

Kent Lake

Oakland County, T02N R07E Sec 28, 31-33
Huron River Watershed, last surveyed 2006

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Environment

The Kent Lake watershed is located in southwestern Oakland County. This 556 square-mile (100,000 acres) area, which extends from the headwaters of the Huron River downstream to the Kent Lake Impoundment in the Kensington Metropark, contains nearly 700 individual lakes comprising approximately 9,000 acres, the Pettibone and Norton Creeksheds, and innumerable wetlands providing quality water and aesthetic value. Land use in the Kent Lake watershed ranges from heavily commercial and residential areas in the east and south to small rural farms and housing in the north and west. The vast majority of the watershed lies within Oakland County and comprises all or portions of eight municipalities and five cities or villages which make up approximately 37,000 acres of developed land. The Village of Milford is the closest municipality upstream of Kent Lake.

Kent Lake itself is a 1,000-acre impoundment of the Huron River located on the southwestern edge of Oakland County just north of the I-96 expressway and about 4 miles southwest of Milford. The dam at the downstream end of the lake is actually in Livingston County. Other than the 36 ft deep basin in the southwest end of the lake, and the 8-12 ft deep old river channel running the length of the impoundment, most of the lake (about 80-90%) is less than 10 ft deep with extensive beds of submerged vegetation. It has a very convoluted shoreline (around 80,000 ft [15 miles] of shoreline) with several shallow bays. There is a large amount of woody material in the near-shore shallow areas. During the 2004 survey one or more submerged trees were present in the water in over 75% of the 80 shoreline segments surveyed. Almost the entire shoreline is natural (85%) with the exception of a few seawall areas in boat basins and some rock riprap along several sections of eroding shoreline.

The lake is totally enclosed within Kensington Metropark so there are no homes or other residential development along the shoreline and the entire lake has a 10 mph speed limit. Two boat launches are present within the park and there are several fishing piers along the southwestern end of the lake. Extensive shore fishing opportunities are present due to the abundance of accessible shoreline with nearby parking areas scattered around the lake.

History

For many years the lake has been drawn down 3-4 feet each winter by the Metropark Authority to minimize damage to shore structures and provide floodwater capacity in the spring. The drawdown results in low lake levels and dry marsh areas in early spring (late March - early April) when northern pike would normally be spawning in these shallow marsh areas. This necessitated the stocking of northern pike fingerlings from the 1980s through 1996 to supplement poor natural reproduction (Table 1). They were stocked as either spring fingerlings from district rearing ponds or as fry placed in a small marsh that emptied into the lake and was blocked off to prevent the entry of other species from

the lake. Walleye were also stocked from as early as 1980 through 1996 (Table 1) at rates of 35-100 spring fingerlings or 3-12 fall fingerlings per acre.

Historically there has been an excellent bluegill and black crappie fishery in the lake, but from about the mid 1990s this declined significantly according to angler reports. Survey data also showed a sharp drop in bluegill numbers. Michigan DNR Fisheries Division stocked over 214,000 fingerling bluegills in 1997 to address this decline. An electroshocking survey in the fall of 1998 found good numbers of small bluegills, but few larger ones (Braunscheidel 2000). Walleye catches had been increasing and a population estimate conducted in 1994 and 1995 resulted in an estimate of 3-4 adult walleyes per acre in the lake (Braunscheidel and Beam 1998). Due to this high population density of walleye and the poor condition of the panfish fishery, walleye stocking was suspended after 1996 to allow the panfish populations a chance to recover. A small number of fall fingerling walleye (3,000) were stocked in 2001 to maintain the walleye fishery that had developed in the lake. Both largemouth and smallmouth bass fishing is reported as excellent on Kent Lake and it was one of the 3 lakes in the area where preseason catch-and-release of bass was experimentally allowed (April 1 - bass opener) from 1988 through 2005.

Current Status

This lake was sampled in 2004 as part of the statewide, random lakes, Status & Trends Program. Sampling gear used for this survey included 3 standard inland trap nets, 3 large-mesh fyke nets, 2 experimental gill nets, a boom shocker, and a 25-foot seine. During May 10-14, 2004, the trap and fyke nets were each set for four nights, while the gill nets were set for two nights. Five seine hauls were conducted during this same period and three 10-minute electroshocking stations were sampled during the night of June 17, 2004. A lake shore habitat survey was conducted in June. Limnological samples were collected and a temperature and dissolved oxygen profile of the lake's central basin were obtained in late-August of 2004.

Water temperatures varied little at the time of the limnology sampling, ranging from 22.7 C (72.8 F) at the surface to 21.5 C (70.8 F) at the deepest point of the limnology sampling site (10 feet). Dissolved oxygen was fairly constant between 10 and 11 ppm from the surface down to the bottom. The water was slightly turbid with a secchi reading of 4.5 feet and pH of 8.3. Alkalinity was moderate at 161 and chlorophyll a was rather high at 6.6. Nutrients were low with total phosphorus at 0.07 ppm and ammonia nitrogen <0.007 ppm.

The 2004 survey caught a total of 2,050 fish weighing approximately 1,268 pounds and comprised of 29 different species. Panfish such as black crappie, bluegill, green sunfish, pumpkinseed sunfish, rock bass, and yellow perch made up 78% of the total catch by number and 17% by weight. Bluegill, black crappie and pumpkinseed sunfish made up the bulk of the panfish catch. Large game fish such as largemouth and smallmouth bass, northern pike, and walleye were almost 8% of the total catch by number and 20% by weight. Forage fish species (which included bluntnose minnow, brook silverside, golden shiner, Iowa and Johnny darter, and logperch) were only about 1% of the total catch by number. Rough fish species such as bowfin, carp, white sucker, and longnose gar made up 8% of the total catch by number and over 57% by weight. Other fish species collected in small numbers included brown trout, bullhead, longear sunfish, rainbow trout, and warmouth (Table 2a).

Another fish sampling effort was conducted using only trap nets in March of 2006. This was part of activities to obtain northern pike eggs for southern Michigan's rearing program. Fish data was only compiled for largemouth and smallmouth bass, northern pike, and walleye. The sampling effort utilized 8 trap nets for a total of 108 net nights spread over an 18-day period. A total of 707 individuals of these four species weighing over 2,291 pounds were collected. These included 230 largemouth bass, 2 smallmouth bass, 310 northern pike, and 165 walleye (Table 2b).

Bluegill were by far the most abundant fish collected during the 2004 survey. They accounted for almost 61% of the total catch by number and 13% by weight (Table 2a). The average length in the combined trap net and fyke net catch was 5.9 inches with 41% exceeding the minimum length acceptable to anglers of 6 inches. Over 5% (42 of 835 fish) of the bluegill exceeded 7 inches with 13 over 8 inches and 3 over 9 inches. This is a significant increase in the number of bluegill exceeding 7 inches compared to the 1999 survey (1% or 8 of 752 fish). Growth rates were good with the mean growth index 0.9 inches above the state average based on length-at-age information from scale samples (Table 3a). This is similar to the previous survey.

The quality of the bluegill population in Kent Lake was also evaluated using Schneider's Index. This index provides a ranking system that describes the quality of a bluegill population in a lake using a scale of 1 to 7 primarily based on the percent of bluegill in the trap net catch in the 6, 7, and 8-inch size ranges (Schneider 1990). The index calculated for Kent Lake based on the combined trap and fyke net catch from this survey is 4.8 which corresponds to an "average-good" rating. This is significantly better than the index from the 1999 survey of only 2.8 which warranted a "poor-acceptable" rating at that time.

Black crappie, while present in far fewer numbers than bluegill, was another panfish species caught in significant numbers during the 2004 survey. They made up almost 8% of the total catch by number and 2.5% by weight with an average length in the combined trap and fyke net catch of 7.0 inches (Table 2a). Just over 27% exceeded the minimum size acceptable to anglers of 7 inches with 6 of the 140 fish caught exceeding 10 inches. The size structure has improved even though the numbers are still somewhat low.

Overall, black crappie growth was good with a mean growth index 0.6 inches above state average (Table 3a). This is much better than the 1997 and 1999 surveys where growth was 0.6 and 0.2 inches below state averages. The CPE was down somewhat, but past history (Table 4) shows this characteristic has been quite variable and not representative of the fishery present according to angler reports.

Pumpkinseed sunfish was the other panfish present in significant numbers. This species comprised 6.3% of the total catch by number and 1.2% by weight with an average length of 5.6 inches in the combined trap and fyke net catch. Numbers of this species also seem to be increasing compared to the 1999 survey when they only made up 1% of the total catch. Average length and growth rates were about the same as in 1999.

Other panfish collected in the 2004 survey included 27 yellow perch (ranging from 1 to 10-inches long), 18 green sunfish (1-4 inches), 5 warmouth (2-7 inches), 5 rock bass (3-6 inches), and 1 longear sunfish at 5 inches (Table 2a).

Smallmouth bass were the most abundant larger game fish collected in the 2004 survey. They made up almost 4% of the total catch by number and by weight. Although they only averaged 8.6 inches long, almost 20% were over the legal size limit of 14 inches (14 of 78 fish) with 2 fish exceeding 18 inches (Table 2a). Despite the good numbers of larger fish, growth was rather poor with a mean growth index 1.7 inches below the state average (Table 3a). Not enough of this species were caught during the 2006 sampling to add significant information.

Largemouth bass were only caught in fair numbers during the 2004 survey. They averaged just 9.1 inches long and only 4 of the 22 caught exceeded the minimum legal size limit of 14 inches (Table 2a). Growth was good with a mean growth index 0.8 inches above state average (Table 3a). Black bass are typically under-represented in summer surveys due to gear avoidance and other behavioral characteristics. Alternative methods of evaluating the status of the bass population in a lake, such as angler reports and targeted sampling are usually necessary to get a good picture of these species.

Early spring sampling conducted in 2006 caught a total of 230 largemouth bass averaging 15.5 inches. Fish lengths ranged from 10 to 20 inches with 74% exceeding the minimum legal size limit of 14 inches (Table 2b). This larger number of fish enabled a more accurate picture of largemouth bass growth in Kent Lake and resulted in an overall result similar to the 2004 survey with a mean growth index 0.6 inches above the state average (compared to 0.8 inches above average from 2004) (Table 3b). A more detailed analysis of growth (Table 5) shows it is well above average through age 6, is average for ages 7 and 8, then becomes slightly below average at older ages.

Walleye were the second most abundant large game fish caught in the 2004 survey. They made up almost 2% of the total catch by number (38 fish) and over 7% by weight (Table 2a). This species averaged an impressive 19.7 inches in the trap+fyke net catch with 3 fish exceeding 24 inches. Only 1 fish less than 14 inches was caught. Growth appeared excellent with a mean growth index 3.0 inches above the state average (Table 3a).

A larger sample of walleye was collected during the 2006 spring netting with 165 fish caught. The total average length of 19.8 inches was very close to that from the 2004 survey (19.7 inches) with about 76% of the fish collected exceeding the minimum legal size limit of 15 inches (Table 2b). The overall mean growth index found during this survey was only 1.6 inches above state average (Table 3b) compared to the 3.0 inches above average seen in the earlier survey. This is due to the higher abundance of larger (and thus older) walleye caught in this spring survey. The larger fish grow much slower as shown by the growth indices separated for each age group (Table 5).

Northern pike were also found in good numbers in the 2004 survey with a significant percent of larger individuals. They comprised 1% of the total catch by number and 7.5% by weight. The 21 individuals caught averaged an impressive 27 inches in length with 19 of these exceeding the minimum legal size limit of 24 inches (Table 2a). Growth was excellent with a mean growth index 4.1 inches over the state average (Table 3a). Numbers, sizes and growth rates were similar to previous surveys and show continued good conditions for northern pike in Kent Lake.

The 310 northern pike collected during the 2006 sampling ranged from 13 to 35 inches and averaged over 25 inches long with 61% exceeding the minimum legal size limit of 24 inches (Table 2b). Overall

length-at-age data from the 2006 sampling for this species shows it is growing slightly below average with a mean growth index 0.3 inches below the state average (Table 3b). This is quite different from the 2004 data that indicated growth well above average. The difference is due to a larger sample size with better representation of more year classes from the early spring egg collection period. Growth is quite different between younger and older fish with northern pike over 6 years old having much slower growth rates (Table 5). This results in an overall growth status roughly equivalent to the state average and probably a more accurate picture for the northern pike in Kent Lake.

Longnose gar were the most abundant large, non-game fish species caught during the 2004 survey. They made up 5% of the total catch by number (102 fish) and 26% by weight with a size range from 24 to 48 inches (Table 2a). Individuals meeting the Master Angler minimum length requirement of 32 inches were common with 37 of the 102 gars caught exceeding this and 7 fish topping the 40-inch mark. This is an exceptionally large population of gar compared to other lakes in southeastern Michigan.

Common carp make up probably the largest percentage of the fish biomass in this lake. A total of 42 individuals comprised over 26% of the total fish weight caught during the 2004 survey. These fish ranged from 8 to just over 30 inches in length with most well over 20 inches (Table 2a). Carp are very abundant in the lake and can be seen churning the waters of the lake in every shallow bay during the spring and early summer.

Other rough fish species collected in the 2004 survey included 11 white sucker (17-20 inches) and 6 bowfin (24-28 inches) (Table 2a). The bowfin, commonly known as "dogfish", are also very common in Kent Lake and previous survey results indicate they may be more abundant than the actual catch data from this survey. This species tends to seek out thick vegetation and not move around much during warmer weather such as that present during this survey. Spring surveys in this lake have caught large numbers of bowfin when they are more active in the cooler water temperatures.

Most minnow-like, small fish that comprise the forage base are collected using seines. Sites where this gear could be used effectively were difficult to locate in Kent Lake and this resulted in poor numbers of forage fish caught during this survey. Forage species commonly seen (but not collected) in good numbers during this and other samplings of Kent Lake include bluntnose minnow, brook silverside and logperch. Other forage species collected during this survey included greenside darter, Iowa darter, Johnny darter, and quite a few large golden shiner (7-8 inches) (Table 2a).

All three species of bullhead were collected in the 2004 survey. Black bullhead (27 fish) ranged from 5 to 14 inches in length, brown bullhead (54 fish) ranged from 6 to 14 inches, and yellow bullhead (7 fish) from 6 to 12 inches (Table 2a). Together they comprised 4.3% of the total catch by number and 5.5% by weight. Bullheads are excellent table fare and are usually underutilized by anglers.

Although trout are not normally found in the lake, 1 brown trout (14 inches) and 1 rainbow trout (22 inches) were caught. These are most likely fish that have migrated downstream from the adult trout stocking program that occurs each year upriver in the Proud Lake Recreation Area.

Five species of turtles were found during the 2004 sampling. These included 14 spiny softshell turtles (ranging from 5 to 15 inches in carapace length), 7 painted turtles (3-6 inches carapace length), 1 musk turtle (3 inches), 1 map turtle (4 inches), and 1 snapping turtle (11 inches).

Analysis and Discussion

Comparison of the 2004 survey results with previous surveys indicates the panfish population is recovering from the severely depressed status of a few years ago. Predator levels are also returning to a more balanced situation from the high abundance of walleye present during the mid 1990's.

Bluegill catch per effort (CPE) for the trap net catch in the 2004 survey was just under 37 fish per net lift. When compared to trap net CPEs for past surveys (Table 3), it appears the bluegill abundance has returned to roughly the same levels present before the high walleye numbers found in the mid 1990s. Average lengths are still somewhat below earlier levels, but the number of larger individuals is increasing and anglers are once again catching fair numbers of acceptable-sized bluegill. Age frequency estimations show a couple of strong year classes of bluegill coming into the fishery (currently 2 and 3-year olds) which should help continue the recovery of the fishery (Table 4a). Bluegill were observed to be very numerous during the 2006 spring sampling, but data on panfish was not collected in that study.

Black crappie numbers were still low based on a CPE of only 6.8 during the 2004 survey (Table 3), but this number has been highly variable even in historical surveys. The average length has increased significantly since the 1999 survey (up from 5.7 to 7.0 inches) and is approaching historical levels again (Table 3). Age frequency information also showed strong year classes of 2 and 3-year old crappie were coming into the fishery (Table 4a).

By combining information from the 2004 and 2006 samplings there is a fairly complete picture of the black bass population in Kent Lake. Both largemouth and smallmouth bass are present in good numbers with above average percentages of legal-sized fish (Tables 1a and 1b). All age groups through age 8 for smallmouth bass and age 12 for largemouth bass were found in the surveys in appropriate proportions (Tables 4a and 4b). The above average growth rates found for largemouth bass are not common in this part of Michigan and indicate this is probably one of the healthiest populations of this species in the area.

The abundance of walleye has dropped off slightly from historical levels as would be expected from the reduction in stocking since the late 1990s. The CPEs of 1.2 fish per net lift found in the 2004 survey and 1.5 in the 2006 spring sampling were down significantly from the 1999 survey catch rate of 4.3 fish per net lift (Table 3). These catch rates were more typical of other lakes in the area and indicate the walleye population is at a level that should not negatively impact the rest of the lake's fish community through excessive predation or competition. There are still plenty of walleye present to support the fishery that has developed on the lake.

The 2006 sampling included walleye from every year class since 1992 (Table 6b) even though stocking only occurred in 4 of those years (Table 1). This suggests there may be some natural reproduction occurring in Kent Lake, but it is more likely these are fish incidentally released from the walleye rearing ponds operated at the Camp Dearborn facilities located just upstream of the lake. If a

low level of natural reproduction is present, it is unlikely to be sufficient to maintain an adequate population to sustain the fishery in the lake.

The northern pike population was in good shape with at least average growth overall and all age classes from 1 through 10 well represented (Table 3a and 3b). Natural reproduction seems to be adequate since year classes even from years without stocking were found in satisfactory numbers during the 2006 sampling. A large portion of the population was above the minimum legal size limit (Tables 2a and 2b) and available for harvest by anglers. Additional stocking of this species appears to be unnecessary based on these results.

Rough fish species comprised over 50% of the fish biomass in Kent Lake according to the 2004 survey results (Table 2a). Most of these were carp or longnose gar, with white sucker and bowfin also present in significant numbers. Previous survey results and observations tend to indicate the carp and other rough fish were more abundant than the 2004 survey results. In reality the rough fish biomass percentage was probably closer to 60-70% overall. Even with this large amount of biomass tied up in nongame species, the numbers of game fish species such as black bass, bluegill and black crappie are good and angler reports indicated they were usually satisfied with their fishing experience on the lake.

There is a diverse and abundant forage fish population in Kent Lake that supports the high percentage of predator species found here. The connection with the river and the varied habitats found in the lake maintain this diversity and help ensure adequate numbers are present to provide the base for the excellent fish community found here.

Management Direction

The reduction in predator stocking at Kent Lake over the past several years has allowed the panfish population to recover from its earlier decline. However, a significant walleye fishery has developed and there is interest by local anglers for this to continue. A program of stocking walleye fingerlings should continue at low densities and a reduced frequency compared to the earlier stocking program. This will maintain a reasonable walleye population to support the fishery that has developed for this species while preventing excessive predation on the panfish community.

The normal walleye stocking program for inland lakes involves stocking every other year at densities in the range of 50-100 spring fingerlings or 10 fall fingerlings per acre. A reduced stocking program for Kent Lake should include a stocking frequency of no more than every third year with densities on the order of about 25 spring fingerlings or 5 fall fingerlings per acre.

Natural reproduction of northern pike seems to be maintaining the population of this species and stocking does not appear necessary based on the latest surveys.

Through 2007 a creel census is being conducted on Kent Lake. The results of angler interviews and catch rates from this survey will be combined with the biological data presented in this report to develop a long-term management plan for this waterbody.

References

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Table 1. Summary of fish stocking in Kent Lake from 1979 through 2006.

Year	Northern Pike		Walleye		Bluegill	Redear Sunfish
	fry to rearing marsh	spring fingerlings	spring fingerlings	fall fingerlings	fall fingerlings	yearlings
1979		8,088				
1980		3,000		3,000		
1981	40,000	2,000				
1982		2,000				
1983		2,000	64,900			
1984		3,300		12,350		
1985		4,500				
1986		2,000		5,500		
1987		2,000				
1988		2,000	23,520	11,321		
1989						
1990	40,000	20,000	94,092			
1991	40,000			55,793		
1992						
1993	40,000			54,085		
1994	40,000					
1995	40,000					
1996	40,000		99,828			
1997					214,163	
1998						
1999						
2000						300
2001				3,000		
2002						
2003						
2004						
2005		3,232				
2006				3,209		

Table 2a. - Number, weight and length indices of fish collected from Kent Lake, May 10-June 18, 2004.

Species	Number	Percent by number	Weight (lb.)	Percent by weight	Length range (in.)	Average length (in.)	Percent legal size*
Bluegill	1,246	60.8	161.6	12.7	1-9	5.5	35
Black crappie	158	7.7	32.3	2.5	4-12	6.9	23
Pumpkinseed	130	6.3	14.9	1.2	1-8	5.0	17
Longnose gar	102	5	328.1	25.9	24-48	31.5	--
Smallmouth bass	78	3.8	48.3	3.8	1-18	8.6	18
Brown bullhead	54	2.6	43.2	3.4	6-14	11.7	96
Common carp	42	2	331	26.1	8-30	25.5	--
Walleye	38	1.9	92.7	7.3	6-25	19.0	92
Black bullhead	27	1.3	22.1	1.7	5-14	11.9	96
Yellow Perch	27	1.3	3.7	0.3	1-10	6.5	15
Largemouth bass	22	1.1	14.6	1.2	3-17	9.1	14
Northern pike	21	1	95.6	7.5	19-31	27.0	86
Green sunfish	18	0.9	0.5	0	1-4	3.2	0
Golden shiner	13	0.6	2	0.2	7-8	7.8	--
White sucker	11	0.5	29.7	2.3	17-20	19.0	--
Yellow bullhead	7	0.3	4.3	0.3	6-12	10.6	86
Bowfin	6	0.3	37.5	3	24-28	26.0	--
Rock bass	5	0.2	0.4	0	3-6	4.3	20
Warmouth	5	0.2	0.8	0.1	2-7	4.9	40
Logperch	4	0.2	0.1	0	3-4	4.3	--
Bluntnose minnow	3	0.1	0	0	1-1	1.5	--
Iowa darter	3	0.1	0	0	2-2	2.5	--
Brook silverside	2	0.1	0	0	2-3	3.0	--
Rainbow trout	1	0	4.1	0.3	22-22	22.5	100
Brown trout	1	0	1.3	0.1	14-14	14.5	100
Longear sunfish	1	0	0.1	0	5-5	5.5	0
Greenside darter	1	0	0	0	1-1	1.5	--
Johnny darter	1	0	0	0	2-2	2.5	--
All species totals:	2,051		1,268.60				

* Legal size refers to minimum legal size limit where applicable or minimum size acceptable to anglers

Table 2b. - Number, weight and length indices of fish collected from Kent Lake, March 11-29, 2006.

Species	Number	Percent by number	Weight (lb.)	Percent by weight	Length range (in.)	Average length (in.)	Percent legal size*
Northern pike	310	43.8	1220	53.2	13-35	25.2	61
Largemouth bass	230	32.5	544	23.7	10-20	15.5	74
Walleye	165	23.3	524	22.9	10-27	19.8	76
Smallmouth bass	2	0.3	4	0.2	16-18	17.5	100
All species totals:	707		2292				

* Legal size refers to minimum legal size limit where applicable or minimum size acceptable to anglers

Table 3a.-Weighted mean total length (inches) at age, and growth relative to the state average, for eight species of fish sampled from Kent Lake, May 10-June 18, 2004. Number of fish aged is given in parentheses.

Species	Age								X	XII	Mean growth index	
	I	II	III	IV	V	VI	VII	VIII				
Black crappie	6.1 (57)	8.8 (24)	9.4 (4)	9.8 (2)	12.3 (1)	11.7 (2)	11.4 (1)				+0.6	
Bluegill	2.5 (17)	4.2 (30)	5.8 (60)	6.6 (15)	8.2 (13)	8.9 (3)	7.1 (1)				+0.9	
Largemouth bass	4.1 (5)	7.5 (9)	11.7 (5)			17.0 (3)		17.5 (1)			+0.8	
Northern pike		27.2 (7)	26.6 (7)	27.96 (5)	28.4 (1)						+4.1	
Pumpkinseed sunfish	2.55 (7)	4.43 (16)	6.03 (18)	5.97 (11)							+0.8	
Smallmouth bass	3.81 (7)	5.59 (21)	8.48 (24)	12.35 (4)	14.13 (5)	15.26 (7)	15.4 (1)	18 (1)			-1.7	
Walleye	6.3 (1)		17.4 (16)	17.57 (3)	19.77 (6)	21.2 (2)		21.15 (4)		23.03 (3)	22.13 (3)	+3.0
Yellow Perch		6.23 (14)	6.37 (3)	8.86 (3)	9.42 (3)							-0.3

Table 3b.-Weighted mean total length (inches) at age, and growth relative to the state average, for three species of fish sampled from Kent Lake, March 11-29, 2006. Number of fish aged is given in parentheses.

Species	Age													Mean growth index
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV
Largemouth bass	10.5 (3)	11.2 (22)	12.7 (31)	14.7 (36)	15.6 (27)	16.3 (27)	17.4 (33)	17.4 (21)	18.3 (14)	18.6 (8)	18.4 (4)		19.6 (2)	+0.6
Northern pike	14.8 (5)	20.0 (15)	22.4 (38)	25.3 (45)	26.7 (55)	25.9 (79)	25.7 (25)	26.1 (34)	25.7 (8)	27.3 (3)		23.5 (2)		-0.3
Walleye	13.5 (30)	15.3 (12)	17.5 (13)	20.4 (28)	21.4 (10)	22.2 (6)	22.6 (34)	23.1 (5)	22.8 (16)	25 (4)	22.7 (5)	24.5 (1)	26.4 (1)	+1.6

Table 4. - Historical bluegill, black crappie, and walleye catch information from Kent Lake fish surveys for the period of 1972 through 2004.

Year	Bluegill CPE	Avg. Length	Crappie CPE	Avg. Length	Walleye CPE
1972	33.7	6.2	79.8	6.7	0.0
1076	12.5	6.5	6.7	7.7	0.3
1990	115.0	6.3	7.1	7.5	1.8
1997	1.2	6.5	39.4	7.9	1.9
1999	62.7	5.8	61.3	5.7	4.3
2004	36.8	5.7	6.8	7.0	1.2

Table 5. Comparison to state averages of mean lengths of individual ages of fish collected from Kent Lake, March 11-29, 2006.

Species / Age	Number aged	Length range (in.)	State average length (in.)	Weighted mean length (in.)	Mean growth index
Largemouth bass					0.6
Age II:	3	10-10.9	7.1	10.5	
Age III:	22	10.2-12	9.4	11.2	1.8
Age IV:	31	11-14.9	11.6	12.7	1.1
Age V:	36	12.1-16.5	13.2	14.7	1.5
Age VI:	27	14.3-17.7	14.7	15.6	0.9
Age VII:	27	14.6-17.9	16.3	16.3	0.0
Age VIII:	33	15.2-18.7	17.4	17.4	0.0
Age IX:	21	16-19	18.3	17.4	-0.9
Age X:	14	17.3-19.4	19.3	18.3	-1.0
Age XI:	8	17.3-19.3		18.6	
Age XII:	4	16.7-19.7		18.4	
Age XIV:	2	19.1-20.1		19.6	
Northern pike					-0.3
Age I:	5	13.8-15.4	11.7	14.8	3.1
Age II:	15	13.5-25	17.7	20.0	2.3
Age III:	38	19.6-29.5	20.8	22.4	1.6
Age IV:	45	21.3-32.8	23.4	25.3	1.9
Age V:	55	20.2-32.93	25.5	26.7	1.2
Age VI:	79	22.5-32	27.3	25.9	-1.4
Age VII:	25	22.2-34.5	29.3	25.7	-3.6
Age VIII:	34	23.3-35.9	31.2	26.1	-5.2
Age IX:	8	23.7-30.6		25.7	
Age X:	3	26.1-29.3		27.3	
Age XII:	2	22-25		23.5	
Smallmouth bass					
Age V:	1	16.4-16.4	14.4	16.4	
Age VII:	1	18-18	16.3	18.0	
Walleye					1.6
Age II:	30	10.8-14.9	10.4	13.5	3.1
Age III:	12	14.1-17.6	13.9	15.3	1.4
Age IV:	13	14-20.8	15.8	17.5	1.7
Age V:	28	14.72-24	17.6	20.4	2.8
Age VI:	10	18.8-24.3	19.2	21.4	2.2
Age VII:	6	19.7-24.1	20.6	22.2	1.6
Age VIII:	34	18-27.1	21.6	22.6	1.0
Age IX:	5	19.8-25.2	22.4	23.1	0.7
Age X:	16	20-26.7	23.1	22.8	-0.3
Age XI:	4	23.3-26.6		25.0	
Age XII:	5	21-25.9		22.7	
Age XIII:	1	24.5-24.5		24.5	
Age XIV:	1	26.4-26.4		26.4	

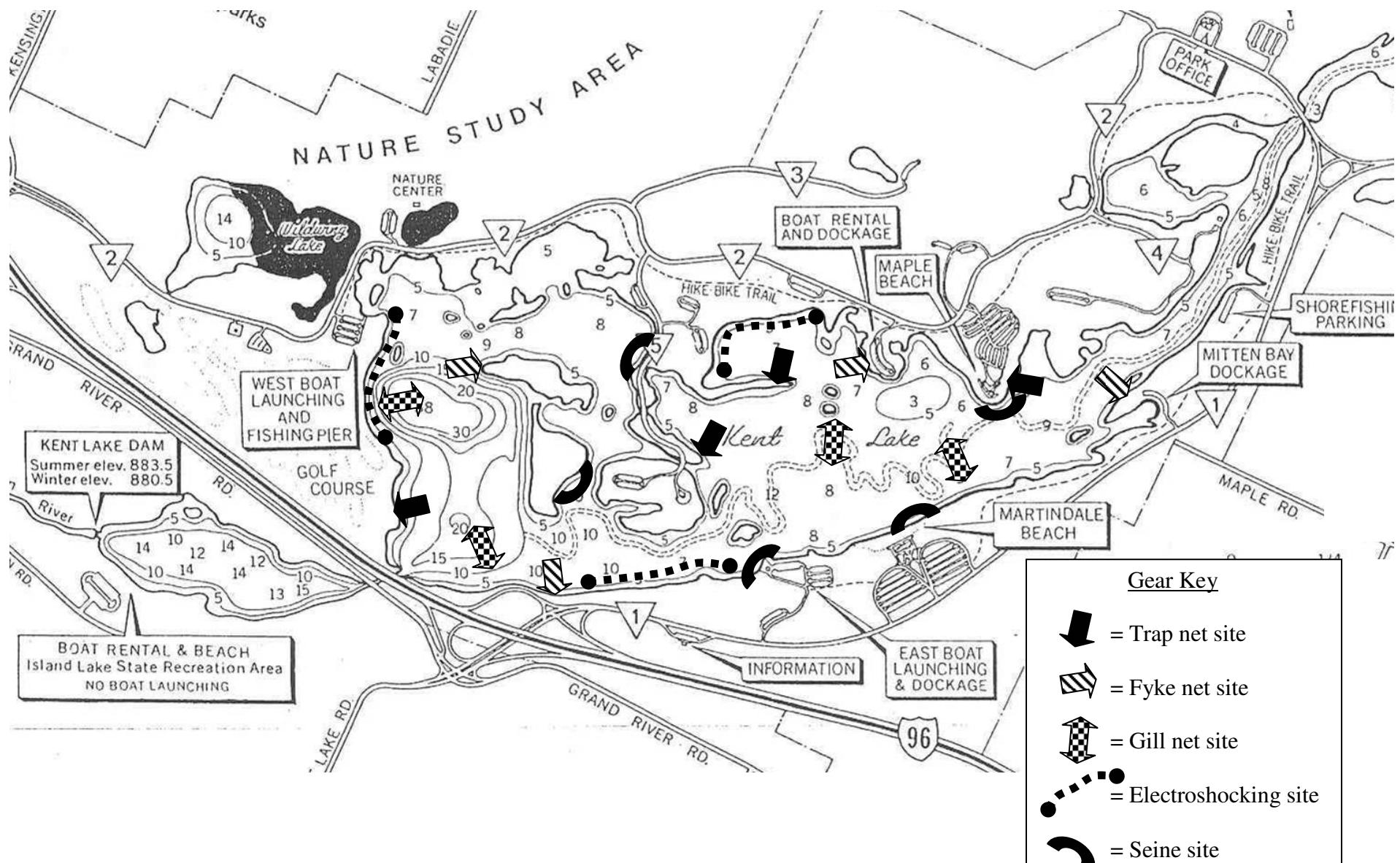
Table 6a.-Estimated weighted age frequency (percent) of fish caught from Kent Lake, May 10-June 18, 2004.

Species	Age								X	XII	Number caught	
	I	II	III	IV	V	VI	VII	VIII				
Black crappie		63	24	4	2	1	2	1			158	
Bluegill	12	22	43	11	9	2	1				1,246	
Largemouth bass	19	35	19	4	8	12		4			22	
Northern pike			35	35	25	5					21	
Pumpkinseed sunfish	13	31	35	21							130	
Smallmouth bass	10	30	34	6	7	10	1	1			78	
Walleye	2	9	40	7	14	5		9		7	7	38
Yellow perch			61	13	13	13						27

Table 6b.-Estimated weighted age frequency (percent) of fish caught from Kent Lake, March 11-29, 2006.

Species	Age													Number caught	
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV	
Largemouth Bass		1	1	10	13	16	12	14	9	6	3	2	2	230	
Northern Pike	2	5	12	14	18	25	8	11	3	1		2		311	
Walleye		18	7	8	17	6	4	21	3	10	2	3	1	1	165

KENT LAKE, OAKLAND COUNTY 2004 SURVEY SITE MAP



Gear Key

- ↓** = Trap net site
- ↖** = Fyke net site
- ↑↗** = Gill net site
- = Electroshocking site
- 曲线** = Seine site