7	11	15	21
Silver lamprey	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0
Silver redhorse	1	1	0	0	1	6	0	4	5	4	1	1	2	1	2
Smallmouth bass	11	25	11	6	0	51	7	3	41	32	3	22	2	69	20
Spottail shiner	487	45	200	51	879	2,407	1,068	545	2,410	2,668	983	2,191	981	2,492	1,162
Trout-perch	92	26	3	0	0	10	6	59	3	79	1	0	3	105	78
Walleye	1	3	1	1	0	11	0	2	9	3	1	0	2	0	3
White perch	12	8	0	0	0	13	8	6	146	12	31	398	9	9	45
White sucker	2	0	0	1	1	8	1	1	4	6	5	7	6	10	4
Yellow perch	27	69	22	41	114	73	181	48	52	34	220	625	1,100	2,601	349

Table 10.—Catch rate (number per 10 minute tow) by age for yellow perch in June index trawl tows on Lake St. Clair.

Year	Total	Survey year														
class	CPUE	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
1984	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1985	0	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1986	0	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1987	1	0	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1988	3	0	0	–	–	–	–	–	–	–	–	–	–	–	–	–
1989	7	1	0	–	–	–	–	–	–	–	–	–	–	–	–	–
1990	24	5	1	–	–	–	–	–	–	–	–	–	–	–	–	–
1991	117	19	13	5	1	–	–	–	–	–	–	–	–	–	–	–
1992	51	12	10	18	1	0	1	–	1	–	–	–	–	–	–	–
1993	581	171	114	54	54	2	3	–	1	–	–	–	–	–	–	–
1994	903	293	348	53	21	8	11	1	1	–	1	–	–	–	–	–
1995	148	21	41	7	32	12	21	10	3	1	0	–	–	–	–	–
1996	280	–	33	109	70	11	35	10	9	1	1	–	–	–	–	–
1997	218	–	–	4	38	6	53	61	44	4	8	1	–	–	–	–
1998	1,355	–	–	–	650	114	348	84	118	23	18	0	–	–	–	–
1999	103	–	–	–	–	5	26	18	25	23	4	3	0	–	–	–
2000	82	–	–	–	–	–	3	5	5	43	21	2	4	–	–	–
2001	312	–	–	–	–	–	–	131	90	50	25	12	4	0	–	–
2002	89	–	–	–	–	–	–	–	9	11	6	12	51	0	–	–
2003	1,372	–	–	–	–	–	–	–	–	705	397	175	26	46	22	1
2004	281	–	–	–	–	–	–	–	–	–	9	158	18	78	17	1
2005	255	–	–	–	–	–	–	–	–	–	–	34	26	150	36	10
2006	243	–	–	–	–	–	–	–	–	–	–	–	5	108	99	32
2007	3,367	–	–	–	–	–	–	–	–	–	–	–	–	1,003	1,718	647
2008	1,890	–	–	–	–	–	–	–	–	–	–	–	–	–	1,265	625
2009	64	–	–	–	–	–	–	–	–	–	–	–	–	–	–	64
Total		523	560	250	867	158	500	320	306	860	489	395	134	1,386	3,155	1,378