

Commonwealth of Kentucky

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Sport Fish Restoration Grant F-50, Segment 27

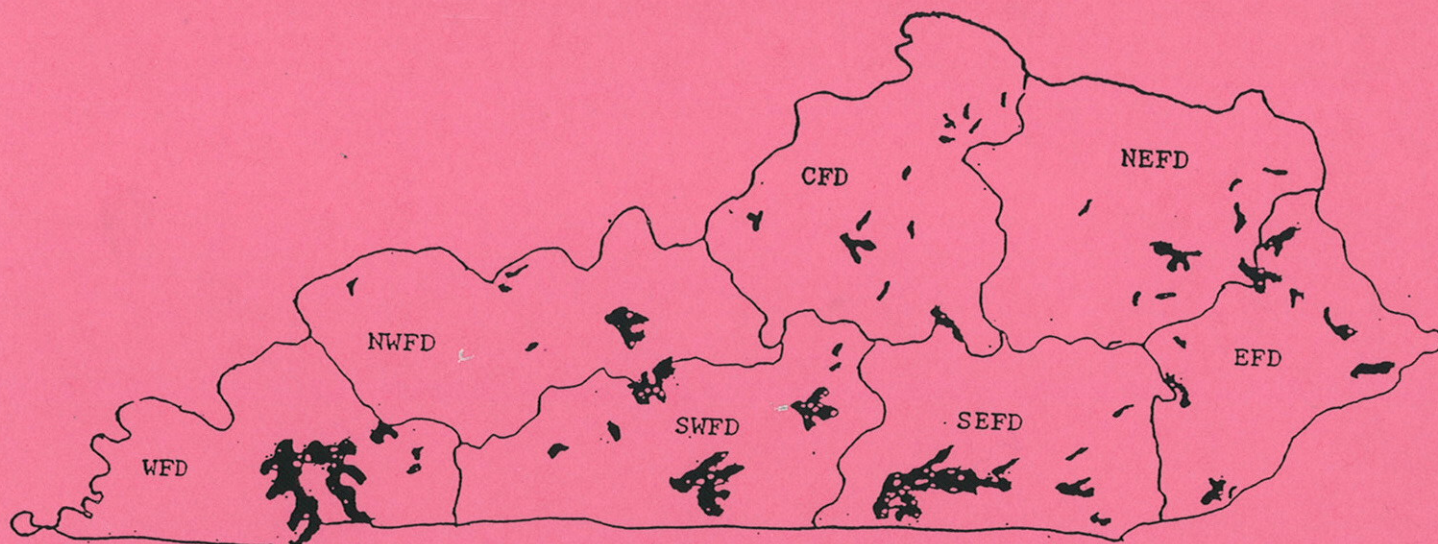
Period: 01 April 2004
Through
31 March 2005

ANNUAL PERFORMANCE REPORT

District Fisheries Management

Part 1

Project 1: Lake and Tailwater Fishery Surveys



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State: Kentucky

Project No.: F-50-27

Grant Title: District Fisheries Management

Grant Period Covered: 1 April 2004 through 31 March 2005

Grant Objectives: To conduct research and surveys and to manage the fishery resources statewide within each of the following seven fishery districts: Western (WFD), Northwestern (NWFD), Southwestern (SWFD), Central (CFD), Northeastern (NEFD), Southeastern (SEFD), and Eastern (EFD).

RESEARCH AND SURVEY SECTION

Project 1: Lake and Tailwater Fishery Survey

Project Objective: To develop and implement fish management plans for lake and tailwater sport fisheries based on survey data from this project.

A. ACTIVITY

Electrofishing, gill netting, trap netting, fish scale and otolith reading for age and growth determinations, temperature and oxygen profiles, additional water quality and physical data, creel data, and preparation of an annual performance report and lake management plans.

B. TARGET DATES FOR ACHIEVEMENT AND ACCOMPLISHMENT

Planned achievement date: 31 March 2005

Work accomplishment: 31 March 2005

C. SIGNIFICANT DEVIATIONS

None.

D. REMARKS

See accompanying report.

E. COST

\$ 1,242,075

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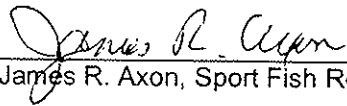
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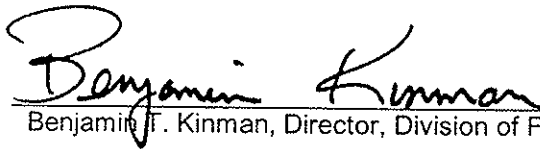
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WESTERN FISHERY DISTRICT
Project 1: Lake and Tailwater Fishery Surveys
FINDINGS

Kentucky Lake

During May 2004, 905 (90.5 f/h) black bass were collected by diurnal electrofishing from standardized sampling locations on Kentucky Lake (Table 1). The catch rate of largemouth bass < 8.0 in was 17.7 f/h (Table 2). An objective in the Kentucky Lake Fish Management Plan (KLFMP) for the largemouth bass population is to maintain a catch rate of at least 20.0 f/h that are < 8.0 in. The average for the past 22 years is 20.7 f/h. The high number reported in 2001, 2000 year-class, have now grown into the ≥ 15 in group. The catch rate of harvestable-size (≥15.0 in) largemouth bass was 18.1 f/h. The KLFMP objective for largemouth bass ≥15.0 in is to maintain a catch rate of at least 18.0 f/h. Table 3 lists the PSD and RSD values for all bass collected. The values for largemouth bass are within the targeted ranges (PSD, 55-75 and RSD₁₅, 20-40) suggested in the KLFMP. An assessment for largemouth bass was used to evaluate this population (Table 4). The largemouth bass population has been rated "good" during the past five years. This year's score was lower due to poor recruitment as measured by the catch of age 1 bass.

During October 2004, 695 (115.8 f/h) black bass were collected by diurnal electrofishing at two locations that had been previously sampled during the spring (Table 5). Length and weight data were recorded from all bass collected to calculate relative weight values (Table 6). Length-weight equations for black bass species at Kentucky Lake are:

Largemouth bass	$\text{Log}_{10}(\text{weight}) = -3.43420 + 3.11185 \times \text{Log}_{10}(\text{length})$
Smallmouth bass	$\text{Log}_{10}(\text{weight}) = -3.13510 + 2.77541 \times \text{Log}_{10}(\text{length})$
Spotted bass	$\text{Log}_{10}(\text{weight}) = -3.39847 + 3.07641 \times \text{Log}_{10}(\text{length})$

During July 2004, 132 (31.0 f/h) smallmouth bass were collected by nocturnal electrofishing. Samples were taken along the main-lake shoreline on the eastside of Kentucky Lake where gravel bars and rocky shoreline are prevalent. The KLFMP objective for the catch rate of smallmouth bass < 8 in is to maintain a minimum population density of 35.0 f/h. The average for fourteen years of data is 41.1 f/h (Table 7). Another objective is to maintain PSD and RSD₁₄ values, calculated from smallmouth bass collected during spring sampling, within given ranges (PSD, 35-55 and RSD₁₄, 15-35). This years PSD value (67) is high due to the low number of small size bass being collected. The RSD₁₄ value was 33, and within range of the objective. However, both of these values had 95% confidence errors of approximately ± 25, since there was a catch of only 26 smallmouth bass.

During July 2004, sauger were collected by nocturnal electrofishing during the same collection period as smallmouth bass. A total of 67 sauger were collected at a rate of 11.2 f/h (Figure 1). Almost 64% of these fish collected were between 10 to 12 in. The catch rate of harvestable-size (≥14.0 in) sauger was 0.8 f/h. In 2003, this catch rate was 1.1 f/h.

Trap nets were fished for crappie in Blood River, Jonathan Creek and Sledd Creek embayments for a total of 116 net-days (nd) during October. This sampling effort yielded 3,761 crappie (34.2 f/nd); of which 6.2 f/nd (19%) were white crappie and 26.2 f/nd (81%) were black crappie (Table 8). The number of black crappie has dominated the trap net catch for the past 8 years (Figure 2). The number of crappie ≥ 8.0 in made up 42% (14.4 f/nd) of the sample (Table 9). The KLFMP objective for crappie is to maintain a catch rate of at least 6.5 f/nd for crappie ≥8.0 in and 2.0 f/nd for crappie ≥10 in. PSD and RSD₁₀ values are reported in table 10. Length-weight equations for white and black crappie are listed below. Weight increased slightly for both species of crappie collected from 2003 to 2004.

White crappie	$\text{Log}_{10}(\text{weight}) = -3.55802 + 3.21510 \times \text{Log}_{10}(\text{length})$
Black crappie	$\text{Log}_{10}(\text{weight}) = -3.61160 + 3.35215 \times \text{Log}_{10}(\text{length})$

Otoliths were collected from 182 black crappie and 127 white crappie to make age and growth determinations (Tables 11 and 12). The growth of age 2 white crappie, at time of capture, was identical to previous years, while the average length of age 2 black crappie was less than previous years (Table 9). The KLFMP

objective for age-2 crappie growth is to maintain an average length of 9.5 in. Age frequencies and CPUE by age classes are reported in tables 13 and 14. The assessment of the crappie population is reported in Table 15. Table's 15a and 15b report the assessments for white and black crappie, respectively. Combined, the crappie population at Kentucky Lake rated "good". This is mainly due to the black crappie population that has rated "good" to "excellent" over the past five years. The white crappie population has consistently rated "fair" over this same period. Annual mortality was calculated to be 47.7% for age 2 and older crappie using catch curve analysis ($Z = 0.6485$). Annual mortality between 2003 and 2004 for 5 years classes of crappie are listed in Table 16.

Length-weight data and otoliths were collected from redear sunfish captured in trap nets during the fall crappie sampling. A total of 63 redear sunfish were collected in 87 net days (0.7 f/nd) (Table 17). Age determinations were made from 30 otoliths collected (Table 18). In 2005, redear sunfish will be placed on the list of sport fish, which gives them protection from commercial harvest, gigging and bowfishing.

Blue and channel catfish were collected using trotlines (tl) during May 2004. This was the first year that the catfish population was sampled. Data collected was used to determine CPUE, length frequency, age and growth, and mortality. A total of 205 catfish were collected at a rate of 13.7 f/tl. CPUE of blue and channel catfish was 7.7 and 5.9 f/tl, respectively (Table 19). No catfish < 14 in were collected, this is most likely the result of gear selectivity towards larger individuals. Relative weight values of both blue and channel catfish indicate excellent health and are listed in Table 20. The length-weight equations for blue and channel catfish are:

Blue catfish	$\text{Log}_{10}(\text{weight}) = -3.87497 + 3.35527 \times \text{Log}_{10}(\text{length})$
Channel catfish	$\text{Log}_{10}(\text{weight}) = -3.60191 + 3.13899 \times \text{Log}_{10}(\text{length})$

Age and growth determinations were made from otoliths removed from 55 blue catfish and 42 channel catfish. Growth of blue catfish appears to be good, with fish reaching 15.0 in as early as age-3 (Table 21). Catch of blue catfish ages 5 and 6 dominated the overall catch, comprising 67% of the total catch of blue catfish (Table 22). Growth of channel catfish appears to be slower than blue catfish (Table 23). Channel catfish reach 15.0 in as early as age-4. Catch of channel catfish ages 6 - 8 dominated the overall catch, comprising 78% of the total catch of channel catfish (Table 24). Alternative sampling schemes will need to be considered in order to obtain better measures of recruitment and abundance of younger catfish.

Kentucky Lake Creel Survey

A random, non-uniform probability, roving creel survey was conducted on the Kentucky portion (51,000 a) of Kentucky Lake from 1 March to 31 October 2004. This area of the lake was divided into ten creel areas (Appendix A). The survey was conducted five days per week, six hours per day. The overall temporal sampling scheme was twenty days per month, consisting of six weekend days and fourteen weekdays. One hour each day was randomly chosen to conduct an angler count. Varying time period probabilities were assigned to each month's six-hour time period. Higher geographic probabilities were assigned to Blood River, Jonathan Creek and Sledd Creek/Kentucky Dam areas from March to May, and October, than were assigned to the other seven areas. Lower probabilities were assigned to these three areas from June to September to more evenly distribute angling pressure in the lake during those months. A three-question, angler attitude survey concerning commercial fishing in Kentucky Lake was conducted by the creel clerk during May, June and July (Appendix B).

During the 2004 creel survey the typical angler was a male (83%) resident (55%) who was casting (48%) or still fishing (45%) from a boat (87%) (Table 25). The average fishing trip (3.6 h) was shorter than that reported in 2003 (4.7 h). Anglers made 376,210 trips (7.4 trip/a), and fished for 1,351,675 h (26.5 h/a) during 2004. This effort was much higher than that recorded from the 2003 creel (19.2 h/a). It also exceeded the effort reported in other Kentucky Lake creel surveys in 1984 (19.5 h/a), 1985 (20.8 h/a), 1986 (19.4 h/a), 1987 (21.8 h/a), 1991 (21.2 h/a) and 1998 (6.6 h/a). The estimated number of fish caught during the 2004 creel was 1,629,699 (31.9 f/a) with a harvest estimate of 670,166 (13.1 f/a). This catch rate was higher than those reported in creel surveys conducted in 1985 (17.8 f/a), 1986 (20.9 f/a), 1987 (25.1 f/a), 1991 (23.9 f/a), 1998 (5.7 f/a) and 2003 (25.5 f/a). Total harvest during 2004 increased 34% compared to harvest estimates reported in 2003 (9.8 f/a).

Anglers fishing for black bass accounted for approximately 33% of all fishing trips to Kentucky Lake in 2004 (Table 26). Black bass accounted for 5% of all fish harvested during the 2004 survey. Anglers caught 393,577 black bass (7.7 f/a) and harvested 31,236 (0.6 f/a). Anglers harvested 1.36 lb/a of black bass, which amounted to

15% of the total weight of harvested fish at Kentucky Lake in 2004. In 2003, harvest of black bass comprised 4% of the total fish harvest, and 11% of the total pounds of fish harvested. Largemouth bass accounted for 88% of the total bass catch, followed by smallmouth bass (9%) and spotted bass (3%). Length frequencies of black bass caught and harvested are listed in table 27.

An objective of the Kentucky Lake Fish Management Plan (KLFMP) for largemouth bass is to maintain an annual catch of $\geq 45,000$ largemouth bass ≥ 15 in. It was estimated from this survey that 85,174 harvestable-size largemouth bass were caught (Table 28). An estimated 68% of all harvestable-size largemouth bass caught were released. The estimated pounds of largemouth bass harvested in this survey were 1.20 lb/a (0.60 lb/a in 2003). The KLFMP objective from the creel data for smallmouth bass is to maintain an annual catch of $\geq 5,500$ smallmouth bass ≥ 15 in. A total of 8,211 harvestable-size smallmouth bass were caught during 2004 (64% were released). The harvest rate of smallmouth bass was 0.14 lb/a (Table 26), compared to 0.08 lb/a in 2003. Catch-per-unit-effort of bass by bass anglers was similar from April – October, despite, bass anglers catching more bass during May and June compared to other months (indicating increased effort during May and June) (Table 29).

Crappie anglers accounted for about 32% (42% in 2003) of all fishing trips to Kentucky Lake during the 2004 creel survey (Table 26). Although the estimated number of fishing trips (118,696) for crappie increased by 35% in the 2004 creel, the total number of hours fished for crappie only increased by 3%. Crappie anglers fished for 3.6 h/trip in 2004, compared to 4.7 h/trip in 2003. The estimated catch and harvest rates of crappie were 7.0 and 3.7 f/a, respectively. In 2003, catch and harvest rates of crappie were 9.0 and 4.9 f/a, respectively. In 2004, crappie represented only 28% (50% in 2003) of the total number of fish harvested, and 32% of total weight harvested (48% in 2003). The pounds of crappie harvested were 2.9 lb/a in 2004, compared to 3.6 lb/a in 2003. Total harvest of crappie during 2004 failed to meet the KLFMP objective of ≥ 3.5 lb/a. During March 2004, 53,542 crappie (1.0 f/a) were caught, compared to 103,000 crappie (3.1 f/a) caught during March 2003 (Table 30). Catch-per-unit-effort in March 2004 declined to 0.7 f/h compared to 1.5 f/h in March 2003. Catch of crappie during April, accounted for approximately 50% of the total crappie caught during the 2004 creel survey.

White crappie accounted for 67% of the total number harvestable size crappie caught in 2004, compared to 72% of the total harvestable size crappie caught in 2003 (Table 31). Harvest rates of white and black crappie were 2.5 and 1.2 f/a, respectively. In 2003, harvest rates of white and black crappie were 3.4 and 1.5 f/a, respectively. Mean length and weight of harvested white and black crappie were similar for both creel survey years. The catch rate of black crappie was higher (0.8 f/h) in the northern geographic area (Area 1) of Kentucky Lake, compared to Jonathan Creek (0.2 f/h) and Blood River (0.3 f/h), in 2004. The catch of black crappie was greater during October (0.4 f/h), compared to April (0.2 f/h).

Approximately 18% of all trips were taken in pursuit of panfish in 2004 (Table 26). The estimated panfish catch was 12.0 f/a, compared to 5.4 f/a in 2003. Panfish comprised almost 50% of the total number of fish harvested in 2004, compared to 28% in 2003. Bluegill and redear sunfish accounted for 82 and 14% of the total number of panfish harvested, respectively. Length frequencies of all panfish harvested or released are reported in Table 27. The only panfish ≥ 10 in reportedly caught during the 2004 creel was redear sunfish. These larger redear sunfish accounted for approximately 37% of the total number of redear sunfish caught. Catch and harvest rates of panfish were 2.8 and 1.8 f/h during the month of May, respectively (Table 32).

Catfish anglers accounted for 11% of all fishing trips during the 2004 creel survey (Table 26), compared to 8% and 6% of all trips during the 2003 and 1991 creel surveys, respectively. A total of 69,731 catfish were caught, and 79% were harvested (1.1 f/a). In 2003, catfish were harvested at a rate of 0.7 f/a. Although catfish accounted for only 8% of the total number of fish harvested in 2004, they comprised 28% of the total weight of harvested fish. An estimated 131,748 pounds of catfish (2.6 lb/a) were harvested in 2004, compared to 1.8 lb/a in 2003. Channel catfish, blue catfish, and flathead catfish comprised 73, 24, and 3% of the total number of catfish caught, respectively. Length of catfish caught ranged from 4 - 36 in (Table 27). The number of catfish trips reached its peak in May (14,761 trips) (Table 33). Comparably, in 2003, catfish effort was highest in June (4,125 trips).

Fewer than 2% of all fishing trips at Kentucky Lake, during 2004, targeted *Morone* spp (Table 26). The estimated *Morone* catch was 2.7 f/a, which was a slight increase from the 2003 estimate of 2.1 f/a. Yellow bass and white bass comprised 71 and 27% of the total *Morone* catch, respectively. The catch of striped bass and their hybrids was negligible. Anglers harvested 28% of the total number of yellow bass caught, and 48% of the total

number of white bass caught. A total of 37,586 white bass were caught, while 17,979 were harvested during 2004. Total catch of white bass failed to meet the KLFMP objective of $\geq 50,000$ white bass. Although, white bass harvest was up in 2003 and 2004, anglers still consider the fishery to only be "fair" as compared to white bass fishing in the 1980's. Catch rates of *Morone* spp were greatest in August (3.1 f/h) and September (3.7 f/h), while harvest rates were highest in August (2.5 f/h) (Table 34).

Only 619 fishing trips during the 2004 creel survey targeted sauger (Table 26). An estimated total of 8,179 sauger (0.2 f/a) were caught, and 1,605 were harvested (0.03 f/a). This low harvest resulted, in part, because 43% of harvestable-size sauger were released (Table 35). Harvest rates of sauger were similar during the 2003 creel survey (0.02 f/a). The KLFMP objectives for sauger are to maintain a catch of $\geq 15,000$ sauger, maintain an average weight ≥ 1.0 lb for sauger harvested, and to have a harvest rate ≥ 0.5 f/h. The first and third objectives were not met. The average weight (1.1 lb) of harvested sauger did meet the KLFMP objective. Catch rates of sauger by sauger anglers was highest during June (0.5 f/h), while harvest rates were highest during August (0.2 f/h).

Lake Barkley

Black bass were collected by diurnal electrofishing on 26-29 April 2004, from standardized sampling sites on Lake Barkley. PSD and RSD values are reported in Table 36. The PSD value of largemouth bass (57) dropped compared to the value (73) recorded in 2003. This decline was the result of decreased CPUE of quality-size (12.0-14.9 in) largemouth bass, 29.3 f/h in 2004 compared to 75.3 f/h in 2003. Despite the higher values observed in 2003, the PSD value of largemouth bass in 2004 fell below the 20-year average (59) for Lake Barkley. The RSD₁₅ value (26) increased for the second consecutive year and has exceeded the 20-year average for the first time since 2000. Both PSD and RSD₁₅ values met their objective goals (PSD of 55-75 and RSD₁₅ of 20-40) established in the Lake Barkley Fish Management Plan (LBFMP).

Table 37 summarizes the length frequency and relative abundance of black bass collected during spring electrofishing by area sampled on Lake Barkley. A total of 1,096 black bass were collected at a rate of 109.6 f/h, compared to 192.6 f/h in 2003. Spotted and smallmouth bass accounted for only 3% of the total black bass sampled and too few individuals are ever collected to accurately yield data reflecting their true population abundance and health. Largemouth bass accounted for 97% of the total catch, and had a catch rate of 106.2 f/h. This catch rate lies well below the 20-year average catch of largemouth bass (145.6 f/h) at Lake Barkley (Table 38). The decline in total CPUE was the result of reduced CPUE of largemouth bass ≤ 8.0 in and 12.0-14.9 in. The catch rate of largemouth bass ≤ 8.0 was 11.3 f/h, compared to 41.1 f/h recorded in 2003. In 2004, the CPUE of largemouth bass ≤ 8.0 in was below the 20-year average (29.2 f/h) and the minimum desired catch rate of 30.0 f/h set in the LBFMP. CPUE of largemouth bass 12.0-14.9 in declined from 75.3 f/h in 2003 to 29.3 f/h in 2004. This decline was the direct result of the poor year-class of largemouth bass produced in 2001 (now recruiting to the 12.0-14.9 inch-class). Catch of harvestable-size (≥ 15.0 in) largemouth bass declined slightly from 26.9 f/h in 2003 to 24.7 f/h in 2004. Catch of largemouth bass ≥ 15.0 in failed to meet the objective (25.0 f/h) set in the LBFMP.

The assessment of the largemouth bass fishery at Lake Barkley during 2004 produced a "good" rating (Table 39). The highest ratings continue to be the result of excellent growth (mean length at capture of age-3 bass) and size structure (CPUE of age-1 largemouth bass). The lowest rating was assigned to the recruitment parameter (CPUE of largemouth bass ≤ 8.0 in) indicating the poor production of the 2003 year-class. Annual mortality between 2003 and 2004 of each age-class (1-6) of largemouth bass is listed in Table 40.

Black bass were sampled in October 2004 to collect length-weight data, relative weight values, and determine the strength of the age-0 cohort (2004 year-class). The length-weight equations of each species of black bass at Lake Barkley are:

Largemouth bass	$\text{Log}_{10}(\text{weight}) = -3.49728 + 3.17543 \times \text{Log}_{10}(\text{length})$
Spotted bass	$\text{Log}_{10}(\text{weight}) = -3.63823 + 3.27215 \times \text{Log}_{10}(\text{length})$
Smallmouth bass	$\text{Log}_{10}(\text{weight}) = -3.31223 + 2.99152 \times \text{Log}_{10}(\text{length})$

Similar to previous years, despite high r^2 -values for both spotted ($r^2 = 0.98$) and smallmouth ($r^2 = 0.97$) bass, low overall sample sizes of spotted ($n = 9$) and smallmouth ($n = 20$) bass were collected during the fall sample and therefore caution should be used when interpreting the length-weight equations for both of these species. Length frequency distributions and CPUE of largemouth, smallmouth, and spotted bass are listed in Table 41. Fall

CPUE of largemouth bass was 163.2 f/h, compared to 106.2 f/h recorded during the spring sample. Relative weight values of all size-classes of largemouth bass increased significantly compared to those recorded in 2003, indicating excellent health of the largemouth bass population prior to winter (Table 42). Mean length of the age-0 cohort (2004 year-class) was 5.4 in and ranged in length from 3.2 to 6.7 in by October (Table 43). CPUE of age-0 largemouth bass was approximately 39.8 f/h. CPUE of age-0 largemouth bass ≥ 5.0 in was 30.4 f/h, and comprised 75% of all age-0 bass collected (suggesting production of a strong 2004 largemouth bass year-class).

Blue and channel catfish were collected using trot-lines (tl) from 17-20 May 2004. This was the first year that catfish were sampled and data collected was used to determine CPUE, length frequency, age and growth, and mortality. A total of 228 catfish were collected at a rate of 16.4 f/tl. CPUE of blue catfish was 8.4 f/tl (Table 44). Approximately 86% of all blue catfish collected were ≥ 15.0 in, and 56% were ≥ 20.0 in. CPUE of blue catfish ≥ 15.0 in and ≥ 20.0 in was 7.2 and 4.6 f/tl, respectively. Catch of blue catfish ≤ 8.0 in was extremely low (0.2 f/tl) and is most likely the result of gear selectivity towards larger individuals. CPUE of channel catfish was 7.9 f/tl. Approximately 95% of all channel catfish collected were ≥ 12.0 in (7.5 f/tl), and 61% were ≥ 15.0 in (4.8 f/tl). Similar to blue catfish, catch of small channel catfish (≤ 8.0 in) was extremely low (0.2 f/tl) and is most likely the result of gear selectivity towards larger individuals. Relative weight values of both blue and channel catfish indicate excellent health and are listed in Table 45. The length-weight equations of blue and channel catfish are:

Blue catfish	$\text{Log}_{10}(\text{weight}) = -3.93323 + 3.38006 \times \text{Log}_{10}(\text{length})$
Channel catfish	$\text{Log}_{10}(\text{weight}) = -3.80475 + 3.27237 \times \text{Log}_{10}(\text{length})$

Age and growth determinations were made from otoliths removed from 74 blue catfish and 54 channel catfish. Growth of blue catfish appears to be good, with fish reaching 15.0 in by age-4 (Table 46). Catch of blue catfish ages 5 and 6 dominated the overall catch, comprising 27 and 35% of the total catch, respectively (Table 47). Growth of channel catfish appears to be significantly slower than blue catfish (Table 48). Although channel catfish reach 15.0 in by age-6, back-calculated growth rates indicate that it takes 10+ years for channel catfish to exceed 20.0 in. Similar to blue catfish, catch of channel catfish ages 5 and 6 dominated the overall catch, comprising 30 and 18% of the total catch, respectively (Table 49). Catch of young (ages 1-3) blue and channel catfish was extremely low during 2004 and is most likely the result of gear selectivity towards larger catfish. Alternative sampling schemes will need to be considered in order to obtain better measures of recruitment and abundance of younger catfish.

Smallmouth bass and sauger were sampled by nocturnal electrofishing on 26-27 July 2004. A total of 209 smallmouth bass were collected at a rate of 52.3 f/h (Table 50). This is the first year that CPUE of smallmouth bass at Lake Barkley has increased since 2001. This increase is due to the increased catch of smallmouth bass ≤ 8.0 in and 8.0-10.9 in. Catch of smallmouth bass ≤ 8.0 in was 35.3 f/h and comprised the 89% of the total catch. Despite this increase, CPUE of smallmouth bass ≤ 8.0 in remains below the eight-year average of 44.4 f/h. CPUE of smallmouth bass 8.0-10.9 in was 14.8 f/h and comprised 28% of the total catch. Catch of larger (≥ 14.0 and ≥ 17.0 in) smallmouth bass remains extremely low (0.5 and 0.3 f/h, respectively), despite the fact that anglers continue to catch good numbers of harvestable-size smallmouth bass at Lake Barkley. A total of six sauger were collected during the nocturnal sampling effort, resulting in a catch rate of 1.5 f/h.

Trap nets were fished for crappie in Little River, Donaldson Creek and Eddy Creek embayments for a total of 114 net-days (nd) during 1-5 November 2004. A total of 1,112 crappie were collected at a rate of 9.8 f/nd (Table 51). Since Little River and Donaldson Creek are established standardized sampling sites, and low overall catch of crappie from Eddy Creek, only those crappie collected from Little River and Donaldson Creek will be included in further analyses. A total of 942 crappie were collected from Little River and Donaldson Creek at a rate of 12.4 f/nd. Similar to 2003, white crappie accounted for 66% of the total catch (Figure 3) and were collected at a rate of 8.2 f/nd. Black crappie were collected at a rate of 4.2 f/nd. CPUE of harvestable-size (≥ 10.0 in) crappie was 1.8 f/nd, compared to 2.2 f/nd recorded in 2003 (Table 52). This value is slightly higher than the 20-year average of 1.6 f/nd, however, failed to meet the management objective (2.0 f/nd) set in the LBFMP. Since 2000, black crappie have averaged approximately 43% of the harvestable-size crappie collected from trapnets (Figure 4). CPUE of quality-size (≥ 8.0 in) crappie was 7.3 f/nd, which greatly exceeds the 20-year average (4.1 f/nd) of Lake Barkley. This is the first year since 1998 that this value has exceeded the management objective (5.0 f/nd) set in the LBFMP. CPUE of quality-size white crappie increased significantly to 5.5 f/nd, compared to the catch rate of 2.3 f/nd recorded in 2003. CPUE of quality-size black crappie (1.8 f/nd) remained similar to that recorded in 2003 (1.6 f/nd). Table 53

lists PSD and RSD₁₀ values calculated for both white and black crappie. PSD of white crappie increased significantly from 2003, while the RSD₁₀ value declined for the second consecutive year. This decline is attributable to an increase in CPUE of quality-size white crappie, while the CPUE of harvestable-size white crappie remained similar to 2003. The 20-year average PSD and RSD₁₀ values of white crappie are 57 and 24, respectively. The PSD and RSD₁₀ values of black crappie increased from 2003, with both values being above the 20-year average of 53 and 19, respectively. The RSD₁₀ value of black crappie has increased for the second consecutive year. Relative weight values of white and black crappie are listed in Table 54. The length-weight equations of white and black crappie from Lake Barkley are:

White Crappie	$\text{Log}_{10}(\text{weight}) = -3.60119 + 3.32204 \times \text{Log}_{10}(\text{length})$
Black Crappie	$\text{Log}_{10}(\text{weight}) = -3.56891 + 3.32587 \times \text{Log}_{10}(\text{length})$

Age and growth data was not collected during 2004, however, CPUE of each age-class of white and black crappie was extrapolated using age and growth data collected during 2003. CPUE of age-0 white crappie was 1.7 f/nd (Table 55), significantly less than the 20-year average (4.3 f/nd). Catch of age-1 white crappie (5.1 f/nd) dominated the total catch (comprising 67% of the total catch). CPUE of age-0 black crappie was 1.5 f/nd (Table 56) and comprised 36% of the total catch. The 20-year average CPUE of age-0 black crappie is 1.2 f/nd. Total CPUE of age-1 crappie was 6.3 f/nd, which exceeded the management objective (5.0 f/nd) established in the LBFMP. Annual mortality of crappie in Lake Barkley during 2004, calculated from catch curve analysis, was 57.6% (compared to 60.4% in 2003). Total instantaneous rate of mortality (Z) was 0.8579. Annual mortality between 2003 and 2004 of each age-class (1-6) of crappie is listed in Table 57.

The white and black crappie populations were rated “fair” at Lake Barkley (Table 58). The lowest assessment value for white crappie was the recruitment parameter (CPUE of age-0 white crappie). The highest assessment value continues to be the growth parameter (mean length at capture of age-2 white crappie). The black crappie population received poor assessment values for all parameters, except growth. When both species were combined, the total crappie population received an assessment rating of “good”. Tables 59, 60, and 61 list the population assessment scores of white crappie, black crappie, and both white and black crappie populations combined, from 1988-2004.

Kentucky Lake Tailwater (lower Tennessee River)

Sampling in the lower Tennessee River tailwater area below Kentucky Lake dam was not completed this year due to construction of the new lock.

Lake Barkley Tailwater (lower Cumberland River)

Nocturnal electrofishing normally conducted during November to sample sauger and *Morone* spp. from the lower Cumberland River, in the area below Lake Barkley dam, was not conducted during 2004 as a result of abnormally high water level and discharge conditions.

Lake Beshear

Largemouth bass were collected by diurnal electrofishing during May 2004. A total of 171 largemouth bass were collected at a rate of 68.4 f/h (Table 62). CPUE of harvestable-size (≥ 12.0 in) and ≥ 15.0 in largemouth bass were 52.0 and 42.4 f/h, respectively (Table 63). One objective in the Lake Beshear Fish Management Plan (LBFMP) is to maintain a catch rate of 40.0 f/h for harvestable size largemouth bass. This objective was met, though the number of bass < 8 in collected was low (4.4 f/h). The management objective is to maintain a catch of 12 f/h for these smaller bass. The average catch rate for the bass <8 in for the past 19 years of data is 7.7 f/h. The low number of smaller bass collected in 2004 lead to higher PSD and RSD₁₅ values calculated for the largemouth bass population, 81 and 66 respectively.

Age and growth determinations were made from using this years spring sampling data, and age data collected in 2003. Largemouth bass reach harvestable size as early as age 2, but more commonly by age 3 (Table 64). The largemouth bass population has rated “good” the past three years (Table 65). This rating has been achieved by good growth of bass and a high density of ≥ 15.0 in bass in the population. The catch rate of age 1 bass is very low; though it has historically been low.

During October, largemouth bass were collected by diurnal electrofishing. The catch rate (54.0 f/h) was below that of the spring sample (Table 62). However, the number of bass of < 12.0 inches in the catch was much higher than compared to the spring data. Seventy percent of all the bass were less than 12.0 in, while only 20% of the spring sample was comprised of these smaller bass. Relative weight data suggest that the bass are very healthy in regards to their length-weight ratio. Relative weight values were above 95, except for bass less than 12 in. The relative weight value was 87 for these smaller bass. The length-weight equation for largemouth bass at Lake Beshear is:

$$\text{Log}_{10}(\text{weight}) = -3.59323 + 3.24465 \times \text{Log}_{10}(\text{length})$$

Otoliths were removed from largemouth bass ≤ 8.0 in to determine the mean fall length of the age-0 cohort. The average length of the age-0 bass was 3.8 in. The catch rate for this year class was 17.6 f/h (Table 66).

The channel catfish population was sampled at Lake Beshear using 9 100-hook cheese baited trotlines (tl) for 3 nights during September. The length frequency of channel catfish collected is found in Figure 5. Their catch rate was 13.6 f/tl. The catch rate was down from 25.7 f/tl reported in 2003. In 2004, a 12-inch minimum length limit was imposed for channel catfish. During this sampling, 68% of the catch (9.2 f/tl) were ≥ 12 in. Relative weights ranged from 84 for channel catfish 11-16 inches to 88 for larger catfish. The length weight equation for channel catfish at Lake Beshear is:

$$\text{Log}_{10}(\text{weight}) = -3.90549 + 3.30014 \times \text{Log}_{10}(\text{length})$$

Age and growth determinations were made using age data collected in 2003. Harvestable size (≥ 12.0 in) is reached as early as age 2, but more commonly by age 3. Table 67 lists the age frequencies for all channel catfish collected based on the portion that was aged. Approximately 50% of the channel catfish collected were between 1 and 3 years old. Since 2001, the lake has been stocked with 10 channel catfish per acre annually. Prior to this time, the stocking rate was 25 per acre. With the reduced stocking rate, growth of the catfish does appear to have improved as well as size distribution. To maintain their population in Lake Beshear, channel catfish will be stocking at a rate of 10 per acre. As part of the LBFMP, the following parameters of the catfish population were assessed by sampling with trotlines; catch of catfish <8.0 in, ≥ 12.0 in, and ≥ 15.0 in (Table 68). Several years of data has been collected, although sampling methods have changed, while trying to determine the best sampling method. An assessment of the catfish population at Lake Beshear is reported in Table 68. In the past 4 years the population has rated "good", while prior to this it rated "fair" and "poor". These ratings were affected by the catch of the sample method used each year, so some bias has occurred in catch rate from year to year.

Lake Pennyrile

Lake Pennyrile was sampled by diurnal electrofishing on 19 April 2004. Largemouth bass were collected at a rate of 119.8 f/h (Table 69). This catch rate was significantly less than that recorded in 2003 (241.0 f/h) (Table 70). The reduced CPUE was most notable in largemouth bass ≤ 8.0 in and 8.0-11.9 in. CPUE of largemouth bass ≤ 8.0 in was 27.5 f/h, compared to 96.6 f/h recorded in 2003. Similarly, CPUE of largemouth bass 8.0-11.9 in was 63.7 f/h, compared to 118.8 f/h recorded in 2003. Largemouth bass at Lake Pennyrile are classified as stunted, therefore, the reduction in smaller-size largemouth bass is considered beneficial to the overall health of the population. CPUE of largemouth bass ≥ 12.0 in was 28.6 f/h, which exceeded the management objective (25.0 f/h) established in the Lake Pennyrile Fish Management Plan (LPFMP). Catch rates of largemouth bass ≥ 15.0 in improved marginally from 0.9 f/h in 2003 to 2.2 f/h in 2004, however, failed to meet the objective of 5.0 f/h in the LBFMP. This is the second year that a 12.0-15.0 in protective slot limit has been enacted on Lake Pennyrile, however, without an adequate creel survey, it is unknown whether the reduction in smaller size bass is the result of the slot limit. PSD and RSD₁₅ values are listed in Table 71, with both values improving significantly from 2003. Despite the improvement, both values still lie well below the management objectives set in the LPFMP for PSD (40-50) and RSD₁₅ (10).

Largemouth bass were also sampled on 27 September 2004 to collect length-weight and relative weight values. The length-weight equation of largemouth bass was:

$$\text{Log}_{10}(\text{weight}) = -3.45263 + 3.05084 \times \text{Log}_{10}(\text{length})$$

The catch rate of largemouth bass during the fall sample was 149.0 f/h (Figure 6). Similar to previous years, 96% of all largemouth bass sampled were ≤ 12.0 in. Relative weight values of all size-classes of largemouth bass were extremely low, indicating poor overall condition (consistent with a stunted population) prior to winter (Table 72).

The largemouth bass population was rated as "poor" during 2004 (Table 73). The lowest ratings were assigned for poor growth (mean length at capture of age-3 bass) and CPUE of bass ≥ 15.0 in and ≥ 20.0 in. These low ratings are to be expected as a result of the stunted population present. Table 74 lists CPUE values of each age-class of largemouth bass collected at Lake Pennyriple from 1998-2004. Annual mortality from 2003 and 2004 of each age-class (1-6) of largemouth bass is listed in Table 75.

The catch rate of bluegill was 70.8 f/h (Table 69), and has declined for two consecutive years. The reduction in CPUE was evident in all size-classes of bluegill, except bluegill 6.0-7.9 in (Table 76). The CPUE value of bluegill ≥ 8.0 in declined to 6.2 f/h, compared to 12.3 f/h recorded in 2003, and failed to meet the objective goal (8.0 f/h) in the LPFMP. PSD and RSD₈ values of bluegill were 43 and 9, respectively (Table 71). PSD values have increased for the second consecutive year and are currently meeting the upper limits (20-40) established in the LPFMP. The RSD₈ value failed to meet the objective (10) set in the LPFMP, as a result of the significant decline in CPUE of bluegill ≥ 8.0 in. Table 77 lists CPUE of each age-class of bluegill collected from Lake Pennyriple from 2000-2004.

The bluegill population was also sampled on 27 September 2004. The catch rate of bluegill was 202.0 f/h (Table 78), compared to only 70.8 f/h recorded in the spring. Catch of bluegill ≤ 6.0 in comprised approximately 94% of the total catch. Overall, the bluegill population continues to be rated as "fair" and has shown no signs of improvement since 2000 (Table 79). The lowest ratings continue to be the result of extremely slow growth, most likely due to over-abundance of smaller individuals. A high density of aquatic vegetation in Lake Pennyriple has likely lead to the over abundance of small sunfish, by allowing protection from predation.

The catch rate of redear sunfish declined for the second consecutive year from 103.1 f/h in 2003 to 69.2 f/h in 2004 (Table 69). Similar to the bluegill population, the decline in CPUE was evident in all size-classes, except redear 6.0-7.9 in. CPUE of redear sunfish 6.0-7.9 in increased from 26.2 f/h in 2003 to 40.0 f/h in 2004 (Table 76). CPUE of redear sunfish ≥ 6.0 in has exceeded the management objective (40.0 f/h) established in the LPFMP since 2002. CPUE of redear sunfish ≥ 8.0 in failed to meet the management objective (25.0 f/h) for the second consecutive year. PSD and RSD₉ values were 36 and 2, respectively, and have also declined for two consecutive years (Table 71). PSD and RSD₉ values for redear sunfish have failed to meet their management objectives (40 and 10) for two consecutive years. Age and growth data collected in 2002 suggests that redear growth has become extremely slow and now takes 10+ years for redear to reach 10.0 in. Similar data collected in 1998 indicated that redear sunfish reach 10.0 in by age 6.

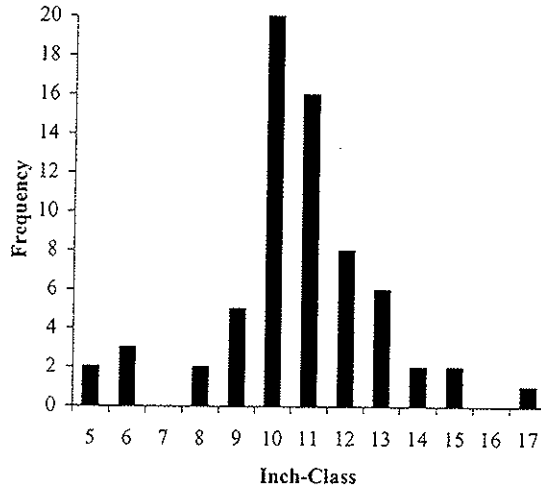
The redear sunfish population was also sampled on 27 September 2004. The catch rate was 66.7 f/h (Table 78), approximately the same as that recorded during the spring (69.2 f/h). Redear sunfish ≤ 5.0 in dominated the fall sample and comprised 76% of the total catch, compared to only 29% of the spring catch. The redear sunfish population continues to be rated as "fair" (Table 80), and similar to the bluegill population, has shown no signs of improvement since 2000.

Hematite Lake

Hematite Lake is a 90-acre sub-impoundment of Lake Barkley located within the Land Between the Lakes. This lake was drained in the mid 1990's due to a breach in the levee. In the late 1990's the levee was repaired and the lake was allowed to fill. Since that time the lake has been stocked with largemouth bass, redear sunfish and bluegill collected from Lake Barkley. This lake was once known for its outstanding redear sunfish fishery. The management objective for this lake is to reestablish the redear fishery. In spring of 2002 the lake was sampled by electrofishing. During this study redear sunfish were collected at a catch rate of 159.0 f/h. In 2004, the redear sunfish population was again sampled resulting in a catch rate of 253.9 f/h (Table 81). Fish between 3-6 in dominates the size structure of this population.

Figure 1. Length frequency distribution and CPUE of sauger collected during 6.0 hours of nocturnal electrofishing (12 runs; each 0.50 hours) at Kentucky Lake on 19-22 July 2004 (wfdsmby.d04).

Inch Class	Freq.	Cum Freq.	Perc.	Cum Perc.	CPUE	Std Error
5	2	2	2.99	2.99	0.33	0.22
6	3	5	4.48	7.46	0.50	0.36
7	0	5	0.00	7.46	0.00	0.00
8	2	7	2.99	10.45	0.33	0.22
9	5	12	7.46	17.91	0.83	0.52
10	20	32	29.85	47.76	3.33	1.62
11	16	48	23.88	71.64	2.67	1.11
12	8	56	11.94	83.58	1.33	0.71
13	6	62	8.96	92.54	1.00	0.39
14	2	64	2.99	95.52	0.33	0.22
15	2	66	2.99	98.51	0.33	0.22
16	0	66	0.00	98.51	0.00	0.00
17	1	67	1.49	100.00	0.17	0.17



11.15

Figure 2. Relative species composition of white and black crappie collected during annual fall trap-netting from 1985-2004 at Kentucky Lake. (Kentucky_Crappie_Database.xls)

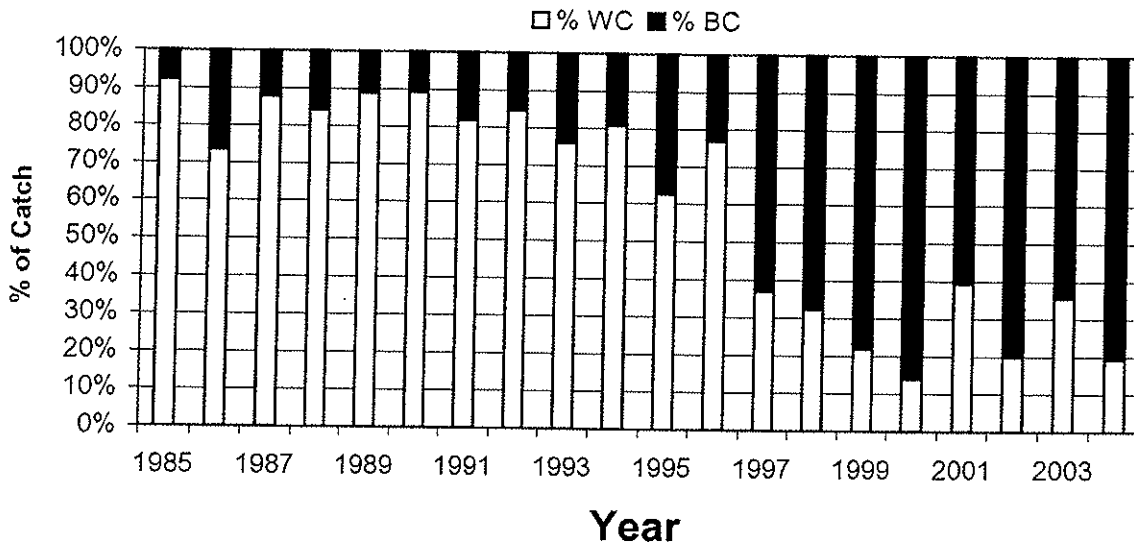
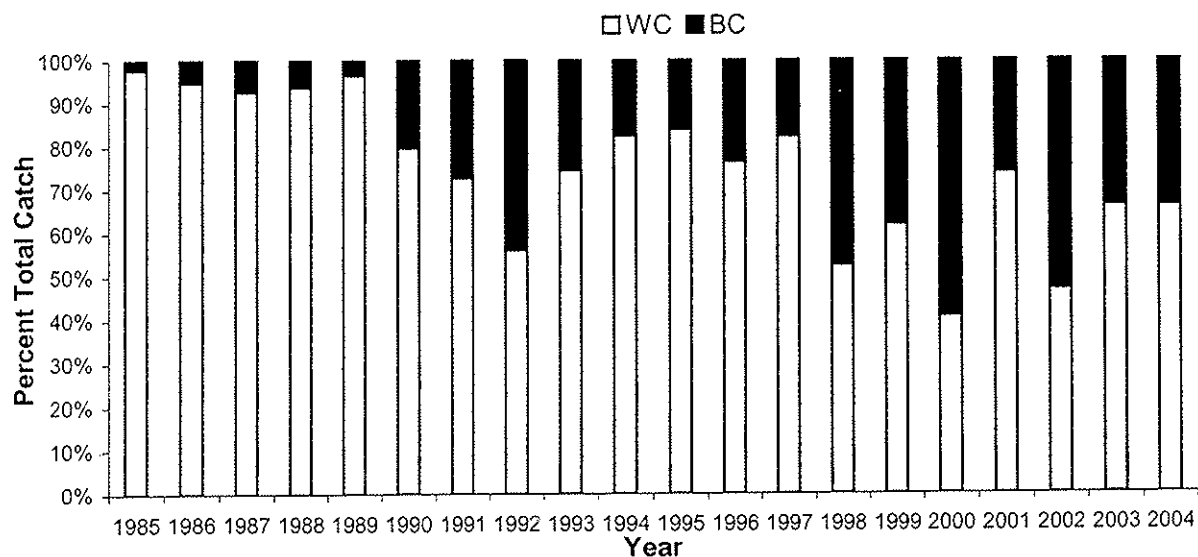
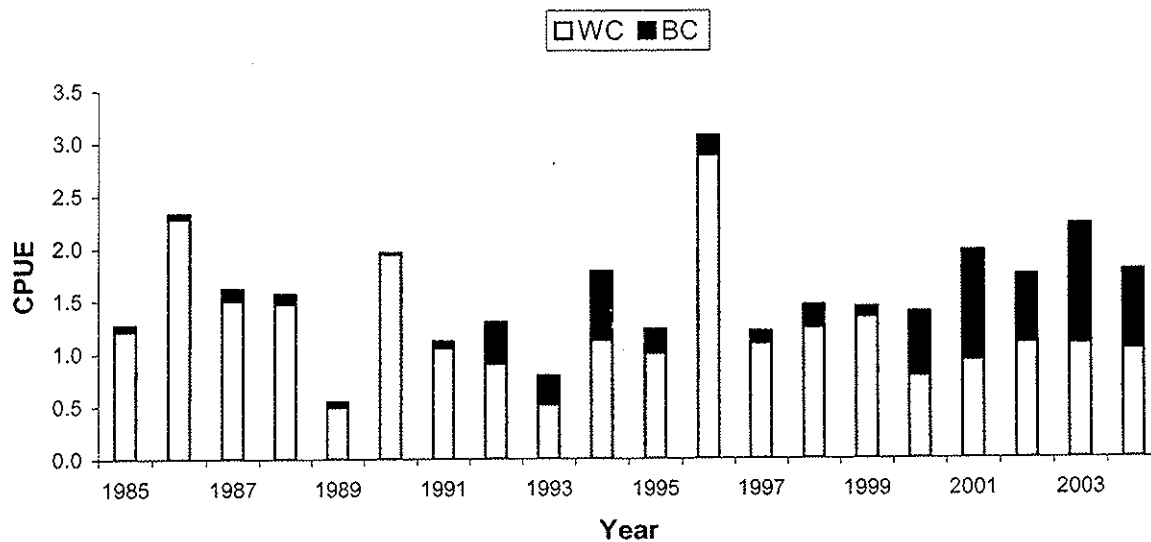


Figure 3. Relative species composition of all sizes of white and black crappie collected during fall trap-netting from 1985-2004 at Lake Barkley.



(Barkley_Crappie_Database.xls)

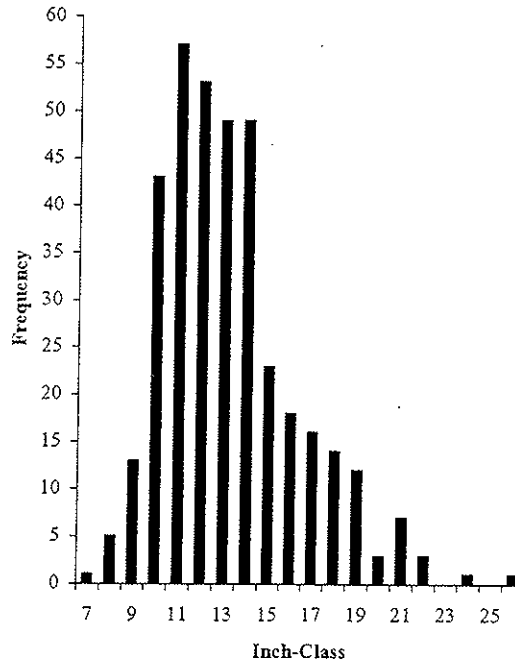
Figure 4. Relative species composition of white and black crappie ≥ 10.0 in collected during fall trap-netting from 1985-2004 at Lake Barkley.



(Barkley_Crappie_Database.xls)

Figure 5. Length frequency distribution and CPUE for channel catfish collected by fishing 9 100-hook trotlines baited with cheese bait at Lake Beshear for three nights during September 2004. (wfdclb.d04)

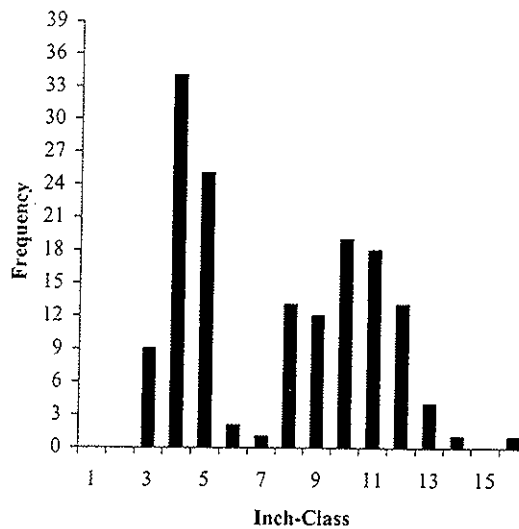
Inch Class	Freq.	Cum Freq.	Cum Perc.	Cum Perc.	CPUE	Std Error
7	1	1	0.3	0.3	0.04	0.04
8	5	6	1.4	1.6	0.19	0.09
9	13	19	3.5	5.2	0.48	0.13
10	43	62	11.7	16.8	1.59	0.32
11	57	119	15.5	32.3	2.11	0.41
12	53	172	14.4	46.7	1.96	0.47
13	49	221	13.3	60.1	1.81	0.32
14	49	270	13.3	73.4	1.81	0.30
15	23	293	6.3	79.6	0.85	0.17
16	18	311	4.9	84.5	0.67	0.17
17	16	327	4.3	88.9	0.59	0.24
18	14	341	3.8	92.7	0.52	0.13
19	12	353	3.3	95.9	0.44	0.14
20	3	356	0.8	96.7	0.11	0.06
21	7	363	1.9	98.6	0.26	0.10
22	3	366	0.8	99.5	0.11	0.06
23	0	366	0.0	99.5	0.00	0.00
24	1	367	0.3	99.7	0.04	0.04
25	0	367	0.0	99.7	0.00	0.00
26	1	368	0.3	100.0	0.04	0.04



13.63

Figure 6. Length frequency distribution and CPUE for largemouth bass collected during 1.00 hour of diurnal electrofishing (6 runs; each 600s) at Lake Pennyryle on 27 September 2004. (wfdwrpb.d04)

Inch Class	Freq.	Cum Freq.	Cum Perc.	Cum Perc.	CPUE	Std Error
1	0	0	0.00	0.00	0.00	0.00
2	0	0	0.00	0.00	0.00	0.00
3	9	9	5.92	5.92	8.82	1.32
4	34	43	22.37	28.29	33.33	6.20
5	25	68	16.45	44.74	24.51	6.34
6	2	70	1.32	46.05	1.96	1.24
7	1	71	0.66	46.71	0.98	0.98
8	13	84	8.55	55.26	12.75	6.34
9	12	96	7.89	63.16	11.76	4.02
10	19	115	12.50	75.66	18.63	5.56
11	18	133	11.84	87.50	17.65	4.80
12	13	146	8.55	96.05	12.75	4.14
13	4	150	2.63	98.68	3.92	1.96
14	1	151	0.66	99.34	0.98	0.98
15	0	151	0.00	99.34	0.00	0.00
16	1	152	0.66	100.00	0.98	0.98



149.02 21.78 11

Table 1. Species composition, relative abundance, and CPUE (fish/hour) of black bass collected during 10.0 hours of 30-minute diurnal electrofishing runs for black bass in each area of Kentucky Lake during May 2004.

Area	Species	Inch Class																						Total	CPUE	StdErr
		2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				
Blood River	Smallmouth bass					1																	1	0.4	0.2	
	Spotted bass			1	3				2	1	1	2											10	4.0	0.3	
	Largemouth bass	1		5	16	15	6	3	24	26	27	21	17	27	15	11	5	2	2	3	1		227	90.8	6.9	
Big Bear	Smallmouth bass				2	2	1			1	1		1										8	3.2	1.0	
	Spotted bass					1		2		3	2	2	2	1									13	5.2	1.7	
	Largemouth bass	2	5	28	16	5	12	20	26	5	13	19	26	25	14	11	9	4	2	4	1		247	98.8	3.2	
Jonathan	Largemouth bass	1	1	2	9	3	5	17	13	9	19	21	24	26	8	5	4	2		2		171	68.4	3.4		
Sugar Bay	Smallmouth bass			2	1	3	1		3		2	1		1	1								17	6.8	1.1	
	Spotted bass			4				1	2	6	5	1	1										20	8.0	1.6	
	Largemouth bass	4	22	24	12	12	13	29	20	2	15	13	12	17	3	4	1						191	76.4	7.3	
TOTAL	Smallmouth bass	2	3	6	2			3		1	3	1	1	1	1								26	2.6	0.5	
	Spotted bass	5	3	1				3	4	10	8	3	3	2	1								43	4.3	0.6	
	Largemouth bass	1	3	15	68	64	26	33	90	85	43	68	70	89	83	36	25	16	8	5	7	1	836	83.6	2.9	

wfdpsdky.d04

Table 2. Spring diurnal electrofishing CPUE of each size-class of largemouth bass collected at Kentucky Lake during May 2004.

Year	Inch-class									
	< 8.0 inch		8.0 - 11.9 inch		12.0 - 14.9 inch		≥ 15.0 inch		Total	
	CPUE	± 95% CI	CPUE	± 95% CI	CPUE	± 95% CI	CPUE	± 95% CI	CPUE	± 95% CI
1983	3.0	0.0	5.1	0.0	1.3		4.2		16.0	0.0
1984	3.3	2.2	9.2	0.0	6.3	1.4	5.8	1.6	24.6	0.0
1985	6.3	0.0	2.9	0.0	2.0		3.6		15.9	0.0
1986	12.6	3.1	12.1	4.3	10.3	3.9	10.1	2.9	45.1	10.4
1987	36.9	11.4	18.5	5.3	10.1	2.6	11.9	3.5	77.3	17.1
1988	28.9	14.5	38.6	18.6	24.2	8.6	14.3	7.5	106.1	47.4
1989	29.2	12.4	30.0	17.6	23.7	7.6	9.8	3.7	92.8	28.8
1990	6.2	3.1	27.4	6.5	12.5	3.5	14.3	3.5	60.4	11.6
1991	38.5	13.9	14.8	3.3	27.0	4.9	19.4	4.9	99.6	20.2
1992	23.4	9.0	32.4	7.6	17.7	2.7	21.9	3.7	95.4	14.7
1993	33.2	10.6	15.8	3.1	26.9	6.3	31.4	6.3	107.2	18.2
1994	21.0	5.9	25.0	6.3	19.6	3.3	18.4	3.9	84.0	11.2
1995	5.9	2.4	15.3	3.3	19.6	4.9	24.6	4.1	65.4	9.8
1996	11.9	5.1	6.9	1.8	15.6	3.5	27.0	5.1	61.2	9.0
1997	6.7	2.6	7.6	2.2	10.8	3.5	21.4	4.7	46.6	9.2
1998	17.3	3.9	8.2	2.4	9.6	3.3	10.0	3.3	44.8	7.6
1999	18.7	6.5	10.0	3.1	11.4	2.9	11.9	3.3	52.0	9.6
2000	19.4	7.5	13.4	1.8	19.0	3.5	22.5	6.9	74.4	12.2
2001	60.6	14.3	26.3	5.7	12.2	3.1	12.0	2.9	111.0	21.0
2002	32.4	10.6	26.7	4.9	21.8	4.5	12.9	2.2	93.8	11.6
2003	21.8	7.4	24.4	6.5	43.6	10.2	15.6	3.8	105.4	22.3
2004	17.7	5.1	25.1	4.5	22.7	4.2	18.1	3.6	83.6	11.3
Average	20.7		18.0		16.7		15.5		71.0	

(Kentucky/Bass/Database.xls)

Table 3. PSD and RSD values calculated for black bass species collected during spring shoreline electrofishing conducted in each area at Kentucky Lake during May 2004; 95% confidence limits are in parentheses.

Area	Species	No. Fish ≥ 8 in	PSD (+/- 95%)	RSD ^a (+/- 95%)
Big Bear Creek	Smallmouth bass	3	75 (+/- 49)	
	Spotted bass	12	58 (+/- 29)	
	Largemouth bass	191	67 (+/- 7)	36 (+/- 7)
Jonathan Creek	Largemouth bass	156	72 (+/- 7)	30 (+/- 7)
Blood River	Spotted bass	6	50 (+/- 44)	
	Largemouth bass	184	57 (+/- 7)	21 (+/- 6)
Sugar Bay	Smallmouth bass	10	64 (+/- 30)	36 (+/- 30)
	Spotted bass	16	44 (+/- 25)	
	Largemouth bass	129	50 (+/- 9)	19 (+/- 7)
TOTAL	Smallmouth bass	13	67 (+/- 24)	33 (+/- 25)
	Spotted bass	34	50 (+/- 17)	9 (+/- 10)
	Largemouth bass	660	62 (+/- 4)	27 (+/- 3)

^aLargemouth bass = RSD₁₅, Spotted and Smallmouth bass = RSD₁₄

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Table 4. Population assessment determined from largemouth bass based on spring sampling at Kentucky Lake from 2000-2004.

Parameter	2004		2003		2002		2001		2000	
	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score
Length at Age 3	13.7	4	13.7	4	13.7	4	14.4	4	13.9	4
Spring CPUE of Age 1 Fish	12.0	1	30.9	2	35.5	2	73.9	4	21.8	2
Spring CPUE 12-14.9-in Fish	22.7	2	43.6	4	21.8	2	12.2	1	19.1	2
Spring CPUE \geq 15.0-in Fish	18.1	3	15.6	3	12.9	3	12.0	2	22.5	4
Spring CPUE \geq 20-in Fish	1.3	2	1.0	2	0.9	2	0.4	2	1.5	2
Instantaneous Mortality (z)	0.697		0.728		0.873		0.633		0.576	
Annual Mortality (A)%	50.2		51.7		58.2		46.9		43.8	
Total Score	12		15		13		13		14	
Assessment Rating	G		G		G		G		G	

Rating

- 5-7 = Poor (P)
- 8-11 = Fair (F)
- 12-16 = Good (G)
- 17-20 = Excellent (E)

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Table 5. Species composition, relative abundance, and CPUE (fish/hour) of black bass collected during 6.0 hours of 30-minute diurnal electrofishing runs for black bass in each area of Kentucky Lake during October 2004.

Area	Species	Inch Class																			Total	CPUE	StdErr
		2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20			
Blood River	Smallmouth bass	1	6	8				3	2	1	2	2							1		26	8.7	3.5
	Spotted bass	1	6	9	3			2	1	2	3	1	1	1							30	10.0	2.8
	Largemouth bass	2	42	29	14	13	6	3	6	19	15	36	32	26	23	8	8	5			287	95.7	11.1
Jonathan	Smallmouth bass			1							1	1	1							4	1.3	0.7	
	Spotted bass		6	13		1	1	2	2	3	3	7	2	1						41	13.7	4.2	
	Largemouth bass		10	14	16	9	6	7	6	21	38	58	42	32	14	14	9	5	1	3	2	307	102.3
TOTAL	Smallmouth bass	1	7	8				3	2	1	3	1	3						1		30	5.0	2.0
	Spotted bass	1	12	22	3	1	1	4	3	5	6	8	3	2							71	11.8	2.5
	Largemouth bass	2	52	43	30	22	12	10	12	40	53	94	74	58	37	22	17	10	1	3	2	594	99.0

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Table 6. Number of fish and the relative weight (Wr) for each length group of black bass collected at Kentucky Lake during October 2004; standard errors are in parentheses.

Species	Area	Size Range							
		8.0-11.9 in		12.0-14.9 in		> 15.0 in			
		No.	Wr	No.	Wr	No.	Wr		
Largemouth bass	Blood River	43	96 (1.5)	94	91 (1.0)	44	94 (1.4)		
	Jonathan Creek	71	95 (1.0)	132	91 (0.7)	48	96 (1.1)		
	Total	114	96 (0.8)	226	91 (0.6)	92	95 (0.9)		

Species		Size Range							
		7.0-10.9 in		11.0-13.9 in		> 14.0 in			
		No.	Wr	No.	Wr	No.	Wr		
Spotted bass	Blood River	5	104 (2.3)	5	94 (3.8)	1	88		
	Jonathan Creek	8	105 (3.7)	12	99 (2.3)	1	95		
	Total	13	105 (2.4)	17	98 (2.0)	2	92 (3.8)		
Smallmouth bass	Blood River	6	90 (4.9)	4	85 (4.9)	1	67		
	Jonathan Creek			3	74 (3.1)				
	Total	6	90 (4.9)	7	80 (3.6)	1	67		

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Table 7. Summer nocturnal electrofishing CPUE for each length group of smallmouth bass collected at Kentucky Lake.

Year	Inch Group									
	<8.0		8.0-11.9		12.0-14.9		>15.0		Total	
	CPUE	StdErr	CPUE	StdErr	CPUE	StdErr	CPUE	StdErr	CPUE	StdErr
1990	4.2	0.8	10.0	1.2	3.5	0.8	2.5	0.4	20.2	2.2
1991	no sample collected									
1992	17.0	5.9	16.0	30.9	4.3	0.6	3.0	0.9	40.3	8.9
1993	15.6	2.9	17.3	4.5	3.1	0.6	2.6	0.6	38.6	7.0
1994	22.0	4.1	22.7	4.1	4.0	0.9	2.7	0.8	51.4	8.0
1995	30.8	4.3	26.7	3.9	4.1	0.7	2.1	0.6	63.8	7.6
1996	54.1	14.3	21.6	5.8	2.6	0.8	1.1	0.3	79.4	18.6
1997	50.2	10.1	8.9	1.4	2.7	0.8	0.7	0.2	62.6	11.1
1998	68.5	12.5	16.8	3.7	2.3	0.5	0.3	0.2	87.9	15.4
1999	48.8	7.9	23.0	6.9	4.0	1.1	0.3	0.2	76.1	9.9
2000	67.8	8.6	7.2	1.2	2.3	0.9	0.5	0.4	77.8	9.3
2001	83.1	16.7	22.7	2.9	1.3	0.4	0.4	0.4	107.5	15.3
2002	50.7	11.6	14.5	4.0	1.5	0.5	0.5	0.4	67.2	11.5
2003	42.0	15.8	13.4	5.1	2.6	1.1	0.0	0.0	58.0	17.0
2004	20.2	4.6	10.7	2.8	1.0	0.4	0.0	0.0	31.0	5.1
Average	41.1		16.5		2.8		1.2		61.6	

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Table 8. Species composition, relative abundance, and CPUE (fish/het night) of crappie collected by trap nets fished during 116 net nights in each area of Kentucky Lake during October 2004.

Area	Species	Inch Class														Total	CPUE	StdErr
		2	3	4	5	6	7	8	9	10	11	12	13	14	15			
Blood River	White Crappie	2	17		25	125	41	22	23	21	16	4	1	1		298	7.5	1.1
	Black Crappie	7	16	7	181	162	84	66	83	83	42	9	3			743	18.6	1.6
Jonathan Cr.	White Crappie	7	23	3		84	101	45	38	21	14	6	1		1	344	8.6	1.2
	Black Crappie	17	14		159	914	159	272	265	83	15	1				1,899	47.5	4.9
Sledd Cr.	White Crappie	24	22	19	2	1	1	3	4	1	3				80	2.2	0.4	
	Black Crappie	34	31	3	3	23	43	98	73	39	46	4			397	11.0	1.1	
TOTAL	White Crappie	33	62	22	27	210	143	70	65	43	33	10	2	1	1	722	6.2	0.6
	Black Crappie	58	61	10	343	1099	286	436	421	205	103	14	3		3,039	26.2	2.3	

wfdtpntk.d04

Table 9. CPUE for size groups of crappie collected from multiple years of trap netting on Kentucky Lake. Includes mean lengths at capture for age 2 crappie and % of trap netting catch that is age 4 or older (catch excludes age 0 fish).

Year	CPUE \geq 8.0 in			CPUE \geq 10.0 in			Mean Length @ age 2			% Age 4 and Older		
	WC	BC	WC&BC	WC	BC	WC&BC	WC	BC	WC&BC	WC	BC	WC&BC
1985	1.7	0.8	2.5	0.5	0.4	0.9	9.0	8.4	8.4	1.2	5.4	1.6
1986	3.6	2.4	6.1	1.9	1.3	3.2	10.3	10.5	10.6	1.6	0.9	1.3
1987	8.7	1.6	10.4	4.2	0.4	4.6	10.5	9.9	10.5	1.4	1.2	1.4
1988	4.2	0.6	4.9	0.9	0.3	1.3	11.0	10.6	10.5	2.0	0.0	1.7
1989	1.8	0.2	2.0	0.9	0.0	1.0	9.3	9.4	9.9	1.2	0.0	0.9
1990	2.6	0.8	3.4	0.7	0.5	1.2	9.7	10.3	10.6	0.4	0.7	0.4
1991	5.6	0.5	6.1	1.1	0.1	1.2	9.7	8.6	9.4	0.5	0.0	0.4
1992	5.5	1.9	7.4	1.7	0.4	2.1	9.5	8.6	9.3	0.5	0.4	0.5
1993	4.7	1.8	6.5	2.7	0.8	3.5	9.0	8.6	9.7	4.7	8.7	5.6
1994	5.5	0.8	6.3	2.3	0.3	2.6	9.6	8.7	9.4	6.7	13.1	7.9
1995	3.3	1.6	4.9	1.7	0.9	2.6	10.4	9.4	9.9	2.5	2.8	2.7
1996	4.2	3.2	7.4	1.7	0.5	2.2	10.0	9.3	9.7	2.2	1.0	1.6
1997	3.3	5.5	8.8	1.6	0.7	2.3	9.6	8.5	9.0	6.5	4.5	5.2
1998	5.8	11.3	17.1	1.7	1.3	3.0	9.3	9.3	9.3	11.6	7.6	8.6
1999	2.3	12.7	15.0	1.3	1.8	3.1	9.5	8.9	9.1	11.3	8.8	9.2
2000	2.4	10.6	13.0	0.8	2.2	2.9	10.0	8.9	9.4	18.8	6.0	7.6
2001	2.2	12.6	14.8	1.3	3.2	4.5	10.8	9.3	9.8	8.7	8.3	8.3
2002	2.7	8.6	11.3	0.7	4.2	4.9	10.8	9.9	10.4	4.2	9.4	8.3
2003	2.6	6.2	8.8	1.4	1.8	3.1	10.8	9.9	10.4	5.8	4.0	4.2
2004	2.7	11.7	14.4	1.1	3.0	4.1	10.8	9.2	9.7	0.8	0.8	0.8
Average	3.8	4.8	8.6	1.5	1.2	2.7	10.0	9.3	9.8	4.6	4.2	3.9

(Kentucky_Crappie_Database.xls)

Table 10. Proportional stock density (PSD) and relative stock density (RSD10) of white and black crappie collected by trap-nets (116 net-days) at Kentucky Lake during October.

Location	Species	N	PSD	RSD10
Blood River	White Crappie	279	31 (\pm 5)	15 (\pm 4)
	Black Crappie	713	40 (\pm 4)	19 (\pm 3)
Jonathan Creek	White Crappie	311	41 (\pm 6)	14 (\pm 4)
	Black Crappie	1,868	34 (\pm 2)	5 (\pm 1)
Sledd Creek	White Crappie	15	73 (\pm 23)	27 (\pm 23)
	Black Crappie	329	79 (\pm 4)	27 (\pm 5)
Total	White Crappie	605	37 (\pm 4)	15 (\pm 3)
	Black Crappie	2,910	41 (\pm 2)	11 (\pm 1)

Table 11. Mean back-calculated length (in) at each annulus of white crappie collected by fishing trap nets for 116 net days at Kentucky Lake during October 2004.

Year-Class	N	Age							
		1	2	3	4	5	6	7	8
2003	75	4.6							
2002	26	4.4	8.3						
2001	22	4.8	7.9	10.1					
1998	2	4.5	6.9	8.4	9.5	10.6	11.5		
1996	2	4.2	6.6	8.9	10.2	11.5	12.4	13.4	14.4
Mean		4.6	8.0	9.8	9.8	11.0	11.9	13.4	14.4
Number		127	52	26	4	4	4	2	2
Smallest		2.9	5.3	7.5	8.2	9.1	9.9	13.1	14.3
Largest		7.8	10.5	11.4	10.7	12.1	13.2	13.7	14.5
Std. Error		0.1	0.1	0.2	0.6	0.7	0.8	0.3	0.1
Low 95% CI		4.4	7.7	9.5	8.7	9.7	10.4	12.8	14.3
High 95% CI		4.7	8.3	10.1	10.9	12.4	13.4	14.0	14.6

Otoliths were used to make age determinations. Intercept = 0.

wfdtnagk.d04

Table 12. Mean back-calculated length (in) at each annulus of black crappie collected by fishing trap nets for 116 net days at Kentucky Lake during October 2004.

Year-Class	N	Age									
		1	2	3	4	5	6	7	8	9	10
2003	66	4.1									
2002	75	3.8	7.3								
2001	32	4.3	7.6	9.6							
2000	1	3.2	4.9	7.9	9.8						
1999	4	4.7	7.8	9.8	11.0	11.8					
1997	3	4.6	6.9	8.4	9.6	10.7	11.5				
1994	1	4.0	6.6	7.9	8.9	9.5	9.8	10.1	10.6	11.1	11.5
Mean		4.1	7.4	9.4	10.2	11.1	11.1	10.1	10.6	11.1	11.5
N		182	116	41	9	8	4	1	1	1	1
Smallest		2.7	4.9	7.8	8.9	9.5	9.8				
Largest		7.3	9.2	11.3	11.6	12.4	12.5				
Std. Error		0.1	0.1	0.1	0.3	0.4	0.6				
Low 95% CI		4.0	7.2	9.2	9.6	10.4	10.0				
High 95% CI		4.2	7.5	9.7	10.8	11.8	12.2				

Otoliths were used to make age determinations. Intercept = 0.

wfdtnagk.d04

Table 13. Age frequencies and CPUE of white crappie collected in trap nets fished for 116 net days in Kentucky Lake during October 2004. Age data was obtained using otoliths.

Age	Inch Class															Total	%	CPUE	StdErr
	2	3	4	5	6	7	8	9	10	11	12	13	14	15					
0	33	62	22	8												125	17.3	1.08	0.18
1				19	210	143	63	46	18	1						500	69.3	4.32	0.51
2							7	19	9	16	5					56	7.8	0.48	0.07
3									14	16	5	1				36	5.0	0.30	0.05
6									2			1				3	0.4	0.03	0.01
8													1	1		2	0.3	0.02	0.01
Total	33	62	22	27	210	143	70	65	43	33	10	2	1	1		722			
%	5	9	3	4	29	20	10	9	6	5	1	0	0	0			100		

wfdtpntk.d04, wfdtnagk.d04

Table 14. Age frequencies and CPUE of black crappie collected in trap nets fished for 116 net days in Kentucky Lake during October 2004. Age data was obtained using otoliths.

Age	Inch Class													Total	%	CPUE	StdErr		
	2	3	4	5	6	7	8	9	10	11	12	13							
0	58	61	3	25												147	4.8	1.27	0.16
1			7	318	1,038	169	201	84	16	3						1,836	60.4	15.84	1.84
2					61	117	235	303	110	42	2					870	28.6	7.50	0.66
3								34	79	42	8					163	5.4	1.40	0.13
4										4						4	0.1	0.03	0.00
5											4	2				6	0.2	0.05	0.02
6										8		1				9	0.3	0.07	0.01
10										4						4	0.1	0.03	0.00
Total	58	61	10	343	1,099	286	436	421	205	103	14	3				3,039			
%	2	2	0	11	36	9	14	14	7	3	0	0					100		

wfdtpntk.d04, wfdtnagk.d04

Table 15. Population assessment determined from crappie based on fall trap netting at Kentucky Lake from 2000-2004, table 15a - white crappie and table 15b - black crappie.

Parameter	2004		2003		2002		2001		2000	
	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score
CPUE of crappie (excluding age 0)	39.43	4	24.08	4	18.98	3	26.50	4	21.44	3
CPUE of age 1 crappie	24.80	4	17.86	4	13.10	4	12.01	4	8.56	3
CPUE of age 0 crappie	1.63	1	15.86	4	3.77	2	51.28	4	1.75	1
CPUE of crappie \geq 8 inches	14.38	4	8.75	3	11.34	4	14.76	4	12.96	4
Mean age-2 length at capture	9.7	4	10.4	4	10.4	4	9.8	4	9.4	3
Instantaneous Mortality (Z)	0.649		0.709		0.673		0.836		0.885	
Annual Mortality (A)%	47.7		50.8		49.0		56.7		58.7	
Total Score	17		19		17		20		14	
Assessment Rating	G		E		G		E		G	

Table 15-a. White Crappie

Parameter	2004		2003		2002		2001		2000	
	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score
CPUE of crappie (excluding age 0)	7.38	2	3.75	1	3.85	1	3.91	1	2.80	1
CPUE of age 1 crappie	6.20	2	2.34	1	3.30	2	2.34	1	1.01	1
CPUE of age 0 crappie	0.65	1	10.46	4	0.71	1	26.76	4	0.45	1
CPUE of crappie \geq 8 inches	2.71	2	2.55	2	2.74	2	2.21	2	2.38	2
Mean age-2 length at capture	10.8	4	10.8	4	10.8	4	10.8	4	10.0	4
Instantaneous Mortality (Z)	0.517		0.255		0.360		0.226		0.423	
Annual Mortality (A)%	40.4		22.5		43.3		20.3		34.5	
Total Score	11		12		10		12		9	
Assessment Rating	F		F		F		F		F	

Table 15-b. Black Crappie

Parameter	2004		2003		2002		2001		2000	
	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score
CPUE of crappie (excluding age 0)	32.05	4	20.33	3	15.14	3	22.59	4	18.63	3
CPUE of age 1 crappie	18.60	4	15.53	4	9.80	3	9.67	3	7.56	3
CPUE of age 0 crappie	0.98	1	5.40	2	3.06	2	24.52	4	1.31	1
CPUE of crappie \geq 8 inches	11.67	4	6.20	3	8.60	3	12.55	4	10.57	3
Mean age-2 length at capture	9.20	3	9.90	4	9.90	4	9.30	3	8.90	2
Instantaneous Mortality (Z)	0.685		0.748		0.716		0.915		0.917	
Annual Mortality (A)%	49.6		52.7		51.1		60.0		60.0	
Total Score	16		16		15		18		12	
Assessment Rating	G		G		G		E		G	

Rating

- 5 - 7 = Poor (P)
- 8 - 12 = Fair (F)
- 13 - 17 = Good (G)
- 18 - 20 = Excellent (E)

WFDTPNTK.D04, WFDTPNTK.D03, WFDTPNTK.D02, WFDTPNTK.D01, WFDTPNTK.D00

Table 16. Annual mortality (A) and CPUE of five year classes estimated from crappie captured in trap nets at Kentucky Lake during October 2003 and 2004.

Year	Age			
Class	Intervals	CPUE (2003)	CPUE (2004)	Mortality of Cohort (%)
2002	1+ - 2+	11.98	1.56	33
2001	2+ - 3+	3.48	2.34	33
2000	3+ - 4+	1.56	0.08	95
1999	4+ - 5+	0.65	0.10	85
1998	5+ - 6+	0.36	0.18	52

WFDTPNTK.D03, WFDTNAGK.D03, WFDTPNTK.D04, WFDTNAGC.D04

Table 17. Age frequencies and CPUE of redear sunfish collected in trap nets fished for 87 net days in Kentucky Lake during October 2004. Age data was obtained using otoliths.

Age	Inch Class										Total	%	CPUE	StdErr
	2	3	4	5	6	7	8	9	10	11				
0	4	12									16	25.4	0.18	0.08
1			1	8							9	14.3	0.10	0.03
2					4	3	1				8	12.7	0.09	0.02
3						6	2	4			12	19.0	0.15	0.03
4						4	3		2		9	14.3	0.10	0.02
5						3	3				6	9.5	0.07	0.01
6								2			2	3.2	0.02	0.01
Total	4	12	1	8	4	16	9	6	2	1	63			
%	6	19	2	13	6	25	14	10	3	2		100		

wfdtpntk.d04, wfdreagk.d04

Table 18. Mean back-calculated length (in) at each annulus of reardear sunfish collected in trap nets fished for 87 net days at Kentucky Lake during October 2004.

Year-Class	N	Age					
		1	2	3	4	5	6
2003	3	3.3					
2002	4	3.7	6.0				
2001	9	3.8	6.2	7.7			
2000	8	4.0	5.9	7.3	8.1		
1999	5	3.6	5.6	6.4	7.0	7.4	
1998	1	3.2	6.2	7.3	8.3	8.8	9.2
Mean		3.7	6.0	7.3	7.7	7.7	9.2
Number		30	27	23	14	6	1
Smallest		3.0	5.0	5.8	6.2	6.6	
Largest		4.8	7.0	8.9	10.0	8.8	
Std. Error		0.1	0.1	0.2	0.3	0.4	
Low 95% CI		3.5	5.8	6.9	7.2	7.0	
High 95% CI		3.9	6.2	7.6	8.3	8.4	

Otoliths were used to make age determinations. Intercept = 0.

wfdreagk.d04

Table 19. Length frequency and CPUE (fish/trotline) of blue and channel catfish collected from Kentucky Lake in May 2004 using 5 100-hook trotlines baited with green sunfish for 3 line nights.

Species	Inch-Class														Total	CPUE	Std. Error													
	14	15	16	17	18	19	20	21	22	23	24	25	26	27				28	29	30	31	32	33	34	35	36	37	38	39	40
Blue catfish	1	2	2	2	2	2	6	11	15	13	14	15	9	8	8	1	2	1	1	1	1						1	115	7.7	1.2
Channel catfish	3	1	2	5	2	1	10	12	11	14	12	6	7	2	2													90	5.9	1.0

(wftcfl.d04)

Table 20. Relative weight (Wr) of each length-class of blue and channel catfish collected at Kentucky Lake during May 2004. Fish were collected using trotlines (totaling 15 trotline-nights).

Species	12.0 - 19.9 in.			20.0 - 29.9 in.			≥ 30.0 in.			Total		
	N	Wr	Error	N	Wr	Error	N	Wr	Error			
Blue Catfish	9	110.1	9.38	100	110.2	1.6	6	116.4	3.26	115	110.5	1.56
Channel Catfish	11.0 - 15.9 in.			16.0 - 23.9 in.			> 24.0 in.			Total		
	N	Wr	Error	N	Wr	Error	N	Wr	Error			
	3	109.4	9.92	44	109.3	2.58	42	99.7	1.94	89	104.8	1.66

wftcflk.d04

Table 21. Mean back-calculated length (in.) at each annulus of blue catfish collected by trotline for 15 line-nights at Kentucky Lake during May 2004, including the range in length of channel catfish at each age and the 95% confidence interval of each age group.

Year-Class	N	Age										
		1	2	3	4	5	6	7	8	9	10	
2001	2	6.0	11.9	16.1								
2000	9	6.5	11.5	15.4	20.0							
1999	14	6.0	10.6	14.5	17.9	21.8						
1998	17	6.1	10.4	14.7	18.2	21.4	25.0					
1997	8	5.6	10.2	14.8	18.1	21.2	23.8	26.9				
1996	3	4.8	8.9	13.3	17.2	21.2	24.0	26.5	28.9			
1995	1	4.6	7.9	13.2	16.5	20.5	23.1	26.4	29.7	33.0		
1994	1	5.5	11.0	15.7	18.1	20.4	23.6	26.0	28.3	32.2	34.6	
Mean		5.9	10.5	14.7	18.3	21.5	24.5	26.7	29.0	32.6	34.6	
Number		55	55	55	53	44	30	13	5	2	1	
Smallest		2.7	5.3	9.0	12.7	15.9	21.4	24.5	27.6	32.2		
Largest		10.4	15.4	19.3	23.5	25.3	27.6	28.8	30.5	33.0		
Std. Error		0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.5	0.4		
Low 95% CI		5.6	10.0	14.2	17.8	20.9	23.9	26.0	28.0	31.9		
High 95% CI		6.3	11.1	15.3	18.8	22.0	25.0	27.4	30.0	33.4		

Otoliths were used to make age determinations. Intercept = 0.

wfdcfllk.d04

Table 22. Age frequencies and CPUE of blue catfish collected from Kentucky Lake in May 2004 using 5 100-hook trotlines baited with green sunfish for 3 line nights. Age data was obtained using otoliths.

Age	Inch Class															Total	%	CPUE	StdErr			
	15	16	17	18	19	20	21	22	23	24	25	26	27	28	30					33	34	
3	1																	1	0.9	0.1	0.1	
4			2	2	2	2	4		3									15	13.5	1.0	0.3	
5	1					5	4	15	3	2	2							32	28.8	2.1	0.4	
6							2		8	9	11	9	3					42	37.8	2.8	0.5	
7										2	2		4	5				13	11.7	0.9	0.2	
8													1	3	2			6	5.4	0.4	0.1	
9																1		1	0.9	0.1	0.1	
10																	1	1	0.9	0.1	0.1	
Total	2	0	2	2	2	7	10	15	14	13	15	9	8	8	2	1	1	111				
%	2	0	2	2	2	6	9	14	13	12	14	8	7	7	2	1	1		100			

wfdcfllk.d04, wfdcfagk.d04

Table 23. Mean back-calculated length (in.) at each annulus of channel catfish collected by trotline for 15 line-nights at Kentucky Lake during May 2004, including the range in length of channel catfish at each age and the 95% confidence interval of each age group.

Year-Class	N	Age								
		1	2	3	4	5	6	7	8	9
2001	2	7.4	11.9	16.8						
2000	2	5.6	11.2	14.8	18.8					
1999	3	7.1	11.9	15.9	19.1	21.8				
1998	19	5.9	10.6	14.2	17.2	20.5	23.5			
1997	7	5.1	8.2	11.5	14.5	17.5	20.1	23.0		
1996	6	5.0	8.1	10.9	13.5	16.1	18.3	20.2	22.7	
1995	3	4.5	8.6	11.2	13.5	16.2	18.6	20.8	22.6	24.9
Mean		5.7	9.9	13.3	16.1	19.0	21.5	21.6	22.6	24.9
Number		42	42	42	40	38	35	16	9	3
Smallest		2.3	5.0	7.3	9.5	11.8	13.4	15.1	16.4	17.7
Largest		9.5	14.2	17.9	20.9	24.4	27.7	28.0	27.1	30.1
Std. Error		0.2	0.4	0.5	0.5	0.6	0.7	1.1	1.3	3.7
Low 95% CI		5.2	9.2	12.4	15.1	17.9	20.3	19.5	20.1	17.6
High 95% CI		6.2	10.6	14.2	17.1	20.1	22.8	23.6	25.2	32.2

Otoliths were used to make age determinations. Intercept = 0.

wfdcfllk.d04

Table 24. Age frequencies and CPUE of channel catfish collected from Kentucky Lake in May 2004 using 5 100-hook trotlines baited with green sunfish for 3 nights. Age data was obtained using otoliths.

Age	Inch Class												Total	%	CPUE	StdErr		
	15	16	17	18	19	20	21	22	23	24	25	26					27	28
3	3		1												4	4.5	0.2	0.1
4				3	1										4	4.5	0.2	0.1
5					1		3	4							8	9.1	0.5	0.1
6						4	9	7	10	6	2	4			42	47.7	3.1	0.5
7		1		2		3				3	3		2		14	15.9	0.9	0.3
8			1			1	3		4	3			2		14	15.9	0.8	0.2
9												2			2	2.3	0.1	0.0
Total	3	1	2	5	2	1	10	12	11	14	12	7	6	2	88			
%	3	1	2	6	2	1	11	14	13	16	14	8	7	2	100			

wfdcfllk.d04, wfdcfagk.d04

Table 25. Fishery statistics derived from a creel survey at Kentucky Lake (51,000 a) from 1 March through 31 October 2004.

Fishing Trips		
No. of fishing trips (per acre)	376,210	(7.4)
Fishing Pressure		
Total angler-hours (S.E.)	1,351,675	(44,765)
Angler-hours/acre	26.5	
Catch / Harvest		
No. of fish caught (S.E.)	1,629,699	(128,615)
No. of fish harvested (S.E.)	670,166	(66,162)
Lb of fish harvested	469,215	
Harvest Rates		
Fish/hour	0.48	
Fish/acre	13.14	
Pounds/acre	9.20	
Catch Rates		
Fish/hour	1.24	
Fish/acre	31.95	
Miscellaneous Characteristics (%)		
Male	83.11	
Female	16.89	
Resident	55.27	
Non-resident	44.73	
Method (%)		
Still fishing	30.77	
Casting	40.16	
Trolling	1.38	
Fly Rod	0.10	
Spider Rig	5.21	
Crappie Casting	7.93	
Crappie Still fishing	14.44	
Mode (%)		
Boat	87.29	
Bank	8.30	
Dock	4.41	

Table 26. Fish harvest statistics derived from a creel survey at Kentucky Lake (51,000 a) from 1 March - 31 October 2004.

	Black bass group	Large-mouth bass	Smallmouth bass	Spotted bass	Croaker group	White crappie	Black crappie	Catfish group	Channel catfish	Fathead catfish	Blue catfish	Bullhead	Panfish group	Bluegill	Rodeo sunfish	Longear sunfish	Warmouth	Green sunfish	Sauger	Yellow perch
No. caught (per acre)	393,577 (7.72)	344,737 (6.76)	35,118 (0.69)	13,722 (0.27)	355,473 (6.97)	238,276 (4.67)	117,197 (2.30)	69,731 (1.37)	50,798 (1.00)	2,091 (0.04)	16,615 (0.33)	227	610,456 (11.97)	499,850 (9.80)	54,190 (1.06)	50,077 (0.98)	3,382 (0.07)	2,957 (0.06)	8,179 (0.16)	10244 (0.20)
No. harvested (per acre)	31,236 (0.61)	27,256 (0.53)	2,930 (0.06)	1,050 (0.02)	190,805 (3.74)	128,716 (2.52)	62,089 (1.22)	55,206 (1.08)	42,129 (0.83)	1,590 (0.03)	11,259 (0.22)	227	333,850 (6.55)	272,598 (5.35)	46,930 (0.92)	11,578 (0.23)	473 (0.01)	2,271 (0.05)	1,605 (0.03)	4,944 (0.10)
% of total no. harvested	4.66	4.07	0.44	0.16	28.47	19.21	9.26	8.24	6.29	0.24	1.68	0.03	49.82	40.68	7.00	1.73	0.07	0.24	0.24	0.74
L.b. harvested (per acre)	69,080 (1.36)	61,277 (1.20)	6,891 (0.14)	912 (0.02)	149,572 (2.93)	102,457 (2.01)	47,115 (0.92)	131,748 (2.58)	89,501 (1.76)	4,475 (0.09)	37,632 (0.74)	140	90,596 (1.78)	63,326 (1.25)	25,110 (0.49)	1,376 (0.03)	113	172	1,581 (0.03)	1,739 (0.03)
% of total lb. harvested	14.72	13.06	1.47	0.19	31.88	21.84	10.04	28.08	19.07	0.95	8.02	0.03	19.31	13.60	5.35	0.29	0.02	0.04	0.34	0.37
Mean length (in)		16.2	17.4	12.8		11.7	11.2		19.5	20.3	20.7	11.0		7.1	9.2	5.8	6.9	5.6	15.0	9.3
Mean weight (lb)		2.21	2.50	0.90		0.78	0.77		2.37	3.59	3.30	0.56		0.22	0.55	0.12	0.24	0.13	1.08	0.38
No. of fishing trips for that species	175,359				118,696			40,059					67,335						619	
% of all trips	33.3				31.6			10.6					17.9						0.2	
Hours fished for that species (per acre)	450,399 (8.83)				426,460 (8.36)			143,926 (2.82)					241,925 (4.74)						2,225 (0.04)	
No. harvested fishing for that species	28,698				187,488			41,511					290,168						349	
L.b. harvested fishing for that species	63,959				146,640			103,639					78,920						301	
No./hour harvested fishing for that species	0.06				0.47			0.34					1.35						0.14	
% success fishing for that species	12.7				47.6			35.8					44.8						50.0	
for that species																				

t = < 0.005

Table 26 (cont'd.). Fish harvest statistics derived from a creel survey at Kentucky Lake (51,000 a) from 1 March-31 October 2004.

	Morene Group	White bass	Striped bass	Yellow bass	Hybrid Striped bass	Pickrel	Drum	Skate	Shad	Gar	Golden Shiner	Illegal bass	Illegal H. Striped bass	Illegal Bl. Crappie	Illegal Wh. Crappie	Hybrid Sunfish	Anything
No. caught (per acre)	139,378 (2.73)	37,586 (0.74)	2,489 (0.05)	99,078 (1.94)	225 t	1,144 (0.02)	29,563 (0.58)	7,350 (0.14)	269 (0.01)	397 (0.01)	1,511 (0.03)	880 (0.02)	121 t	949 (0.02)	422 (0.01)	55 t	
No. harvested (per acre)	46,842 (0.92)	17,979 (0.35)	849 (0.02)	28,015 (0.55)		1,341 (0.03)	1,307 (0.03)	672 (0.01)			672 (0.01)	880 (0.02)	121 t	949 (0.02)	354 (0.01)	55 t	
% of total no. harvested	6.99	2.68	0.13	4.18		0.20	0.20	0.20			0.10	0.13	0.02	0.14	0.05	0.01	
Lb. harvested (per acre)	21,737 (0.43)	12,985 (0.26)	1,904 (0.04)	6,848 (0.13)		1,444 (0.03)	254 (0.01)	254 (0.01)			104.40 (0.02)	927.2 (0.02)	104.40 t	308.8 (0.01)	132.4 t		
% of total lb. harvested	4.63	2.77	0.41	1.46		0.31	0.05	0.05			8.3	0.20	0.02	0.06	0.03		
Mean length (in)		11.7	17.9	8.4		14.1	9.5					12.4	12.0	9.0	9.0	8.0	
Mean weight (lb)		0.70	2.36	0.23		1.36	0.32					0.97	0.86	0.32	0.37		
No. of fishing trips for that species	5,848																18,295
% of all trips	1.6																4.9
Hours fished for that species (per acre)	21,010 (0.41)																65,730 (1.29)
No. harvested fishing for that species	24,974																
Lb. harvested fishing for that species	13,867																
No./hour harvested fishing for that species	1.56																
% success fishing for that species	55.1																19.4

t = < 0.005

Table 27. Length distribution for each species of fish harvested or released (lengths of released fish are estimated) at Kentucky Lake (51,000 a) from the 1 March to 31 October, 2004 creel survey.

Species	Inch Class																								
	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
White crappie	H								24,931	41,862	37,559	13,595	6,064	4,304	391										
Black crappie	R	586	4,021	6,702	19,435	16,084	23,875	32,070	2,955	1,200	92	309	92			278									
Longear sunfish	R	218	1,817	2,689	9,738	3,997	14,098	18,383	1,008	1,814	1,075	134													
Smallmouth bass	R								32,730	8,918	73,896	54,171	76,559	18,068	16,736	9,758	5,376	2,840	2,333	1,014	507	203	84	203	203
Spotted bass	R								922	6,454	1,593	6,790	3,437	3,039	1,112	1,482	556	834	463	648	93				92
Blingill	R								89	3,034	982	3,034	2,231	1,785	268	178	89								89
Redear sunfish	R	201	6,634	34,274	89,353	120,136	90,822	7,770																	
Longear sunfish	R								401	10,453	10,164	13,552	13,301	5,270	1,004										
Warmouth	R								736	842	1,789	1,263	947	736	421	104									
Green sunfish	R								4,038	8,808	20,882	4,652	98												
Channel catfish	R								94	751	1,032	469	469	94											
Blue catfish	R								395	296	889	494	196												
Flathead catfish	R								392	196	98														
Bullhead	R								97	97	877	97	1,948	584	779	97	779	195	195	97	292	487	487	195	590
White bass	R								64	1,086	447	3,060	2,746	4,471	2,108	2,363	511	1,150	319	192	64	64	62	62	62
Striped bass	R																								
Hybrid striped bass	R																								
Yellow bass	R																								
Sauger	R								71	71	1,277	4,043	18,014	8,440	10,213	5,248	851	284	140						
Yellow perch	R																								
Pickeral	R																								
Drum	R																								
Striped bass	R																								
Gar	R																								
Stead	R																								
Golden shiner	R																								
Other species	R																								
Illegal Black bass	H																								
Illegal H. Striped bass	H																								
Illegal B. Crappie	H																								
Illegal W. Crappie	H																								

Table 27 (cont'd). Length distribution for each species of fish harvested or released (lengths of released fish are estimated) at Kentucky Lake (51,000 a) from the 1 March to 31 October 2004 creel survey.

Species	Inch Class														Total								
	27	28	29	30	31	32	33	34	35	36	37	38	39	40		41	42	44	45	46	47	48	
White crappie	H																						128,716
R																							109,559
Black crappie	H																						62,088
R																							55,107
Largemouth bass	H																						27,255
R																							317,481
Smallmouth bass	H																						2,930
R																							32,187
Spotted bass	H																						1,050
R																							12,671
Bluegill	H																						272,598
R																							227,252
Redear sunfish	H																						46,930
R																							7,259
Longear sunfish	H																						11,577
R																							38,498
Warmouth	H																						473
R																							2,989
Green sunfish	H																						2,270
R																							686
Clarend cutfish	H	1,038									105												82,129
R																							8,668
Blue catfish	H	375	150	75	75	76																	11,259
R																							5,356
Fathead catfish	H	114	74	75	75	111																	1,590
R																							500
Bullhead	H																						227
R																							19,607
White bass	H																						848
R																							1,639
Striped bass	H																						224
R																							28,014
Hybrid striped bass	H	69	67																				71,083
R																							1,605
Yellow bass	H																						6,572
R																							4,943
Sauger	H																						5,300
R																							1,144
Yellow perch	H																						1,380
R																							28,221
Pickered Drum	H																						1,306
R																							6,043
Skipped herring	H																						397
R																							269
Gar	H																						241
R																							484
Shad	H																						839
R																							120
Golden shiner	H																						948
R																							421
Other species	H																						879
R																							120
Illegal B. bass	H																						948
Illegal H. Striped bass	H																						421
Illegal B. Crappie	H																						879
Illegal W. Crappie	H																						120

Table 28. Black bass catch and harvest statistics derived from the 1 March to 31 October 2004 creel survey at Kentucky Lake (51,000 a).

Inches	Largemouth bass			Smallmouth bass			Spotted bass		
	Harvest	Catch & release 12-14.9 >15	Total	Harvest	Catch & release 12-14.9 >15	Total	Harvest	Catch & release 12-14.9 >15	Total
Total no. of bass	27,256	204,728	344,737	2,930	14,166	35,118	1,050	7,050	13,722
% of bass harvested by no.	87.3			9.4			3.4		
Total weight of bass (lb)	61,277	193,454	441,501	6,891	9,212	37,446	912	5,229	10,311
% of bass harvested by weight	88.7			10.0			1.3		
Mean length(in)	16.2			17.4			12.8		
Mean weight(lb)	2.21			2.50			0.90		
Rate (f/hr)	0.023			0.002			0.001		

Table 29. Monthly black bass angling success at Kentucky Lake during the 2004 creel survey.

Month	Total no. of bass caught	Total no. of bass harvested	No. of black bass fishing trips	Hours fished by bass anglers	Bass caught by bass anglers	Bass		
						caught/hour by bass anglers	harvested by bass anglers	Bass harvested/hour by bass anglers
Mar	15,331	2,824	7,771	27,919	11,698	0.34	2,362	0.07
Apr	63,101	5,440	20,340	73,079	55,174	0.64	5,129	0.06
May	113,525	6,166	29,633	106,468	107,118	0.81	5,441	0.04
Jun	101,225	6,925	32,617	117,188	96,511	0.67	6,483	0.05
Jul	21,465	2,422	9,580	34,421	20,388	0.50	2,422	0.06
Aug	20,217	1,301	5,532	19,877	15,448	0.70	921	0.04
Sept	29,859	3,024	8,828	31,720	26,559	0.67	3,024	0.08
Oct	28,856	3,134	11,057	39,728	27,027	0.62	2,916	0.07
Total	393,577	31,236	125,359	450,399	359,923		28,698	
Mean						0.64		0.06

Table 30. Monthly crappie angling success at Kentucky Lake during the 2004 creel survey.

Month	Total no. of crappie caught	Total no. of crappie harvested	No. of crappie fishing trips	Hours fished by crappie anglers	Crappie caught by crappie anglers	Crappie		
						caught/hour by crappie anglers	harvested by crappie anglers	Crappie harvested/hour by crappie anglers
Mar	53,542	27,145	21,918	78,749	52,274	0.70	26,627	0.36
Apr	166,766	106,463	66,105	237,506	166,611	0.71	106,307	0.45
May	37,963	17,772	11,986	43,066	34,458	0.89	16,201	0.42
Jun	8,841	2,947	2,940	10,563	6,924	1.04	2,799	0.42
Jul	7,334	1,817	918	3,297	6,661	2.40	1,547	0.56
Aug	7,480	813	916	3,293	6,450	1.60	597	0.15
Sept	35,248	13,087	5,353	19,232	34,094	1.93	12,868	0.73
Oct	38,300	20,760	8,559	30,753	37,690	1.26	20,542	0.69
Total	355,473	190,804	118,695	426,459	345,162		187,488	
Mean						0.93		0.47

Table 31. Crappie catch and harvest statistics derived from the 1 March to 31 October 2004 creel survey at Kentucky Lake (51,000 a).

	White Crappie		Black Crappie		Total
	Harvested	Caught & released 8-9.9 in > 10 in	Harvested	Caught & released 8-9.9 in > 10 in	
Total no. of crappie	128,716	56,545	62,089	32,484	117,197
% of crappie harvested by number	67.5		32.5		
Total weight of crappie (lb)	102,457	9,074	47,115	6,554	60,526
% of crappie harvested by weight	68.5		31.5		
Mean length (in)	11.7		11.2		
Mean weight (lb)	0.78		0.77		
Rate (f/hr)	0.30		0.15		

Table 32. Monthly panfish angling success at Kentucky Lake during the 2004 creel survey.

Month	Total no. of panfish caught	Total no. of panfish harvested	No. of panfish fishing trips	Hours fished by panfish anglers	Panfish caught by panfish anglers	Panfish caught/ hour by panfish anglers	Panfish harvested by panfish anglers	Panfish harvested/ hour by panfish anglers
Mar	3,227	1,787	911	3,273	520	0.27	231	0.12
Apr	62,634	36,524	6,393	22,968	35,279	1.96	26,576	1.48
May	341,906	209,157	32,630	117,235	291,853	2.79	188,846	1.81
Jun	109,329	55,401	15,527	55,788	91,795	1.88	49,065	1.01
Jul	30,548	8,949	3,891	13,980	23,886	2.30	8,074	0.78
Aug	29,377	11,707	4,141	14,877	24,661	2.15	10,407	0.91
Sept	19,246	2,969	2,477	8,899	11,329	2.26	1,485	0.30
Oct	14,188	7,355	1,366	4,906	9,793	3.17	5,484	1.78
Total	610,456	333,850	67,335	241,925	489,116		290,168	
Mean						2.41		1.35

Table 33. Monthly catfish angling success at Kentucky Lake during the 2004 creel survey.

Month	Total no. of catfish caught	Total no. of catfish harvested	No. of catfish fishing trips	Hours fished by catfish anglers	Catfish caught by catfish anglers	Catfish caught/ hour by catfish anglers	Catfish harvested by catfish anglers	Catfish harvested/ hour by catfish anglers
Mar	519	346	482	1,733	231	0.16	231	0.16
Apr	5,595	5,284	3,196	11,484	1,243	0.27	1,243	0.27
May	26,719	22,367	14,761	53,035	20,431	0.42	17,409	0.36
Jun	16,945	12,819	10,566	37,962	11,049	0.36	9,724	0.32
Jul	5,787	4,105	4,698	16,881	4,979	0.35	3,566	0.25
Aug	2,710	2,276	2,206	7,926	2,276	0.26	1,951	0.22
Sept	8,193	5,224	3,116	11,195	7,314	0.66	4,949	0.44
Oct	3,264	2,785	1,032	3,710	2,612	0.70	2,438	0.65
Total	69,731	55,205	40,058	143,926	50,135		41,511	
Mean						0.43		0.34

Table 34. Monthly *Morones* angling success at Kentucky Lake during the 2004 creel survey.

Month	Total no. of <i>Morones</i> caught	Total no. of <i>Morones</i> harvested	No. of <i>Morones</i> fishing trips	Hours fished by <i>Morones</i> anglers	<i>Morones</i> caught by anglers	<i>Morones</i> caught/ hour by anglers	<i>Morones</i> harvested by anglers	<i>Morones</i> harvested/ hour by anglers
Mar	12,103	4,092	161	578	461	1.51		
Apr	23,158	3,730						
May	7,012	4,111	555	1,994	3,385	1.70	3,264	1.64
Jun	16,797	3,978	1,654	5,942	5,304	1.46	1,768	0.49
Jul	20,253	10,699	1,542	5,539	11,844	1.71	10,632	1.53
Aug	13,767	8,618	984	3,536	7,045	3.10	5,582	2.46
Sept	21,610	5,609	719	2,583	6,544	3.73	2,640	1.50
Oct	24,677	6,006	233	838	1,654	2.50	1,088	1.64
Total	139,378	46,842	5,848	21,010	36,237		24,974	
Mean						2.24		1.56

Table 35. Monthly sauger angling success at Kentucky Lake during the 2004 creel survey.

Month	Total no. of sauger caught	Total no. of sauger harvested	No. of sauger fishing trips	Hours fished by sauger anglers	Sauger caught by anglers	Sauger caught/ hour by anglers	Sauger harvested by anglers	Sauger harvested/ hour by anglers
Mar								
Apr	1,865	155						
May	967	363						
Jun	3,094	737	551	1,981	1,179	0.50	295	0.13
Jul	269	67						
Aug	217	54	68	244	54	0.21	54	0.21
Sept	330	55						
Oct	1,436	174						
Total	8,178	1,605	619	2,225	1,233		349	
Mean						0.43		0.14

Table 36. PSD and RSD values obtained for each black bass species collected during 10.0 hours (20 runs; each 0.50 hours) of spring diurnal electrofishing at each area of Lake Barkley from 26-29 April 2004. 95% confidence intervals are in parentheses. (wfdpsdb.j04)

Area	Species	No. fish \geq 8.0		
		inch	PSD (\pm 95% CI)	RSD ^A (\pm 95% CI)
Upper ¹	Largemouth bass	189	55 (7)	19 (5)
	Spotted bass	19	58 (23)	5 (10)
	Smallmouth bass	1	*	*
Middle ²	Largemouth bass	469	61 (4)	30 (4)
	Spotted bass	5	20 (39)	*
	Smallmouth bass	2	*	*
Lower ³	Largemouth bass	291	52 (6)	24 (5)
	Spotted bass	4	50 (56)	*
	Smallmouth bass	0		
Total	Largemouth bass	949	57 (3)	26 (2)
	Spotted bass	28	50 (11)	4 (7)
	Smallmouth bass	3	*	*

^A Largemouth bass = RSD₁₅, spotted bass and smallmouth bass = RSD₁₄.

¹ Upper Lake Barkley samples consisted of Demumbers Bay, Nickel Branch, and Willow Creek.

² Middle Lake Barkley samples consisted of Little River and Eddy Creek.

³ Lower Lake Barkley samples consisted of Donaldson Creek, Fords Bay, and Terrapin Creek.

* No fish of sufficient size were collected during sampling.

Table 37. Species composition, relative abundance, and CPUE (fish/hour) of black bass collected during 10.0 hours of diurnal electrofishing (20 runs; each 0.50 hours) in each area of Lake Barkley from 26-29 April 2004. (wfdpsdb.d04)

Area	Species	Inch-Class																				Total	CPUE	Std. Error	
		3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				
Upper																									
Nickel Branch	Largemouth bass				2	2	5	7	2	2	2	10	4	2		1	1		2		42	84.0	0.0		
	Spotted bass						2	1													3	6.0	0.0		
	Smallmouth bass								1												1	2.0	0.0		
Willow Creek	Largemouth bass			2		2	2	8	13	3	5	4	10	3	2	2		1			55	110.0	0.0		
	Spotted bass						1	2		1											4	8.0	0.0		
	Smallmouth bass																				0	0.0	0.0		
Demumbers Bay	Largemouth bass		1	8	6	3	10	14	12	7	5	10	18	9	5	3	3		2		116	77.3	6.4		
	Spotted bass		1	1			1		1	2	6	1	1								14	9.3	8.4		
	Smallmouth bass		1																		1	0.7	0.7		
Middle																									
Little River	Largemouth bass			13	15	5	14	33	45	5	19	27	21	25	17	15	5	3	2	3	267	106.8	11.0		
	Spotted bass						1	1		1											3	1.2	1.2		
	Smallmouth bass								1												1	0.4	0.4		
Eddy Creek	Largemouth bass		1	8	9	5	9	29	27	21	18	29	32	26	15	8	13	5	1	2	258	103.2	6.3		
	Spotted bass							1			1										2	0.8	0.8		
	Smallmouth bass								1												1	0.4	0.4		
Lower																									
Donaldson Creek	Largemouth bass		1	2	4	2	8	12	17	18	8	11	11	10	6	10	6	3	3	2	134	134.0	4.0		
	Spotted bass							1			1		1								3	3.0	1.0		
Fords Bay	Largemouth bass		1	2	1		5	9	9	2	3	9	5	3	1	1	4	1		1	57	114.0	0.0		
	Spotted bass									1											1	2.0	0.0		
Terrapin Creek	Largemouth bass			3	1	8	16	20	19	6	6	13	11	12	5	3	4	3	2	1	133	133.0	11.0		
Total	Largemouth bass		2	6	39	35	31	73	137	145	54	69	113	111	86	55	39	33	16	9	7	2	1062	106.2	5.1
	Spotted bass		1	1		1	6	4	3	4	7	2	1										30	3.0	1.3
	Smallmouth bass		1				1		1		2												4	0.4	0.2

Table 38. Spring diurnal electrofishing CPUE of each size-class of largemouth bass collected at Lake Barkley during late April/early May.

Year	Inch-class								Total	
	< 8.0 inch		8.0 - 11.9 inch		12.0 - 14.9 inch		≥ 15.0 inch			
	CPUE	Std. Error	CPUE	Std. Error	CPUE	Std. Error	CPUE	Std. Error	CPUE	Std. Error
2004	11.3	1.3	40.9	2.9	29.3	1.6	24.7	2.2	106.2	5.1
2003	41.1	5.2	38.5	3.9	75.3	5.3	26.9	2.3	181.8	10.4
2002	26.4	3.6	49.7	5.9	40.6	4.1	16.3	1.8	133.0	8.5
2001	70.4	8.3	61.2	5.1	31.1	2.5	19.0	1.5	181.7	10.8
2000	32.8	4.2	28.6	2.3	24.7	2.3	27.9	2.4	114.1	6.0
1999	16.3	1.9	21.0	2.2	22.7	2.5	34.0	2.6	93.9	6.0
1998	22.2	4.7	26.2	4.2	28.6	3.0	29.8	3.5	106.8	5.9
1997	7.2	1.0	23.0	2.9	22.4	2.1	35.8	3.3	88.4	5.7
1996	14.4	5.9	36.0	4.0	45.6	7.8	43.2	6.4	139.2	16.6
1995	12.2	2.8	55.6	6.4	42.2	4.3	56.0	5.9	166.0	12.3
1994	49.2	8.4	51.0	6.3	72.8	6.2	36.0	5.3	209.0	19.8
1993	40.2	12.1	65.0	6.0	69.2	6.1	32.2	4.5	206.6	15.2
1992	30.7	4.8	79.0	7.6	20.5	1.7	29.5	2.3	159.7	9.0
1991	57.8	7.6	72.9	7.5	59.4	6.1	34.0	3.9	224.1	16.4
1990	10.4	2.5	47.2	6.9	33.8	5.3	26.6	3.5	118.0	12.9
1989	28.7	8.7	74.6	7.4	34.8	4.2	25.0	4.5	163.2	15.5
1988	39.5	6.6	98.2	12.6	76.9	21.8	29.0	9.5	243.6	45.5
1987	64.9	12.4	84.1	11.2	14.5	3.0	25.9	6.1	189.4	27.7
1986	6.1		7.3		39.0		12.2		64.6	
1985	3.0	1.0	11.6	1.7	4.7	1.0	3.6	1.0	22.9	2.6
Average	29.2		48.6		39.4		28.4		145.6	

(Barkley_LMB_Database.xls)

Table 39. Population assessment of largemouth bass based on spring diurnal electrofishing at Lake Barkley from 1998-2004.

Parameter ^A	1999		2000 ^B		2001		2002 ^C		2003		2004 ^D	
	Actual Value	Score	Actual Value	Score	Actual Value	Score	Actual Value	Score	Actual Value	Score	Actual Value	Score
Growth (Mean length at capture of age-3 LMB)	12.6	4	12.6	4	14.7	4	14.7	4	12.9	4	12.9	4
Recruitment (Spring CPUE of age-1)	17.3	1	37.3	3	81.0	4	28.9	2	59.2	4	29.2	2
Size Structure (Spring CPUE of LMB 12.0-14.9 in.)	22.7	2	24.7	2	31.1	3	40.6	4	75.3	4	29.3	3
Size Structure (Spring CPUE of LMB ≥ 15.0 in.)	34.0	4	27.9	4	19.0	3	16.3	3	27.0	4	24.7	4
Size Structure (Spring CPUE of LMB ≥ 20.0 in.)	4.7	4	2.7	3	1.6	3	1.3	2	1.7	3	1.8	3
Instantaneous Mortality (Z)	0.500				0.692				0.658			
Annual Mortality (A)%	39.4				49.9				48.2			
Total Score		15		15		17		15		19		16
Assessment Rating		G		G		E		G		E		G

^A Population assessment scores are obtained for lakes > 1000 acres.

^B Age and growth data was not collected during 2000. Age and growth data from 1999 was used as surrogate data.

^C Age and growth data was not collected during 2002. Age and growth data from 2001 was used as surrogate data.

^D Age and growth data was not collected during 2004. Age and growth data from 2003 was used as surrogate data. (Barkley_LMB_Database)

Table 40. Annual mortality (A) between 2003 and 2004, and CPUE (fish/hour) of the last five year-classes of largemouth bass estimated from spring, diurnal electrofishing at Lake Barkley.

Year-Class	Age Intervals	CPUE (2003)	CPUE (2004) ^A	Mortality of Cohort (%)
2002	1+ - 2+	59.04	17.80	70
2001	2+ - 3+	13.11	25.54	-95
2000	3+ - 4+	65.91	23.27	65
1999	4+ - 5+	33.67	5.54	84
1998	5+ - 6+	5.72	3.28	43

^A Age and growth data was not collected during 2004. Therefore, age and growth data collected during 2003 was used to calculate CPUE of the various age-classes.

Table 41. Species composition, relative abundance, and CPUE (fish/hour) of black bass collected during 5.0 hours of diurnal electrofishing (10 runs; each 0.50 hours) for black bass in each area of Lake Barkley from 13-14 October 2004. (wfdwrb.d04)

Area	Species	Inch-class																			Total	CPUE	Std. Error
		3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21			
Middle Eddy Creek	Largemouth bass	8	10	32	28	21	5	11	31	44	59	40	33	23	10	10	2	1	1	379	151.6	14.6	
	Spotted bass								2											2	0.8	0.5	
	Smallmouth bass	5	4	1			1	1	1		1									14	5.6	3.0	
Little River	Largemouth bass	3	26	55	48	37	5	18	33	51	53	34	30	20	10	6	7	1		437	174.8	12.3	
	Spotted bass	2	3				1	1												7	2.8	1.9	
	Smallmouth bass	1	2						1		1	1							6	2.4	1.2		
Total	Largemouth bass	11	36	87	76	58	10	29	64	95	112	74	63	43	20	16	17	2	1	816	163.2	9.8	
	Spotted bass	2	3				1	1	2											9	1.8	1.0	
	Smallmouth bass	6	6	1			1	1	1	1	1	1	1						20	4.0	1.6		

Total spring CPUE of largemouth bass = 106.2 f/h (5.1 SE)

Total spring CPUE of spotted bass = 3.0 f/h (1.3 SE)

Total spring CPUE of smallmouth bass = 0.4 f/h (0.2 SE)

Table 42. Number of fish and the relative weight (Wr) values of each size-class of largemouth, spotted, and smallmouth bass collected at Lake Barkley during 5.0 hours (10 runs; each 0.50 hours) of diurnal electrofishing on 13-14 October 2004. (wfdwrb.d04)

Species	Area	Inch-class														
		8.0 - 11.9 inch			12.0 - 14.9 inch			≥15.0 inch			Total					
		N	Wr	Std. Error	N	Wr	Std. Error	N	Wr	Std. Error	N	Wr	Std. Error			
Largemouth bass	Middle															
	Eddy Creek	91	91.8	1.0	132	93.7	0.7	57	99.4	1.4	280	94.3	0.6			
	Little River	107	90.6	0.9	117	95.0	0.9	44	101.6	1.7	268	94.3	0.7			
	Total	198	91.2	0.7	249	94.3	0.6	101	100.4	1.1	548	94.3	0.4			
Spotted bass	Middle															
	Eddy Creek	2	88.6	2.4												
	Little River	2	94.8	10.2												
	Total	4	91.7	4.7										4	91.7	4.7
Smallmouth bass	Middle															
	Eddy Creek	3	85.2	2.7	1	90.0								4	86.4	2.2
	Little River				1	80.7		2	95.2	2.6	3	90.4	5.1			
	Total	3	85.2	2.7	2	85.3	4.1	2	95.2	2.6	7	88.1	2.4			

Table 43. Indices of year-class strength at age 0 and age 1 and mean length (in) of largemouth bass collected in the fall during electrofishing sampling at Lake Barkley.

Year-class	Age 0 ^A		Age 0 ^A		Age 0 ≥ 5.0 in ^A		Age 1 ^B	
	Mean Length	Std. Error	CPUE	Std. Error	CPUE	Std. Error	CPUE	Std. Error
2001	5.4		21.2	4.0	16.0		32.6 ^C	3.4
2002	5.3		26.7	2.4	10.1		59.0	6.4
2003	5.1		35.2	4.4	20.9		29.2 ^D	2.4
2004	5.4	0.8	39.8	5.8	30.4	4.3	*	

^A Data collected by fall (October) diurnal electrofishing. Mean lengths were determined by analysis of scales, removed from a subsample of LMB < 8.0 in, and extrapolated to the entire catch of the fall sample.

^B Data collected during the following spring (April/May) diurnal electrofishing sample.

^C Age and growth data was not collected during the spring of 2002. Age and growth data collected during the spring of 2001 and 2003 was used to determine CPUE of each individual age-class.

^D Age and growth data was not collected during the spring of 2004. Age and growth data collected during the spring of 2003 will be used to determine CPUE of each individual age-class.

* Data will be collected during the spring, diurnal electrofishing sample of 2005.

Table 44. Length frequency and CPUE (fish/trotline) of blue, channel, and flathead catfish collected by trotline at Lake Barkley from 17-20 May 2004. A total of 14 trotline nights were conducted. (wfdcatb.d04)

Species															Total		Std. Error												
	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	CPUE	Error
Blue catfish	3	1	3	4	2	3	4	11	7	7	7	7	10	10	14	1	5	11	6	4	1	1	1	1	1	1	117	8.4	0.9
Channel catfish	1	2	1	1	11	18	9	12	16	8	4	5	8	5	4	2	1	1	1	1	1	1	1	1	1	1	110	7.9	1.3
Flathead catfish																											1	0.1	0.1

Table 45. Relative weight (Wr) of each length-class of blue and channel catfish collected at Lake Barkley from 17-20 May 2004. Fish were collected using trotlines (totaling 14 trotline-nights). (wfdcatb.d04)

Species	12.0 - 19.9 in.			20.0 - 29.9 in.			≥ 30.0 in.			Total		
	N	Wr	Std. Error	N	Wr	Std. Error	N	Wr	Std. Error	N	Wr	Std. Error
Blue Catfish	45	100.3	1.5	63	103.7	1.6	2	113.9	0.1	110	102.5	1.1
	11.0 - 15.9 in.			16.0 - 23.9 in.			≥ 24.0 in.			Total		
Channel Catfish	50	98.7	1.7	50	100.2	1.7	5	108.0	6.6	105	99.8	1.2

Table 46. Mean back-calculated length (in) at each annulus of blue catfish collected by trotline for 14 line-nights at Lake Barkley during 17-20 May 2004, including the range in length of blue catfish at each age and the 95% confidence interval of each age group.¹ (wfdcatb.d04) (wfdbcagb.d04)

Year-Class	N	Age								
		1	2	3	4	5	6	7	8	9
2002	3	4.0	8.5							
2001	6	3.9	8.2	12.1						
2000	9	4.3	8.5	11.1	14.5					
1999	16	5.0	9.5	12.9	15.6	18.8				
1998	24	4.8	9.4	12.9	16.0	18.9	22.0			
1997	10	4.5	8.8	12.6	15.9	18.8	21.3	24.4		
1996	4	4.4	7.9	11.5	15.3	18.1	21.2	23.3	26.0	
1995	2	4.2	8.2	11.9	14.7	17.5	21.2	23.9	27.1	29.8
Mean		4.6	9.0	12.5	15.6	18.7	21.7	24.1	26.3	29.8
Number		74	74	71	65	56	40	16	6	2
Smallest		2.6	5.1	9.1	11.8	13.9	17.4	20.3	21.7	25.7
Largest		7.3	13.1	16.7	21.6	25.8	29.3	28.2	31.7	33.8
Std. Error		0.1	0.2	0.2	0.3	0.4	0.5	0.7	1.5	4.0
Low 95% CI		4.4	8.6	12.0	15.1	18.0	20.8	22.8	23.4	21.8
High 95% CI		4.9	9.3	12.9	16.1	19.4	22.6	25.3	29.3	37.7

¹ Otoliths were used to make age determinations. Intercept = 0.

Table 47. Age frequencies and CPUE of blue catfish collected during 14 line-nights at Lake Barkley during 17-20 May 2004.

Age	Inch-Class														Total	Percent	Cum. Percent	CPUE	Std. Error													
	8	9	10	11	12	13	14	15	16	17	18	19	20	21						22	23	24	25	26	27	28	29	30	31	32	33	
2	3																											3	2.5	2.5	0.2	0.2
3			3	4																								7	5.9	8.5	0.5	0.3
4					2	3	2	2	1																			8	6.8	15.3	0.6	0.2
5						2	11	4	5	2	7	1																32	27.1	42.4	2.2	0.3
6						2	2	7	8	3	5	1	2	6	4	1												41	34.7	77.1	2.8	0.4
7									3	3	2	3	2	3	2	1	1											15	12.7	89.9	1.1	0.2
8												2							3								5	4.2	94.1	0.3	0.1	
9																	6										7	5.9	100.0	0.5	0.1	
Total	3	0	0	3	4	2	3	4	11	7	7	7	11	10	14	2	5	12	6	4	1	1	1	0	0	0	1	118				8.4
%	3	0	0	3	3	2	3	3	9	6	6	6	9	8	12	2	4	10	5	3	1	1	1	0	0	0	1	100				

(wfdcatb.d04) (wfdbcagb.d04)

Table 48. Mean back-calculated length (in) at each annulus of channel catfish collected by trotline for 14 line-nights at Lake Barkley during 17-20 May 2004, including the range in length of channel catfish at each age and the 95% confidence interval of each age group.¹ (wfdcatb.d04) (wfdccagb.d04)

Year-Class	N	Age									
		1	2	3	4	5	6	7	8	9	10
2002	3	4.4	8.4								
2001	2	5.8	9.0	11.9							
2000	7	4.3	8.1	10.6	13.3						
1999	13	4.1	7.9	10.8	13.3	15.6					
1998	7	4.0	7.6	10.5	12.8	15.0	17.0				
1997	4	3.9	7.6	10.2	12.3	14.3	16.2	17.9			
1996	5	4.6	7.6	10.2	12.6	14.7	16.8	18.7	20.4		
1995	7	3.8	6.4	8.7	10.7	12.9	14.9	16.9	18.7	20.6	
1994	6	3.8	6.9	8.8	10.6	12.5	14.3	15.8	17.1	18.5	19.7
Mean		4.2	7.6	10.1	12.4	14.4	15.8	17.2	18.6	19.6	19.7
Number		54	54	51	49	42	29	22	18	13	6
Smallest		2.3	4.4	6.6	8.2	10.2	11.9	13.3	14.7	16.1	17.1
Largest		7.9	10.6	13.4	17.4	20.7	21.0	23.4	24.8	24.3	23.8
Std. Error		0.1	0.2	0.2	0.3	0.4	0.4	0.5	0.6	0.7	1.1
Low 95% CI		3.9	7.2	9.7	11.8	13.7	14.9	16.1	17.4	18.3	17.6
High 95% CI		4.4	8.0	10.6	12.9	15.1	16.6	18.2	19.9	21.0	21.9

¹ Otoliths were used to make age determinations. Intercept = 0.

Table 49. Age frequencies and CPUE of channel catfish collected during 14 line-nights at Lake Barkley during 17-20 May 2004.

Age	Inch-Class														Total	Cum.		Std. Error						
	7	8	9	10	11	12	13	14	15	16	17	18	19	20		21	22		23	24	Percent	Percent		
2	1	2																		3	2.8	2.8	0.2	0.1
3			1			4														5	4.6	7.4	0.3	0.1
4					7	7	3													17	15.7	23.1	1.3	0.3
5					4	7	5	5	6	1	1	3								32	29.6	52.7	2.2	0.4
6						2	5	6	6	3	3									19	17.6	70.3	1.3	0.3
7							2	3	1											7	6.5	76.8	0.6	0.1
8								1	2											4	3.7	80.5	0.3	0.1
9									2	3	3	2								11	10.2	90.7	0.7	0.2
10									4											10	9.3	100.0	0.7	0.2
Total	1	2	0	1	0	11	18	10	12	15	7	5	6	9	5	4	0	2	108					
%	1	2	0	1	0	10	17	8	11	15	8	4	5	8	5	4	0	2	100					

(wfdcatb.d04) (wfdccagb.d04)

Table 50. Nocturnal electrofishing CPUE for each size-class of smallmouth bass collected at Lake Barkley during July. CPUE = fish/hour.

Year	Inch-class														Total
	< 8.0 inch		8.0 - 10.9 inch		11.0 - 13.9 inch		≥ 14.0 inch		Total		Std. Error		Total		
2004	35.3	16.0	14.8	5.3	1.8	1.0	0.5	0.3	52.3	20.6					
2003	9.4	2.8	5.1	2.4	4.9	1.3	0.3	0.3	19.7	5.0					
2002	25.3	11.4	7.3	2.7	1.5	0.7	0.0	0.0	34.0	13.6					
2001	44.2	9.7	18.4	5.0	1.6	0.7	1.1	0.5	65.3	13.8					
2000	32.5	8.4	5.0	1.9	1.5	0.6	0.5	0.3	39.5	10.2					
1999	11.5	2.2	7.5	3.5	2.5	1.3	0.5	0.5	22.0	3.2					
1998	56.7	38.4	11.3	6.8	2.3	1.2	3.3	1.6	73.7	45.1					
1997	140.0	8.0	8.0	4.0	9.0	5.0	2.0	2.0	159.0	3.0					
.....	44.4	0.7			2.1		1.0		50.2						

Table 51. Length frequency and CPUE of each inch-class of white and black crappie collected by trap-net (114 net-days) at Lake Barkley from 1-5 November 2004. (wfdpntb.d04) (wfdeddyb.d04)

Location	Species	Inch-Class													Total	CPUE	St.		
		2	3	4	5	6	7	8	9	10	11	12	13	14			15	Error	Error
Eddy Creek	White Crappie		1	5	14	6		11	59	30	10	2	2				140	3.7	0.6
	Black Crappie	3	10	3	2			3	4	2	1	1	1				30	0.8	0.2
Little River	White Crappie	7	19	17	8	10	13	97	138	41	6	8	3	1	1		369	9.2	1.3
	Black Crappie	7	12	7			6	8	4	5	3						52	1.3	0.2
Donaldson Creek	White Crappie	9	29	10	4	36	46	41	61	16	2			1			255	7.1	1.2
	Black Crappie	17	65	3	8	37	18	17	53	38	5	4	1				266	7.4	1.3
Total	White Crappie	16	49	32	26	52	59	149	258	87	18	10	5	2	1		764	6.7	0.7
	Black Crappie	27	87	13	10	37	24	28	61	45	9	5	2				348	3.1	0.5

CPUE of white crappie in Little River and Donaldson Creek embayments = 8.2 f/nd (0.90 SE)

CPUE of black crappie in Little River and Donaldson Creek embayments = 4.2 f/nd (0.73 SE)

Table 52. CPUE for size groups of crappie collected from multiple years of trap netting on Lake Barkley. Includes mean lengths at capture for age 2+ crappie and % of trap netting catch that is age 4 or older (catch excludes age 0 fish).

Year	CPUE \geq 8.0 in			CPUE \geq 10.0 in			Mean Length @ age 2			% Age 4 and Older		
	WC	BC	WC&BC	WC	BC	WC&BC	WC	BC	WC&BC	WC	BC	WC&BC
1985	3.4	0.1	3.5	1.2	0.1	1.3	9.5	8.4	9.4	0.1	0.0	0.2
1986	5.9	0.2	6.0	2.3	0.0	2.3	10.9	9.9	10.8	1.1	0.0	1.0
1987	2.0	0.4	2.4	1.5	0.1	1.6	11.4	10.8	11.3	0.8	0.0	0.7
1988	3.5	0.2	3.6	1.5	0.1	1.6	10.1	10.0	10.1	3.0	8.3	3.2
1989	1.3	0.1	1.4	0.5	0.1	0.6	8.8	9.1	8.9	10.7	0.0	10.0
1990	4.6	0.2	4.7	2.0	0.0	2.0	11.0	10.9	11.0	0.0	0.0	0.0
1991	3.2	0.2	3.4	1.1	0.1	1.1	10.5	10.4	10.5	1.0	0.0	0.7
1992	2.1	2.0	4.1	0.9	0.4	1.3	10.2	9.4	9.8	0.0	0.0	0.0
1993	1.4	0.5	1.9	0.5	0.3	0.8	9.8	9.4	9.7	0.6	13.7	3.6
1994	3.4	0.8	4.2	1.1	0.7	1.8	10.5	10.4	10.4	1.1	10.9	3.5
1995	4.4	0.7	5.2	1.0	0.2	1.2	11.0	9.2	10.1	0.2	2.1	0.5
1996	5.6	0.7	6.3	2.9	0.2	3.1	10.4	9.1	10.0	0.7	0.0	0.5
1997	2.5	0.6	3.1	1.1	0.1	1.2	10.5	8.8	9.2	0.3	1.5	0.4
1998	4.5	1.5	6.0	1.3	0.2	1.5	9.5	8.2	9.3	5.1	0.6	3.0
1999	1.9	1.0	2.9	1.4	0.1	1.4	10.3	9.2	9.8	1.0	1.7	1.3
2000	2.0	1.9	3.9	0.8	0.6	1.4	11.4	10.5	10.9	9.2	1.0	4.0
2001	1.1	1.6	2.6	0.9	1.0	2.0	11.3	10.2	10.4	2.2	7.8	5.8
2002	2.6	2.7	5.3	1.1	0.6	1.7	10.4	10.0	10.2	2.7	6.8	4.9
2003	2.3	1.6	3.9	1.1	1.1	2.2	11.1	10.3	10.7	4.2	4.3	4.2
2004	5.5	1.8	7.3	1.0	0.7	1.8	11.1	10.3	10.7	1.8	3.4	2.3
Average	3.2	0.9	4.1	1.3	0.3	1.6	10.5	9.7	10.2	2.3	3.1	2.5

(Barkley_Crappie_Database.xls)

Table 53. Proportional stock density (PSD) and relative stock density (RSD) of white and black crappie collected by trap-nets (114 net-days) at Lake Barkley from 1-5 November 2004. (wfdtpntb.04) (wfdeddyb.d04)

Location	Species	N	PSD	RSD ₁₀
Eddy Creek	White Crappie	134	85 (\pm 6)	33 (\pm 8)
	Black Crappie	14	86 (\pm 19)	36 (\pm 26)
Little River	White Crappie	326	90 (\pm 3)	18 (\pm 4)
	Black Crappie	26	77 (\pm 17)	31 (\pm 18)
Donaldson Creek	White Crappie	207	58 (\pm 7)	9 (\pm 4)
	Black Crappie	181	65 (\pm 7)	27 (\pm 6)
Total	White Crappie	667	79 (\pm 3)	18 (\pm 3)
	Black Crappie	221	68 (\pm 6)	28 (\pm 6)

PSD and RSD of white crappie for Little River and Donaldson Creek combined was 78 (\pm 4) and 15 (\pm 3).

PSD and RSD of black crappie for Little River and Donaldson Creek combined was 67 (\pm 6) and 27 (\pm 6).

Table 54. Relative weight values of each size-class of white and black crappie collected by trap-net (114 net-days) at Lake Barkley from 1-5 November 2004. (wfdtpntb.d04) (wfdeddyb.d04)

Location	5.0 - 7.9 inch			8.0 - 9.9 inch			≥ 10.0 inch			Total		
	N	Wr	St. Error	N	Wr	St. Error	N	Wr	St. Error	N	Wr	St. Error
Eddy Creek												
White Crappie	20	87.9	3.0	70	98.2	0.9	44	97.8	1.0	134	96.5	0.8
Black Crappie	2	87.9	18.7	7	94.1	2.3	5	99.5	3.3	14	95.2	2.7
Little River												
White Crappie	31	101.1	2.9	235	105.7	0.6	60	105.9	1.2	326	105.3	0.6
Black Crappie	6	100.4	3.0	12	104.3	1.7	8	101.1	2.9	26	102.4	1.4
Donaldson Creek												
White Crappie	86	93.3	4.0	102	99.7	0.7	19	105.8	1.1	207	97.6	1.7
Black Crappie	63	91.5	1.6	70	101.0	0.7	48	99.9	0.8	181	97.4	0.7
Total												
White Crappie	137	94.3	2.7	407	102.9	0.4	123	103.0	0.8	667	101.1	0.6
Black Crappie	71	92.2	1.5	89	100.9	0.7	61	100.0	0.8	221	97.9	0.7

Table 55. Annual fall trap netting CPUE (fish/net night) of each age-class of white crappie collected from Lake Barkley from 1985-2004.

Year	Age-Class						
	0	1	2	3	4	5	6
1985	8.10	11.62	4.89	0.44	0.02	0.00	0.00
1986	1.22	5.17	1.80	0.07	0.01	0.04	0.03
1987	1.62	3.95	0.62	0.22	0.00	0.03	0.00
1988	0.24	1.35	2.08	0.19	0.11	0.00	0.00
1989	3.70	1.32	0.56	0.20	0.20	0.05	0.00
1990	4.58	6.36	0.34	0.01	0.00	0.00	0.00
1991	1.18	3.62	1.28	0.17	0.04	0.00	0.00
1992	0.95	1.34	1.16	0.10	0.00	0.00	0.00
1993	3.65	0.83	1.13	0.16	0.01	0.00	0.00
1994	6.63	7.09	1.10	0.16	0.06	0.02	0.00
1995	1.75	9.50	0.86	0.04	0.00	0.02	0.00
1996	5.96	2.21	4.90	0.32	0.03	0.00	0.00
1997	2.44	7.61	0.53	1.01	0.01	0.00	0.00
1998	1.09	5.52	4.77	0.15	0.52	0.04	0.00
1999	2.19	0.81	0.84	0.78	0.00	0.03	0.00
2000	0.80	1.91	0.11	0.09	0.18	0.01	0.01
2001	28.43	0.69	0.17	0.24	0.02	0.00	0.00
2002	0.91	1.49	1.06	0.12	0.02	0.00	0.04
2003	9.89	1.84	0.87	0.12	0.07	0.01	0.01
2004 ^A	1.73	5.15	1.14	0.08	0.07	0.01	0.01
Average	4.35	3.97	1.51	0.23	0.07	0.01	0.01

^A Age and growth data was not collected in 2004. Data from 2003 was used to determine CPUE of each age-class.

(Barkley_Crappie_Database.xls)

Table 56. Annual fall trap netting CPUE (fish/net night) of each age-class of black crappie collected from Lake Barkley from 1985-2004.

Year	Age-Class						
	0	1	2	3	4	5	6
1985	0.10	0.27	0.03	0.07	0.02	0.00	0.00
1986	0.03	0.36	0.05	0.00	0.00	0.00	0.00
1987	0.14	0.24	0.07	0.04	0.00	0.00	0.00
1988	0.05	0.00	0.12	0.03	0.02	0.00	0.00
1989	0.03	0.08	0.05	0.05	0.00	0.00	0.00
1990	2.67	0.18	0.01	0.00	0.00	0.00	0.00
1991	0.19	2.05	0.08	0.01	0.00	0.00	0.00
1992	0.53	0.21	2.01	0.04	0.00	0.00	0.00
1993	1.33	0.23	0.19	0.14	0.09	0.00	0.00
1994	0.34	2.06	0.32	0.13	0.28	0.05	0.00
1995	0.67	0.79	0.79	0.05	0.01	0.02	0.00
1996	0.79	2.52	0.70	0.11	0.00	0.00	0.00
1997	0.86	0.72	0.86	0.02	0.01	0.00	0.00
1998	0.96	8.17	0.88	0.83	0.06	0.00	0.00
1999	1.41	0.90	0.56	0.05	0.03	0.00	0.00
2000	0.54	3.37	0.16	0.38	0.02	0.01	0.00
2001	8.23	0.88	1.00	0.05	0.14	0.03	0.00
2002	0.99	2.13	0.46	0.32	0.13	0.08	0.00
2003	2.14	2.96	1.10	0.14	0.15	0.01	0.03
2004 ^A	1.50	1.17	1.33	0.10	0.06	0.01	0.01
Average	1.18	1.46	0.54	0.13	0.05	0.01	0.00

^A Age and growth data was not collected in 2004. Data from 2003 was used to determine CPUE of each age-class.
(Barkley_Crappie_Database.xls)

Table 57. Annual mortality (A) between 2003 and 2004, and CPUE (f/nd) of the last five year-classes of white and black crappie (combined), estimated from trap-net data collected at Lake Barkley during October/November 2003 and 2004. (wfdtpntb.d04) (wfdtnagb.d03)

Year-Class	Age Intervals	CPUE (2003)	CPUE (2004)	Mortality of Cohort (%)
2002	1+ - 2+	4.80	2.47	49
2001	2+ - 3+	1.97	0.18	91
2000	3+ - 4+	0.26	0.13	50
1999	4+ - 5+	0.22	0.02	91
1998	5+ - 6+	0.02	0.02	0

Table 58. Population assessment for white, black, and white and black crappie combined from Lake Barkley trap-net data collected in November 2004.

Parameter	White Crappie		Black Crappie		Combined	
	Actual Value	Score	Actual Value	Score	Actual Value	Score
Population Density (CPUE of age-1 and older crappie)	6.5	2	2.7	1	9.2	2
Recruitment (CPUE of age-1 crappie)	5.2	2	1.2	1	6.3	2
Recruitment (CPUE of age-0 crappie)	1.7	1	1.5	1	3.2	2
Size Structure (CPUE of > 8.0 inches)	5.5	3	1.8	1	7.3	3
Growth (Mean age-2 length at capture)	11.1	4	10.3	4	10.7	4
Instantaneous Mortality (Z)	0.802		0.935		0.858	
Annual Mortality (A)%	55.1		60.8		57.6	
Total Score:	12		8		13	
Assessment Rating:	F		F		G	

(wfdtpntb.d04) (wfdtnagb.d03)

Table 59. Population assessment of the white crappie population at Lake Barkley from 1988-2004.

Parameter	Assessment Ratings of the White Crappie Population																
	1988	1989	1990	1991 ^A	1992 ^B	1993 ^A	1994 ^A	1995	1996 ^A	1997 ^A	1998 ^B	1999 ^B	2000 ^B	2001 ^B	2002 ^B	2003 ^B	2004 ^A
Population Density (CPUE of age-1 and older crappie)	1	1	2	2	1	1	2	2	2	2	2	1	1	1	1	1	2
Recruitment (CPUE of age-1 crappie)	1	1	2	2	1	1	3	3	1	3	2	1	1	1	1	1	2
Recruitment (CPUE of age-0 crappie)	1	2	2	1	1	2	3	1	2	1	1	1	1	4	1	3	1
Size Structure (CPUE of > 8.0 in)	2	1	2	2	2	1	2	2	3	2	2	1	2	1	2	2	3
Growth (Mean age-2 length at capture)	4	2	4	4	4	4	4	4	4	4	3	4	4	4	4	4	4
Total Score	9	7	12	11	9	9	14	12	12	12	10	8	9	11	9	11	12
Assessment Rating:	F	P	F	F	F	F	G	F	F	F	F	F	F	F	F	F	F

^A Indicate years where the black crappie population comprised 15 - 34.9% of the age-1 and older crappie.

^B Indicate years where the black crappie population comprised \geq 35% of the age-1 and older crappie.
(Barkley_Crappie_Database.xls)

Table 60. Population assessment of the black crappie population at Lake Barkley from 1988-2004.

Parameter	Assessment Ratings of the Black Crappie Population																
	1988	1989	1990	1991 ^A	1992 ^B	1993 ^A	1994 ^A	1995	1996 ^A	1997 ^A	1998 ^B	1999 ^B	2000 ^B	2001 ^B	2002 ^B	2003 ^B	2004 ^A
Population Density (CPUE of age-1 and older crappie)	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1
Recruitment (CPUE of age-1 crappie)	1	1	1	1	1	1	1	1	1	1	3	1	2	1	1	1	1
Recruitment (CPUE of age-0 crappie)	1	1	1	1	1	1	1	1	1	1	1	1	1	3	1	1	1
Size Structure (CPUE of > 8.0 in)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1
Growth (Mean age-2 length at capture)	4	2	4	4	3	3	4	3	2	2	1	3	4	4	4	4	4
Total Score	8	6	8	8	7	7	8	7	6	6	8	7	9	10	9	8	8
Assessment Rating:	F	P	F	F	P	P	F	P	P	P	F	P	F	F	F	F	F

^A Indicate years where the black crappie population comprised 15 - 34.9% of the age-1 and older crappie.

^B Indicate years where the black crappie population comprised \geq 35% of the age-1 and older crappie. (Barkley_Crappie_Database.xls)

Table 61. Population assessment of the white and black crappie population (combined) at Lake Barkley from 1988-2004.

Parameter	Assessment Ratings of the White and Black Crappie Population (combined)																			
	1988	1989	1990	1991 ^A	1992 ^B	1993 ^A	1994 ^A	1995	1996 ^A	1997 ^A	1998 ^B	1999 ^B	2000 ^B	2001 ^B	2002 ^B	2003 ^B	2004 ^A			
Population Density (CPUE of age-1 and older crappie)	1	1	2	2	1	1	2	2	2	2	3	1	2	1	2	2	2			
Recruitment (CPUE of age-1 crappie)	1	1	2	2	1	1	3	3	2	3	3	1	2	1	2	2	2			
Recruitment (CPUE of age-0 crappie)	1	2	3	1	1	2	3	1	3	2	1	2	1	4	1	4	2			
Size Structure (CPUE of > 8.0 in)	2	1	2	2	2	1	2	3	3	2	3	2	2	2	3	2	3			
Growth (Mean age-2 length at capture)	4	2	4	4	4	4	4	4	4	3	3	4	4	4	4	4	4			

Total Score	9	7	13	11	9	9	9	14	13	14	12	13	10	11	12	12	14	13
Assessment Rating:	F	P	G	F	F	F	G	G	G	F	F	G	F	F	F	F	G	G

^A Indicate years where the black crappie population comprised 15 - 34.9% of the age-1 and older crappie.

^B Indicate years where the black crappie population comprised \geq 35% of the age-1 and older crappie.
(Barkley_Crappie_Database.xls)

Table 62. Relative abundance and CPUE (fish/hour) of largemouth bass collected during 30-minute diurnal electrofishing runs for black bass at Lake Beshear during May for 2.5 hours, and 2.0 hours during October, 2004.

Season	Species	Inch Class																		Total	CPUE	StdErr
		3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20			
Spring	Largemouth bass	4	1	3	3	6	10	7	7	5	13	6	10	28	28	17	16	6	1	171	68.4	11.7
Fall	Largemouth bass	25	19	4	15	25	4	3	2	1	2	6	8	9	3	3	2	3	1	135	54.0	6.2

Table 63. Spring diurnal electrofishing CPUE for each size class of largemouth bass collected at Lake Beshear. Nocturnal sampling was conducted from 1995 to 2002. CPUE = fish/hour/run

Year	Inch Group									
	<8.0		8.0-11.9		>12.0		>15.0		Total	
	CPUE	StdErr	CPUE	StdErr	CPUE	StdErr	CPUE	StdErr	CPUE	StdErr
1986	4.8		11.3		18.5		14.5		34.7	
1987	4.0		22.6		9.7		5.7		56.7	
1988	1.8		16.5		38.4		30.5		22.6	
1989	9.8		15.7		54.9		26.5		80.4	
1990	4.7	1.8	7.3	2.7	38.7	3.3	29.3	4.8	50.7	2.9
1991	15.0	2.4	16.0	3.4	34.0	5.7	23.5	4.0	65.0	6.0
1992	2.7	0.7	24.0	6.4	65.3	0.7	45.3	1.8	92.0	5.3
1993	6.5	1.7	4.0	1.8	37.5	13.7	31.5	10.8	48.0	15.4
1994	11.2	2.9	8.0	1.4	48.8	10.8	34.0	9.5	68.0	10.1
1995	13.5	3.7	22.5	7.4	51.0	16.5	35.5	12.6	87.0	21.6
1996	5.5	2.2	12.5	1.7	55.5	5.1	39.0	4.2	73.5	6.2
1997	4.5	2.5	10.0	2.0	39.0	7.0	28.5	4.8	53.5	8.3
1998	5.0	1.3	13.0	3.1	70.0	8.7	53.0	5.3	88.0	8.3
1999	4.0	1.8	11.5	3.0	39.5	6.7	25.5	4.9	55.0	8.8
2000	11.2	3.7	18.0	4.9	36.0	8.7	32.0	7.6	65.2	10.9
2001	5.0	2.4	42.0	8.1	26.0	6.1	15.5	3.8	73.0	6.7
2002	11.5	1.7	24.0	7.2	64.5	10.7	36.5	8.6	100.0	16.4
2003	5.2	2.9	6.4	2.0	33.6	7.8	25.6	7.2	45.2	9.5
2004	4.4	1.6	12.0	2.8	52.0	9.3	42.4	8.5	68.4	11.7
Average	6.9		15.6		42.8		30.2		64.6	

WFDPSDLB.Dxx

Table 64. Age frequencies and CPUE of largemouth bass collected from Lake Beshear in May 2004 during 2.5 hours of diurnal sampling. Age data from 2003 were combined to make estimations.

Age	Inch Class																			Total	%	CPUE	StdErr	
	3	4	5	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21						
1	4	1	3	3	5															16	9.4	6.4	1.9	
2					1	10	7	7	5	7											37	21.6	14.8	2.0
3										3	5	1							1		10	5.8	4.0	0.8
4										3	1	6	9	11		16	6				52	30.4	20.8	4.7
5												1			3						4	2.3	1.6	0.5
6												1	9	11	6						27	15.8	10.8	2.1
7													5	6							11	6.4	4.1	0.9
8													5		3						8	4.7	3.2	0.7
10															3						3	1.8	1.2	0.3
12																3					3	1.8	1.2	0.3
Total	4	1	3	3	6	10	7	7	5	13	6	9	28	28	18	16	6	1		171				
%	2	1	2	2	4	6	4	4	3	8	4	5	16	16	11	9	4	1			100			

wfdpsdlb.D04, wfdlbbag.D03

Table 65. Population assessment determined from largemouth bass based on spring sampling at Lake Beshear from 2000-2004.

Parameter	2004		2003		2002		2001		2000	
	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score
Length at Age 3	14.0	4	14.0	4	14.0	4	14.1	4	14.1	4
Spring CPUE of Age 1 Fish	6.4	1	0.8	1	3.5	1	1.0	1	3.2	1
Spring CPUE 12-14.9-in Fish	9.6	1	8.0	1	28.0	2	10.5	1	4.0	1
Spring CPUE \geq 15.0-in Fish	42.4	4	25.6	3	36.5	4	15.5	2	32.0	4
Spring CPUE \geq 20-in Fish	2.8	3	2.0	3	3.5	3	1.5	2	2.8	3
Instantaneous Mortality (z)	0.262		0.430		0.547		0.803		0.475	
Annual Mortality (A)%	23.0		34.9		54.7		55.2		37.8	
Total Score	13		12		14		10		13	
Assessment Rating	G		G		G		F		G	

Rating

5-7 = Poor (P)
 8-11 = Fair (F)
 12-16 = Good (G)
 17-20 = Excellent (E)

WFDPSDLB.Dxx

Table 66. Indices of year-class strength at age 0 and age 1 and mean length (in) of largemouth bass collected in the fall during electrofishing sampling at Lake Beshear.

Year-class	Age 0 ^A		Age 0 ^A		Age 0 \geq 5.0 in ^A		Age 1 ^B	
	Mean Length	Std. Error	CPUE	Std. Error	CPUE	Std. Error	CPUE	Std. Error
2001	4.1		4.8	1.58	1.2		15.0	2.94
2002	4.1		6.9	1.34	2.0		13.5	1.33
2003	2.7		19.0	4.14	0.0		6.4	1.94
2004	3.8		17.6	4.12	0.0		*	

^A Data collected by fall (October) diurnal electrofishing. Mean lengths were determined by analysis of scales, removed from a subsample of LMB < 8.0 in, and extrapolated to the entire catch of the fall sample.

^B Data collected during the following spring (April/May) diurnal electrofishing sample.

* Data will be collected during the spring, diurnal electrofishing sample of 2005.

Table 67. Age frequencies and CPUE of channel catfish collected from Lake Beshear in September 2004. Age was determined by using sectioned otoliths collected in 2003.

Age	Inch Class															Total	%	CPUE	StdErr				
	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21					22	24	26	
1	1	1	3	21	10															36	9.8	1.3	0.2
2		4	10	22	31	26	4													97	26.4	3.6	0.6
3					16	18	10													44	12.0	1.6	0.3
4						5		3												8	2.2	0.3	0.0
6									2											2	0.5	0.1	0.0
7						5	5	2												12	3.3	0.4	0.1
8						9	10	29	14	13	8	3	6							92	25.0	3.4	0.4
9										5	8									13	3.5	0.5	0.1
10							15	5				3	1			1				25	6.8	0.9	0.1
11									2				2							4	1.1	0.1	0.0
12								10				4	2		7	2				25	6.8	0.9	0.1
13												4	1	3						8	2.2	0.3	0.1
Total	1	5	13	43	57	53	49	49	23	18	16	14	12	3	7	3	1	1		368		13.6	
%	0	1	4	12	15	14	13	13	6	5	4	4	3	1	2	1	0	0			100		

wfdcc1b.d04, wfdcagbe.d03

Table 68. Population assessment by year for channel catfish at Lake Beshear

Year	Parameters											Assessment Rating
	CPUE < 8 in	score	Total CPUE	score	CPUE ≥ 12 in	score	CPUE ≥ 15 in	score	CPUE ≥ 20 in	score	Total Score	
1998	0.00	0	12.8	4	6.0	4	0.8	2	0.0	1	11	F
1999	0.00	0	3.9	3	3.0	4	0.8	2	0.0	0	9	F
2000	0.00	0	0.9	1	0.9	2	0.6	2	0.1	1	6	P
2001	0.00	0	4.4	3	3.6	4	2.0	4	0.6	3	14	G
2002	0.03	1	4.9	4	3.2	4	1.7	4	0.5	3	16	G
2003	0.00	0	8.9	4	6.1	4	2.6	4	0.4	2	14	G
2004	0.04	1	13.6	4	9.2	4	12.9	4	0.6	3	16	G

Sampling method

1998 -1999 : slat traps and hoop nets

2000 : slat traps

2001 - 2002 : gill nets

2003 : gill nets and trotlines

2004 : trotlines

Table 69. Species composition, relative abundance, and CPUE (fish/hour) of largemouth bass, bluegill, redear sunfish, white crappie, and channel catfish collected during 0.875 hours (7 runs; each 450s) of diurnal electrofishing at Lake Pennyrite on 19 April 2004. (wfipsdpp.d04) (wfipsdpo.d04)

Species	Inch-Class																				Std. Error		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Total	CPUE	
Largemouth bass				6	5	2	12	16	12	14	16	16	7	1	1				1		109	119.8	14.4
Bluegill ^A	2	10		14	1	2	13	4													46	70.8	21.7
Redear sunfish ^A				5	8	16	10	5	1												45	69.2	31.1
White crappie ^A				1	2	3		3	2												11	16.9	13.2
Channel catfish ^A														2	2		1	1		1	7	10.8	7.1

^A Fish were only collected during the first 5 electrofishing runs, each lasting 450 s (Total = 0.625 hours).

Table 70. Spring, diurnal electrofishing CPUE of each size-class of largemouth bass collected at Lake Pennyriple from 1990-2004.

Year	Inch-class								Total	
	< 8.0 in		8.0 - 11.9 in		12.0 - 14.9 in		≥ 15.0 in			
	CPUE	Std. Error	CPUE	Std. Error	CPUE	Std. Error	CPUE	Std. Error	CPUE	Std. Error
2004	27.5	7.1	63.7	10.7	26.4	4.7	2.2	1.4	119.8	14.4
2003	96.6	17.6	118.8	9.4	24.8	4.8	0.9	0.9	241.0	27.3
2002	132.3	24.2	116.2	14.7	30.8	5.4	5.4	3.3	284.0	36.9
2001 ^A	54.0	0.0	138.0	10.0	12.0	4.0	5.0	1.0	209.0	15.0
2000 ^A	46.0	4.0	87.0	5.0	11.0	7.0	3.0	3.0	147.0	1.0
1999 ^A	26.0	8.0	102.0	8.0	3.0	1.0	2.0	2.0	133.0	1.0
1998	12.0	8.0	70.0	1.0	7.0	1.0	2.0	2.0	91.0	21.0
1994	47.0	9.0	52.0	6.0	2.0	2.0	1.0	1.0	102.0	12.0
1990	28.0	2.0	87.0	1.0	3.0	1.0	0.0	0.0	118.0	0.0
Mean	55.2		96.4		11.7		2.4		165.6	

^A Data collected by spring, nocturnal electrofishing.

Table 71. PSD and RSD values obtained for largemouth bass, bluegill, redear sunfish, and white crappie collected during 0.875 hours of diurnal electrofishing (7 runs; each 450s) at Lake Pennyriple on 19 April 2004. (wfdpsdpb.d04) (wfdpsdpo.d04)

Species	N	PSD (\pm 95% CI)	RSD (\pm 95% CI)
Largemouth bass	84	31 (10)	2 (3)
Bluegill ^{AB}	44	43 (15)	9 (9)
Redear sunfish ^{AC}	45	36 (14)	2 (4)
White crappie ^A	10	50 (33)	

^A Bluegill, redear sunfish, and white crappie were collected only during the first 5 electrofishing runs; each lasting 450 s (Total = 0.63 hours).

^B Bluegill = RSD₈.

^C Redear sunfish = RSD₉.

Table 72. Number of largemouth bass and the relative weight (Wr) values for each length category of largemouth bass collected at during 1.00 hour of diurnal electrofishing (6 runs; each 600s) at Lake Pennyrite on 27 September 2004. (wfdwrpb.d04)

Species	Inch-category									Total		
	8.0-11.9 inch			12.0-14.9 inch			≥15.0 inch			N	Wr	St.
	N	Wr	Error	N	Wr	Error	N	Wr	Error			
Largemouth bass	62	78.1	0.9	18	78.8	1.5	1	83.1		81	78.4	0.8

Table 73. Population assessment of the largemouth bass population based on spring diurnal electrofishing at Lake Pennyrite from 1998-2004.

Parameter ^A	Year											
	1999 ^{BC}		2000 ^{BC}		2001 ^B		2002 ^D		2003		2004 ^E	
	Actual Value	Score	Actual Value	Score	Actual Value	Score	Actual Value	Score	Actual Value	Score	Actual Value	Score
Growth (Mean length at capture of age-3 LMB)	9.5	1	10.4	2	10.4	2	9.7	1	9.7	1	9.7	1
Recruitment (Spring CPUE of age-1)	22.7	2	41.1	2	26.0	2	111.5	4	59.4	3	13.1	1
Size Structure (Spring CPUE of LMB 12.0-14.9 in.)	3.0	1	11.0	1	12.0	1	30.8	2	24.8	2	26.4	2
Size Structure (Spring CPUE of LMB ≥ 15.0 in.)	2.0	1	3.0	1	5.0	2	5.4	2	0.9	1	2.2	1
Size Structure (Spring CPUE of LMB ≥ 20.0 in.)	0.0	1	3.0	3	2.0	3	0.8	1	0.0	1	0.0	1
Instantaneous Mortality (Z)					0.473				0.457			
Annual Mortality (A)%					37.7				36.7			
Total Score	6	Poor	9	Fair	10	Fair	10	Fair	8	Fair	6	Poor
Assessment Rating												

^A Population assessment scores are obtained for lakes < 1000 acres.

^B Spring electrofishing samples were collected nocturnally.

^C Age and growth data was not collected. Age and growth data collected during 1998 and 2001 was used as surrogate data.

^E Age and growth data was not collected. Age and growth data collected during 2003 was used as surrogate data.

Table 74. Spring, diurnal electrofishing CPUE (f/h) of each age-class of largemouth bass collected from Lake Pennyryle from 1998-2004.

Year	Age-Class									
	1	2	3	4	5	6	7	8	9	10
2004 ^D	13.05	38.09	12.83	26.06	17.50	5.39	1.95	2.70	0.00	2.21
2003	59.39	83.41	23.39	33.92	25.75	7.26	3.42	3.63	0.00	0.00
2002 ^C	111.51	49.89	34.77	28.38	31.52	9.99	8.02	2.54	0.00	1.10
2001 ^A	26.00	103.76	39.13	6.25	21.57	4.14	3.00	0.00	0.00	1.14
2000 ^{AB}	41.06	37.53	25.23	14.88	15.11	3.76	2.31	1.63	0.00	0.50
1999 ^{AB}	22.69	22.34	40.07	20.26	15.18	6.21	2.62	2.58	0.00	0.06
1998	5.00	9.30	28.30	26.60	7.70	3.00	5.00	4.00	0.00	0.00
Mean	39.81	49.19	29.10	22.34	19.19	5.68	3.76	2.44	0.00	0.72

^A Spring electrofishing samples were collected nocturnally.

^B Age and growth data was not collected. Age and growth data collected during 1998 and 2001 was used as surrogate data.

^C Age and growth data was not collected. Age and growth data collected during 2001 and 2003 was used as surrogate data.

^D Age and growth data was not collected. Age and growth data collected during 2003 was used as surrogate data.

Table 75. Annual mortality (A) between 2003 and 2004, and CPUE (fish/hour) of the last five year-classes of largemouth bass estimated from spring, diurnal electrofishing at Lake Pennyryle.

Year-Class	Age Intervals	CPUE (2003)	CPUE (2004) ^A	Mortality of Cohort (%)
2002	1+ - 2+	83.41	38.09	54
2001	2+ - 3+	23.39	12.83	45
2000	3+ - 4+	33.92	26.06	23
1999	4+ - 5+	25.75	17.50	32
1998	5+ - 6+	7.26	5.39	26

^A Age and growth data was not collected during 2004. Therefore, age and growth data collected during 2003 was used to calculate CPUE of the various age-classes.

Table 76. Spring electrofishing CPUE for each size-class of bluegill and redear sunfish collected at Lake Pennyrite during May from 1990-2004.

Species	Year	Inch-Class													
		< 3.0 in		3.0 - 5.9 in		6.0 - 7.9 in		≥ 8.0 in		> 10.0 in		Total			
		CPUE	Std. Error	CPUE	Std. Error	CPUE	Std. Error	CPUE	Std. Error	CPUE	Std. Error	CPUE	Std. Error		
Bluegill	2004	3.1	3.1	38.5	10.6	23.1	11.9	6.2	4.5	0.0	0.0	0.0	0.0	70.8	21.7
	2003	27.7	5.2	80.0	14.5	18.5	5.2	12.3	5.2	0.0	0.0	0.0	0.0	138.5	8.8
	2002	77.6	22.9	98.4	32.0	29.6	7.3	1.6	1.1	0.0	0.0	0.0	0.0	207.2	52.1
	2001	0.0	0.0	21.0	3.0	65.9	53.9	3.0	3.0	0.0	0.0	0.0	0.0	89.8	53.9
	2000	80.8	9.0	95.8	18.0	65.9	12.0	9.0	3.0	0.0	0.0	0.0	0.0	251.5	35.9
	1999	6.0	0.0	61.0	15.0	72.0	2.0	4.0	0.0	0.0	0.0	0.0	0.0	143.0	17.0
	1998	16.0	4.0	40.0	2.0	16.0	6.0	1.0	1.0	0.0	0.0	0.0	0.0	73.0	11.0
	1994	5.0	5.0	27.0	5.0	8.0	4.0	0.0	0.0	0.0	0.0	0.0	0.0	40.0	6.0
	1990	2.0	2.0	48.0	4.0	6.0	0.0	12.0	2.0	0.0	0.0	0.0	0.0	68.0	4.0
	Mean	24.2		56.6		33.9		5.5		0.0				120.2	
Redear sunfish	2004	0.0	0.0	20.0	12.8	40.0	17.1	9.2	2.9	0.0	0.0	0.0	0.0	69.2	31.1
	2003	0.0	0.0	55.4	12.7	26.2	3.1	21.5	2.9	0.0	0.0	0.0	0.0	103.1	13.0
	2002	0.0	0.0	59.2	11.4	49.2	9.9	53.8	20.9	0.0	0.0	0.0	0.0	162.3	27.3
	2001	0.0	0.0	21.0	15.0	12.0	6.0	9.0	3.0	0.0	0.0	0.0	0.0	44.9	21.0
	2000	3.0	3.0	41.9	18.0	24.0	0.0	134.7	68.9	3.0	3.0	3.0	3.0	206.6	50.9
	1999	0.0	0.0	11.0	3.0	40.0	4.0	65.0	11.0	1.0	1.0	1.0	1.0	119.0	11.0
	1998	0.0	0.0	6.0	2.0	16.0	8.0	9.0	1.0	1.0	1.0	1.0	1.0	32.0	12.0
	1994	0.0	0.0	8.0	8.0	5.0	5.0	7.0	3.0	1.0	1.0	1.0	1.0	21.0	7.0
	Mean	0.4		27.8		26.6		38.7		1.4				94.8	

Table 77. Spring, diurnal electrofishing CPUE for each age-class of bluegill collected from Lake Pennyrite during May from 2000-2004.

Year	Age-Class					
	1	2	3	4	5	6
2004 ^A	0.62	12.72	28.27	15.74	4.00	9.42
2003 ^A	15.38	41.03	47.93	19.33	3.38	11.40
2002	55.23	51.18	61.08	19.69	3.38	7.13
2001 ^{AB}	0.00	3.92	19.67	42.25	7.06	15.33
2000 ^{AB}	27.65	94.90	50.07	42.25	10.59	21.60

^A Age and growth data was not collected. Age and growth data collected in 2002 was used as surrogate data.

^B Samples were collected by nocturnal electrofishing.

Table 78. Species composition, relative abundance, and CPUE of bluegill, redear sunfish, warmouth sunfish, longear sunfish, white crappie, and channel catfish collected during 0.50 hours of diurnal electrofishing (3 runs; each 600s) at Lake Pennyrite on 27 September 2004. (wfdwrpo.d04)

Species	Inch-Class																				Total	CPUE	Std. Error
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20			
Bluegill	2	11	38	25	15	6	6														103	202.0	71.6
Redear sunfish			2	13	11	2	2	3	1												34	66.7	34.4
Warmouth sunfish			1	1	10	9	9	2													32	62.8	14.1
Longear sunfish			2	24	37	31	10	1													105	205.9	42.6
White crappie																					1	2.0	2.0
Channel catfish																		2			3	5.9	3.4

Spring CPUE of bluegill = 70.8 f/h (21.7 SE)
 Spring CPUE of redear sunfish = 69.2 f/h (31.1 SE)
 Spring CPUE of warmouth sunfish = 36.9 f/h (21.1 SE)
 Spring CPUE of longear sunfish = 26.2 f/h (9.0 SE)
 Spring CPUE of white crappie = 16.9 f/h (13.2 SE)
 Spring CPUE of channel catfish = 10.8 f/h (7.1 SE)

Table 79. Population assessment of the bluegill sunfish population at Lake Pennyrile from 2000-2004.

Parameter	2000 ^A		2001 ^A		2002		2003 ^A		2004 ^A	
	Actual Value	Score	Actual Value	Score	Actual Value	Score	Actual Value	Score	Actual Value	Score
Growth (Mean length at capture of age-2)	2.9	(1)	2.9	(1)	2.9	(1)	2.9	(1)	2.9	(1)
Growth (Years to reach 6.0 in)	4	(2)	4	(2)	4	(2)	4	(2)	4	(2)
Size Structure (CPUE \geq 6.0 in)	74.9	(3)	67.6	(3)	30.0	(2)	30.8	(2)	29.2	(2)
Size Structure (CPUE \geq 8.0 in)	9.0	(3)	2.9	(2)	1.5	(2)	12.3	(3)	6.2	(2)
Total Score:		(9)		(8)		(7)		(8)		(7)
Assessment Rating:		Fair		Fair		Fair		Fair		Fair

^A Age and growth data was not collected. Age and growth data from 2002 was used as surrogate data. (Pennyrile_BLG_Database)

Table 80. Population assessment of the redear sunfish population at Lake Pennyrite from 2000-2004.

Parameter	2000 ^A		2001 ^A		2002		2003		2004	
	Actual Value	Score	Actual Value	Score	Actual Value	Score	Actual Value	Score	Actual Value	Score
Growth (Mean length at capture of age-3)	5.4 ^B	(2)	5.4 ^B	(2)	5.4	(2)	5.4 ^B	(2)	5.4 ^B	(2)
Growth (Years to reach 8.0 in)	5 ^B	(2)	5 ^B	(2)	5	(2)	5 ^B	(2)	5 ^B	(2)
Size Structure (CPUE \geq 8.0 in)	134.7	(4)	9.0	(2)	53.8	(4)	21.5	(4)	9.2	(2)
Size Structure (CPUE \geq 10.0 in)	3.0	(3)	3.0	(3)	0.0	(1)	0.0	(1)	0.0	(1)
Total Score:		(11)		(9)		(9)		(9)		(7)
Assessment Rating:		Good		Fair		Fair		Fair		Fair

^A Population assessments were based upon nocturnal electrofishing samples.

^B Age and growth data was not collected. Age and growth data collected during 2002 was used as surrogate data. (Pennyrite_RDR_Database)

Table 81. Spring electrofishing catch-per-unit-effort (CPUE) for each size class of redear sunfish collected at Hematite Lake. Standard error in parentheses.

Year	Inch-class				Total
	< 3.0	3.0 - 5.9	6.0 - 7.9	> 8.0	
2002	1.0 (1.0)	73.0 (17.5)	69.0 (10.0)	16.0 (4.0)	159.0 (22.9)
2004	8.4 (3.6)	216.0 (26.1)	27.5 (3.6)	1.2 (1.2)	253.9 (25.8)

Appendix B. Angler attitude survey concerning commercial net fishery at Kentucky Lake, 2004.

Are you aware that commercial fishermen are allowed to purchase a special commercial fishing permit that allows them to fish gill nets during November – March on Kentucky Lake, and November – February on Lake Barkley. These gill nets must have a minimum mesh size of 3 inches, to catch larger rough fish, such as carp, buffalo, and catfish.

(Total Replies = 289)

- 23.5% I was aware that commercial fishermen could fish gill nets on these lakes
- 76.5% I was **not** aware that commercial fishermen could fish gill nets on these lakes

There are approximately 20 commercial anglers that purchase this special commercial fishing permit. What is your opinion regarding this commercial fishery at Kentucky and Barkley lakes?

(Total Replies = 289)

- 27.0% Strongly oppose (**go to next question**)
- 23.2% Somewhat oppose (**go to next question**)
- 29.8% Neutral
- 10.4% Somewhat support
- 1.7% Strongly support
- 7.9% Don't know

Why do you oppose this commercial fishery?

(Total Replies = 136)

- 75.0% I think sport fish are caught in these nets
- 5.9% I hook baits in these nets
- 2.9% I have hit these nets with boat motors
- 9.6% I just don't like nets
- 6.6% Other (list) _____

Date _____ Name (optional) _____

NORTHWESTERN FISHERY DISTRICT
Project 1: Lake and Tailwater Fishery Surveys
FINDINGS

Nolin Lake

A random, stratified, roving creel survey was conducted on Nolin Lake during the period March-October, 2004 (Tables 1-7). The lake was divided into two areas with equal probabilities of fishing pressure and two time periods per day of equal probability. Weekends were weighed at a rate 2.5 times that of weekdays. A total of 44,371 fishing trips were made totaling an estimated 146,796 man-hours; this equates to 25.4 man-hours per acre (Table 1). Anglers caught 245,073 fish and harvested 103,253 fish that weighed 43,397 pounds. The last creel survey on Nolin Lake was conducted in 1995 (see Annual Performance Report, Northwestern Fishery District, 1995). At that time, anglers went on 53,529 trips and expended 292,425 man-hours for an average of 50.51 man-hours per acre or nearly double that recorded in this survey. In 1995 anglers caught 367,635 fish and harvested 144,118 that weighed an estimated 87,709 pounds, again nearly double that recorded in this survey. Catch rates were higher in 2004, with 1.64 fish/hour as opposed to 1.26 fish/hour in 1995. Table 2 provides fish harvest statistics for each species.

Black bass fishing trips have decreased in number and percentage from 1995 (17,356 trips and 39 percent in 1995 versus 14,190 trips and 32 percent in 2004). The size limit on black bass changed from 12 inches in 1995 to 15 inch size limit with one fish under in 1996. There were 14,252 largemouth bass harvested in 1995 with an average length of 13.1 inches. In 2004 there were 2,916 largemouth bass harvested with an average length of 14.3 inches. Total catch for largemouth bass decreased from 68,924 fish in 1995 to 34,377 fish in 2004. However, the number of black bass caught per hour of fishing by bass anglers was 0.72 in 1995 and 0.73 in 2004 (Table 4). The average black bass fishing trip decreased from 5.5 hours in 1995 to 3.3 hours in 2004, partially explaining the discrepancy in bass catch. Also, spotted bass were caught (33,466 fish) and harvested (8,440 fish) in much greater numbers in 1995 than in 2004, when 8,676 fish were caught and 1,561 fish harvested. Largemouth bass \geq 15.0 inches were caught at a greater rate in 2004 than in 1995 (4,132 versus 2,573) and were harvested at a lesser rate (1,481 harvested in 2004 and 1,527 harvested in 1995)(Table 4).

Crappie fishing has remained nearly the same in number of trips and percentage of trips (approximately 11,000 trips and 25% both surveys), however anglers fished much longer in 1995 (10.3 hours/acre in 1995 and 6.3 hours/acre in 2004). Crappies were harvested in similar numbers in both survey years (48,816 in 2004 and 47,182 in 1995). Catch (harvest) rates were better in 2004 with 1.28 fish/hour as opposed to 0.81 fish/hour in 1995 (Table 2).

Walleye fishing has declined in every aspect of the fishery. Total number of walleye caught declined from 9,531 in 1995 to 1,632 in 2004 (Table 6). Walleye harvest declined from 3,320 fish in 1995 to 206 fish in 2004. Walleye fishing trips declined from 3,947 in 1995 to 700 in 2004 and hours fished for walleye also declined from 21,536 to 2,316. Ironically, the number harvested per hour of fishing by walleye anglers changed very little, from 0.10 fish/hour in 1995 to 0.07 fish/hour in 2004.

White bass anglers also fished less in 2004 than in 1995, with 2,029 trips in 1995 and 755 trips in 2004 (Table 7). The total harvest of white bass declined from 11,767 fish in 1995 to 6,201 fish in 2004. White bass anglers harvested 4,105 fish in 2004 as compared to 5,364 fish in 1995. Catch and harvest rates increased for white bass anglers, as 1995 values for catch and harvest were both 0.57 fish/hour and catch rates were 1.38 fish/hour and harvest rates were 3.26 fish/hour in 2004.

Angler attitude surveys were conducted at Nolin Lake in conjunction with creel survey activities. These survey questionnaires and responses are provided below.

NOLIN RIVER LAKE ANGLER ATTITUDE SURVEY 2004 (121 Respondents)

1. Have you been surveyed this year? Yes - stop survey No - continue
2. Name _____ and Phone number _____ (Optional)
3. Which species of fish do you fish for at Nolin River Lake? (check all that apply)
Bass **75%** Crappie **81%** Walleye **46%** White Bass **48%** Channel Catfish **23%** Flathead Catfish **16%** Other **31%**

4. Which one species do you fish for most at Nolin River Lake? (Check only one)

Bass 50% Crappie 31% Walleye 8% White Bass 3% Channel Catfish 2% Flathead Catfish 1% Other 5%

-Ask following questions relevant to each species fished for-

Bass Anglers

5. What level of satisfaction do you have with bass fishing at Nolin I River Lake?

Very satisfied 4% Somewhat satisfied 54% Neutral 24% Somewhat dissatisfied 15% Very dissatisfied 3%

6. Do you support or oppose the 15 inch one under size limit on largemouth bass at the lake?

Support 88% Oppose 4% No opinion 8%

6a. What size limit would you prefer on largemouth bass at the lake? Current (15"-1) 64% 15" 31% Other 5%

7. Do you support or oppose "no size limit" on spotted bass at the lake? Support 57% Oppose 24% No opinion 19%

7a. What size limit would you prefer on spotted bass at the lake? Current (None) 60% 12" 31% Other 9%

Crappie Anglers

8. What level of satisfaction do you have with crappie fishing at Nolin River Lake?

Very satisfied 12% Somewhat satisfied 56% Neutral 17% Somewhat dissatisfied 10% Very dissatisfied 5%

9. Do you support or oppose the 9-inch size limit on crappie at the lake? Support 80% Oppose 17% No opinion 3%

9a. What size limit would you prefer? No size limit 1% 8" 5% Current (9") 64% 10" 30% Other 0%

10. Do you support or oppose the 30 fish creel limit on crappie at the lake? Support 73% Oppose 23% No opinion 4%

10a. What creel limit would you prefer? Current (30) 71% 20 14% 15 13% 10 1% Other 1%

Walleye Anglers

11. What level of satisfaction do you have with walleye fishing at Nolin River Lake?

Very satisfied 4% Somewhat satisfied 19% Neutral 31% Somewhat dissatisfied 20% Very dissatisfied 26%

12. Do you support or oppose the 15" size limit on walleye at the lake? Support 87% Oppose 4% No opinion 9%

12a. What size limit on walleye would you prefer? Current (15") 89% 18" 9% 20" 2% Other 0%

13. Do you support or oppose the 10 fish creel limit on walleye at the lake? Support 56% Oppose 35% No opinion 9%

13a. What creel limit on walleye would you prefer? Current (10) 55% 6 36% 3 3% Other 6%

White Bass Anglers

14. What level of satisfaction do you have with white bass fishing at Nolin River Lake?

Very satisfied 8% Somewhat satisfied 33% Neutral 33% Somewhat dissatisfied 21% Very dissatisfied 5%

15. Do you support or oppose the 30 fish daily creel limit on white bass? Support 69% Oppose 24% No opinion 7%

15a. What creel limit would you prefer on white bass at the lake? Current (30) 73% 15 23% 10 4%

Catfish Anglers

16. What level of satisfaction do you have with the channel catfish fishing at Nolin River Lake?

Very satisfied 6% Somewhat satisfied 43% Neutral 43% Somewhat dissatisfied 4% Very dissatisfied 4%

17. Do you support or oppose the no size limit on channel catfish at Nolin River Lake?

Support 63% Oppose 25% No Opinion 12%

- 17a. If support, what size limit would you prefer? None 70%, 12" 17%, 14" 11%, other 2%
18. Do you support or oppose the no creel limit on channel catfish at Nolin River Lake?
Support 67% Oppose 25% No opinion 8%
- 18a. What creel limit would you prefer? None 76%, 5 10%, 15 14%.
19. What level of satisfaction do you have with the flathead catfish fishing at Nolin River Lake?
Very satisfied 2% Somewhat satisfied 29% Neutral 51% Somewhat dissatisfied 9% Very dissatisfied 9%
20. Do you support or oppose the no size limit on flathead catfish at Nolin River Lake?
Support 70% Oppose 20% No Opinion 10%
- 20a. What size limit would you prefer on flathead catfish at the lake? Current (none) 80% 20" 16% other 4%
21. Do you support or oppose the no creel limit on flathead catfish at the lake?
Support 64% Oppose 22% No opinion 14%
- 21a. What creel limit would you prefer on flathead catfish at the lake? Current (none) 77% 5 12% 15 9% Other 2%

**Nolin River Lake Creel Survey-2004 (111 Respondents)
Trophy Catfish Questionnaire**

1. How many times per year do you fish for catfish at Nolin River Lake?
40% ___ Do not fish for catfish (Skip to question 5)
29% ___ 1-5 times per year
31% ___ More than 5 times per year
2. Which catfish species do you prefer to fish for at Nolin River Lake?
40% ___ Channel catfish
21% ___ Flathead catfish
3. Check all methods that you use to catch catfish at Nolin River Lake?
55% ___ Rod and reel
21% ___ Trotlines
11% ___ Limblines
20% ___ Jugfishing
04% ___ Tickling and Noodling (hand grabbing)
4. Which method do you prefer to use to catch catfish at Nolin River Lake?
41% ___ Rod and reel
13% ___ Trotlines
0% ___ Limblines
5% ___ Jugfishing
2% ___ Tickling and Noodling (hand grabbing)
5. Would you favor a trophy catfish size and creel regulation that would allow the unlimited harvest of fish under 34 inches, but allow the harvest of only one fish over 34 inches per day? 95% yes 5% no
6. Do you feel that this length limit should apply to all the methods used to catch catfish that are listed in question # 4 above?
95% yes 5% no

7. Tickling and Noodling is a method of harvesting catfish by handgrabbing or hooking catfish from underwater spawning cavities. Are you in favor of this method of harvesting catfish?

23% ___yes (thank you for your participation)

76% ___no (go to questions 7A and 7B)

7a. Why are you not in favor of tickling and noodling as a method of harvesting catfish?

61%_to many catfish harvested

59%_it targets fish that are spawning

22%_catfish may be injured and escape only to die later

13%_just do not like it

05%_Other (please list)_____

7b. If hooks and gaffs were made illegal and only hand grabbing or roping were legal for tickling and noodling would you be in favor of this method? 9% ___Yes 91% No

4 want creel dropped to 2-3 fish,

1 not a sport fishing method

1 too dangerous

1 takes too many big fish

1 no hooks allowed

1 trashing lake from barrels

1 inhumane to fish

Black Bass Sampling

Spring electrofishing for black bass population indices (Tables 8-10) was conducted for 4.5 hours during April 2004. Sampling results are similar to those observed in 2003, and reflect slight improvements to the bass population (Table 9). PSD and RSD15 values remain virtually constant to those found in 2003 (Table 10). Age frequency and CPUE per age class is given in Tables 11 and 12. The overall black bass population assessment at Nolin Lake was fair, as it has been for the last several years (Table 13). Instantaneous mortality was estimated at 0.534 and the annual mortality was 41.4. Cohort mortality for each year class is given in Table 12. Fall electrofishing was conducted to further define largemouth bass population dynamics. Length frequency and CPUE are presented in Table 14. Table 15 provides information on year class strength and mean lengths for Age 0 and Age 1 largemouth bass.

Largemouth bass management objectives for Nolin Lake are as follow:

1) Achieve annual angler catch of 26,000 largemouth bass \geq 12.0 inches.

2) Catch rate of 0.20 fish/hour for largemouth bass \geq 12.0 inches by bass anglers.

3) Angler catch of 2,600 bass \geq 15.0 inches.

4) CPUE of 40 fish/hour for 8.0 -11.0 inch bass, 30 fish/hour for 12.0-14.9 inch bass, and 7 fish/hour for bass \geq 15.0 inches.

Objective 2 was exceeded with a catch rate of 0.28 fish/hour. Objective 3 was also exceeded with 4,132 bass being caught, and Objective 4 was partially met as 10.7 fish/hour were collected that were 15 inches or larger.

Crappie Sampling

Fall trapnetting to assess Nolin Lake's crappie population was completed during October. A total of 1,124 crappie (1051 white crappie and 73 black crappie) were collected during 77 net-nights of trapnetting. Length frequency and CPUE are given in Table 16. CPUE decreased in 2004, following two years of modest increase. Most fish are 7-10 inches in length. PSD and RSD10 values are listed in Table 17. White crappie \geq 8.0 inches are well represented in the population (6.93 fish/net-night), and crappie \geq 10.0 inches were caught at a rate of 2.0 fish/net-night. Both values represent slight declines from 2003 values. Otoliths were removed from each inch-class for age-growth determinations. White crappie continue to grow well at Nolin, reaching 9.7 inches by the end of the third growing season. The log₁₀ length weight equation for white crappie is $\text{Log}W = -3.66 + 3.32(\text{log}L)$. Age and growth determinations for white crappie are provided in Table 18. Age frequency and catch rates for age classes are given in Table 19. Age 1 fish dominate the crappie population, which has been the case for a number of years.

Annual mortality of year class is estimated to range from 100% for older fish to 62% for 1 to 2 year old fish (Table 20). The overall white crappie population assessment was calculated to be "good" with a total score of 13 (possible 20) Table 21. The instantaneous mortality was 0.63 and the total annual mortality was 46.7 %.

Strategic management plan objectives for Nolin Lake are as follow:

- 1)Annual yield of 4.5 pounds per acre of harvested crappie.
- 2)Harvest rate of 0.9 fish/hour by crappie anglers.
- 3)Population density of 6 fish/net/day for ≥ 8.0 inch white crappie.
- 4)Growth rate of 9.5 inches by capture at the end of the third growing season.

Crappie were harvested at 4.3 pound/acre which is slightly less than Objective 1. Crappie were harvested at 1.3 fish/hour (Table 2) which exceeds Objective 2. Objective 3 was exceeded with a netting CPUE of 6.9 fish. Growth rates of 9.7 exceeded standards set for Objective 4.

A summary of crappie assessments for the past 5 years is given in Table 22.

Rough River Lake

Black Bass Sampling

Spring electrofishing for black bass population indices was conducted during April 2004. Table 23 provides information regarding CPUE per inch class for largemouth and spotted bass. Table 24 tracks CPUE for selected inch-groups over the past several years for trend analysis. CPUE was noticeably down in all size categories during 2004, but are consistent with values obtained in 1999-2002. This is, for the most part, due to increased sampling efficiency in 2003, however, increases in CPUE for the larger size groups was an encouraging sign in both 2003 and 2004. Pertinent management objectives for largemouth bass are population densities of ≥ 50 bass/hour for 8.0-11.9 inch fish, ≥ 25 bass/hour for 12.0-14.9 inch fish, and ≥ 10 bass/hour for ≥ 15 inch bass. The last objective was met for the first time in several years in 2003 and was close to being met in 2004 (Table 24). PSD and RSD15 values are both down in 2004, with 39% PSD and 17% RSD15 for largemouth bass (Table 25). Age and growth determinations were conducted for largemouth bass (Table 26). Electrofishing catch rates for each age class are given in Table 27. Annual mortality of year classes is given in Table 28. The overall population assessment for largemouth bass at Rough River Lake is good, a continuation of improvement noted in 2003 (Table 29). Fall electrofishing for further definition of population parameters for young fish was conducted in September. Table 30 lists results for each inch class collected during fall sampling. Table 31 gives indices of year class strength for age 0 and age 1 largemouth bass at Rough River Lake.

Crappie Sampling

Fall trapnetting to assess Rough River Lake's crappie population was conducted during October 2004. A total of 799 white crappie and 86 black crappie were collected during 80 net days of netting. Length frequencies and CPUE are listed in Table 32. The white crappie population continues to show excellent length distribution although CPUE was down in 2004. Table 33 gives PSD and RSD values for white and black crappie. Age and growth determinations were performed on white crappie (Table 34). White crappie are exhibiting good growth rates at Rough River Lake, averaging 10.0 inches at Age 3. The length weight equation for white crappie is $\text{Log}W = -3.93 + 3.61(\text{Log}L)$. Age frequencies (Table 35) indicate a dominant age 1 population composition. Annual mortality of yearly cohorts is provided in Table 36. The overall population assessment for white crappie was fair, primarily due to decreased catch of young of year crappie (Table 37). Table 38 tracks population parameters over the last several years. White crappie management objective 3 states that the white crappie population density should be at least 9 fish > 8.0 in/net night, objective 4 states that at least 40% of the population be age 2 or older, and objective 5 requires a growth rate of at least 9.0 inches of age 2+ fish at capture. Objective 3 was met in 2003 but was not met in 2004. Objective 4 was not met as only 27% of the population was age 2 or older. Objective 5 was met in 2003 and 2004.

Lake Malone

Largemouth bass sampling

Lake Malone was electrofished for largemouth bass population composition in April 2004. Table 39 shows length frequency and CPUE for largemouth bass for each inch class. CPUE decreased slightly in all size categories over those observed in 2004 (Table 40). Slot limit protected fish continue to decrease, probably a function of hooking mortality and competition, however this is an area that will be closely monitored in 2005. PSD values and RSD15 values remain at high levels (Table 41). Tables 42 and 43 examine the age structure and mortality of largemouth bass age groups in Lake Malone. Lake Malone continues to support a good large bass population and an expansive age structure. Largemouth bass instantaneous mortality was 0.365 and annual mortality was 31%. The overall largemouth bass population assessment was good, scoring slightly behind last year's values (Table 44). Bass were sampled by electrofishing during October to determine population composition and year class strength (Table 45). Table 46 provides year class strength and mean length of age 0 fish at capture. This data will be used to track year class strength and growth through time. Management objectives for largemouth bass electrofishing are as follow:

- 1) Achieve population density of 50 bass/hour for 8.0-11.9 inch bass, 60 bass/hour for 12.0-14.9 inch bass, and 15 bass/hour for bass greater than 15 inches.

Objectives for the intermediate bass were not met, the other objectives were exceeded.

Bluegill and redear sunfish sampling

Bluegill and redear sunfish were sampled by electrofishing in April 2004 (Table 47). Catch rates improved for ages 2-4, however, age 1 fish were slightly behind 2002 and 2003 values (Table 48). PSD and RSD values are given in Table 49 and reflect a population dominated by smaller bluegill. The overall population assessment for bluegill is fair, similar to assessments for previous years (Table 50). Table 51 shows the trend toward overpopulated small bluegill over the past few years, with an encouraging increase in fish 6.0-7.9 inches this past sampling season. Bluegill management objectives at Lake Malone call for electrofishing CPUE to be ≥ 72 fish 3.0-5.9 inches, ≥ 48 for bluegill greater than 6.0 inches and at least 5 fish/hour for 8.0 inch and larger bluegill. The first two objectives were easily met but the latter objective for large bluegill was not met.. Redear sunfish were not assessed due to small sample numbers.

Carpenter Lake

Largemouth bass

Carpenter Lake was electrofished for largemouth bass population composition in April 2004. Length frequency and CPUE is given in Table 52. Table 53 lists electrofishing CPUE 1999-2004 for selected inch groups of largemouth bass. Most notable is trends of increasing abundance of small bass and bass over 15 inches, particularly the last four years. PSD and RSD values are given in Table 41. Table 54 provides age class CPUE for the past three years at Carpenter Lake. Table 55 gives mortality of cohort for age classes over the past two years. The overall bass population assessment at Carpenter Lake is excellent, and has improved over the past few years (Table 56). Largemouth bass management objectives at Carpenter Lake state that at least 60 bass from 8.0-11.9 inches, 30 bass from 12.0-14.9 inches and 8 bass 15 inches or larger be collected per hour of electrofishing. Objectives 1 and 3 were met (Table 53).

Bluegill and redear sunfish sampling

Bluegill and redear sunfish were electrofished in April 2004 at Carpenter Lake. Table 57 provides length frequency and CPUE. The PSD and RSD8 values for bluegill were 65 and 2, respectively (Table 58). Redear sunfish were not collected in sufficient numbers for compilation. Table 59 compares electrofishing catch rates for each age class of bluegill over the past two years. Improvement was noted in each age class in 2003 and 2004. Table 60 provides electrofishing CPUE for selected size classes over the past several years. Bluegill electrofishing results have been sporadic. The overall population assessment for bluegill was good (Table 61), slightly lower than long term trends. Bluegill management objectives at Carpenter Lake require 200 fish/hour for 3-5.9 inch fish, 120 fish/hour for 6-7.9 inch fish and 20 fish/hour for fish ≥ 8.0 inches. These objectives were not met in 2003 or 2004.

Kingfisher Lake

Largemouth bass sampling

Largemouth bass were electrofished at Kingfisher Lake during April 2004. Length frequency and CPUE are given in Table 62. PSD and RSD15 are given in Table 41. CPUE comparisons over the past several years for selected inch groups is given in Table 63. Small fish dominate the bass population at Kingfisher Lake, as they have for a number of years, however, a few larger fish are beginning to show up. Annual removal and transplant of 250 + bass to Carpenter Lake will continue with additional transplants each year until the small bass are brought under control. Age and growth determinations in 2003 revealed a slow-growing bass population, with age 5 bass being less than 12.0 inches. Table 64 gives CPUE for each age class over the past three years. Annual mortality of cohort is listed in Table 65. Table 66 tracks population assessments over the past several years. The shortage of larger sized fish in Kingfisher is the primarily causative agent in low assessment scores.

Bluegill sampling

Bluegill were sampled at Kingfisher Lake in April 2004. Length frequency and CPUE are listed in Table 67. Comparison of selected size groups over the past several years of electrofishing is given in Table 68. The PSD for bluegill is 60 (Table 69). CPUE for each age class of bluegill collected over the past three years is listed in Table 70. Table 71 tracks population assessments over the past several years. Kingfisher Lakes have good growth rates but are low in overall population numbers, especially the larger sized fish. This is a heavily fished small lake near a metropolitan center (Owensboro), which partially explains this situation.

Mauzy Lake

Mauzy Lake was renovated in 2003. The lake was drawn down 13 feet for the installation of an underwater withdrawal pipe (set at 12 feet). While the lake was down shoreline areas were deepened to at least 18 inches to suppress vegetative growth and provide better bank fishing access and utilization. Jetties were formed of the dredged material and these were capped with riprap and gravel and access roads constructed so that those physically impaired could access the jetties. The jetties (12) were complemented with pea gravel mats and fish attractors. A large area was graveled and numerous fish attractors installed in anticipation of a floating fishing pier.

Largemouth bass sampling

Largemouth bass were sampled in April 2004, the lake was still in a partially drawn down condition. Table 72 gives length frequency and CPUE information, which revealed a fairly balanced population. Table 73 provides CPUE for selected size groups over the past several years, and reveals that the larger sized fish were heavily impacted by the lake drawdown and concentrated fishing pressure. Low PSD values are also indicative of this pressure (Table 41). Age and growth information for largemouth bass is given in Table 74. Largemouth bass are slow growing in Mauzy Lake, and this coupled with low population numbers of larger fish resulted in a poor rating for the overall bass population (Table 75).

Bluegill sampling

Mauzy Lake was sampled for bluegill in April 2004. Table 76 provides CPUE and length frequency for bluegill. PSD and RSD values are given in Table 77. Table 78 provides CPUE for selected size groups of bluegill which will need to be followed for a couple more years to assess trends.

Washburn Lake

Washburn Lake was renovated and restocked with largemouth bass, bluegill, redear sunfish, and channel catfish in 2000. Population assessments are limited due to the age of fishes present.

Largemouth bass sampling

Largemouth bass were sampled in April 2004. Table 79 gives length frequency and CPUE for collected fish. Table 80 provides CPUE for selected size groups of largemouth bass but is limited by the age of bass available in the lake. Age and growth for largemouth bass is given in Table 81 and reveals a slow-growing bass population. The overall bass population was evaluated (Table 82) and received a poor rating, primarily due to the stocking history of the lake but further compromised by slow growing bass.

Bluegill and redear sunfish sampling

Bluegill were collected during April sampling (Table 83). No redear sunfish were observed. The PSD for bluegill was 61 in 2003 and 40 this year (Table 84). Table 85 tracks bluegill relative abundance of selected size groups since stocking in 2000. The population assessment for bluegill was excellent (Table 86).

Table 1. Fishery statistics derived from a daytime creel survey at Nolin River Lake (5,800 ac) during 1 March through 31 October 2004.

<u>Fishing trips</u>		
No. of fishing trips (per acre)	44,371	7.66
<u>Fishing pressure</u>		
Total man-hours (S.E.) ^a	146,796	1,968
Man-hours/acre	25.4	
<u>Catch/harvest</u>		
No. of fish caught (S.E.)	245,073	15,549
No. of fish harvested (S.E.)	103,253	8,510
Lb of fish harvested	43,397	
<u>Harvest rates</u>		
Fish/hour	0.65	
Fish/acre	17.8	
Lb/acre	7.5	
<u>Catch rates</u>		
Fish/hour	1.67	
Fish/acre	42.3	
<u>Miscellaneous characteristics (%)</u>		
Male	81.9	
Female	18.1	
Resident	93.9	
Non-resident	6.1	
<u>Method (%)</u>		
Still fishing	26	
Casting	68.5	
Fly fishing	0.1	
Trolling	5.3	
<u>Mode (%)</u>		
Boat	81.8	
Bank	9	
Dock	9.2	

t < 0.5%

^aS.E. = standard error

No. caught (per acre)	920	183	547	3,734	1,632	467	16	126	83,639	2,170	146	8,676	34,377	75,852	18,371	13,505	16	43,199	4,280	87,321	94,223	246	237	15
	(0.16)	(0.03)	(0.09)	(0.65)	(0.3)	(0.08)	t	(0.02)	(14.49)	(0.38)	(0.03)	(1.50)	(5.94)	(13.1)	(3.2)	(2.33)	t	(7.5)	(0.7)	(15.1)	(16.3)	(0.04)	(0.04)	t
No. harvested (per acre)	230	21	376	2,053	206	298		21	35,109	376		1,561	2,916	41,800	11,587	6,201		4,477	2,429	36,034	53,387	246	237	15
	(0.04)	t	(0.06)	(0.35)	(0.04)	(0.05)		t	(6.06)	(0.06)		(0.27)	(0.50)	(7.2)	(2.0)	(1.07)		(0.8)	(0.4)	(16.2)	(19.2)	(0.04)	(0.04)	t
% of total no. harvested	0.22%	0.02	0.36	1.99	0.20%	0.29%		0.02%	34.00%	0.36%		1.51%	2.82%	40.48%	11.22%	6		4.34	2.35	34.9	51.71	0.24	0.23	0.02
Lb harvested (per acre)	59	134	1,075	1,818	295	29		5	4,193	27		913	4,427	19,104	6,009	5,205		5,340	2,892	4,312	25,114	35	60	10
	(0.01)	(0.02)	(0.19)	(0.31)	(0.05)	t		t	(0.72)	t		(0.16)	(0.77)	(3.30)	(1.04)	(0.80)		(0.92)	(0.50)	(0.74)	(4.34)	(0.90)	t	(0.01)
% of total lb harvested	0.10%	0.3	2.5	4.2	0.9	0.07		0.01	9.7	0.06		2.1	10.2	44	13.8	12.0		12.3	6.7	9.9	57.9	11.9	0.1	0.1
Mean length (in)	7.9	24	19.2	14.4	16.9	5.2		7	5.2	4.9		10.5	14.3	9.9	9.8	12						7.5	8	13
Mean weight (lb)	0.4	6.4	2.9	1	1.6	0.09		0.2	0.1	0.07		0.5	1.5	0.4	0.5	0.7						0.2	0.2	0.6
No. of fishing trips for that species					700											755		14,190.00	1,382.00	3,212.00	10,984.00			13,137
% of all trips					1.6											1.7		32.00%	3.10%	7.20%	24.80%			29.6
Hours fished for that species					2,316											2,499		46,945	4,574.00	10,627.00	36,372.00			43,462
No. harvested fishing for that species					(0.4)											0.43		(8.1)	(0.8)	(1.8)	(6.3)			(7.5)
Lb harvested fishing for that species					167											4,105		3,161	1,097	16,191	48,816			
No./hour harvested fishing for that species					0.07											1.38		0.05	0.24	1.60	1.28			
% success fishing for that species					9.4											60		8.90%	31.80%	36.5%	61.00%			18.4

Table 3. Monthly black bass angling success at Nolin River Lake during 1 March - 30 October 2004 creel survey period; data does not include bass <8.0 inches that were caught and released.

Month	Total no. of bass caught	Total no. of bass harvested	No. of black bass fishing trips	Hours fished by bass anglers	Bass caught by bass anglers	Bass caught/hour by bass anglers	Bass harvested by bass anglers	Bass harvested/hour by bass anglers
Mar	5,718	1,040	1,579	5,222	4,344	0.75	557	0.10
Apr	4,211	1,391	1,649	5,455	3,421	0.56	1,052	0.17
May	4,300	584	1,659	5,489	3,654	0.55	460	0.07
Jun	5,627	223	1,559	5,159	4,251	0.82	101	0.02
Jul	7,431	254	2,100	6,948	6,431	0.87	187	0.03
Aug	7,142	288	2,197	7,268	6,021	0.76	256	0.03
Sep	6,322	468	2,270	7,510	5,550	0.71	408	0.05
Oct	2,448	227	1,177	3,894	2,081	0.61	140	0.04
Total	43,199	4,477	14,190	46,945	35,753		3,161	
Mean						0.73		0.05

Table 4. Black bass catch and harvest statistics derived from a creel survey at Nolin River Lake (5,800 a) for each species of black bass.

	Largemouth bass					Spotted bass			Smallmouth bass										
	Harvest		Catch and release			Harvest	Catch and release		Harvest	Catch and release									
	8-11.9	12.0-14.9	≥15.0	≥20.0	Total		8.0-11.9	12.0-14.9			≥15.0	≥20.0	Total	8.0-14.9	>15.0	Total	8.0-14.9	≥15.0	Total
Total no. of bass	171	1,215	1,481	24	2,916	18,250	11	2,651	53	31,461	1,561	7,056	59	7,115	0	146	0	146	
% of black bass harvested by no.					65.1						34.9								
Total weight of fish (lb)					4,427						913								
% of bass harvested by weight					82.9						17.1								
Mean length					14.3						10.5								
Mean weight					1.52						0.54								
Rate (f/hr)					0.02						0.01								

Table 6. Monthly walleye angling success at Nolin River Lake during 1 March - 30 October 2004 creel survey period.

Month	Total no. of walleye caught	Total no. of walleye harvested	No. of walleye fishing trips	Hours fished by walleye anglers	Walleye caught by walleye anglers	Walleye caught/hour by walleye anglers	Walleye harvested by walleye anglers	Walleye harvested/hour by walleye anglers
Mar	37	37	56	186	37	0.20	37	0.20
Apr	113							
May	459	63	290	961	397	0.41	42	0.04
Jun	466	40	198	655	303	0.46	40	0.06
Jul	85		41	134	34	0.25		
Aug	288	48	70	232	80	0.34	48	0.21
Sep	166		44	147	30	0.20		
Oct	17	17						
Total	1,632	206	700	2,316	881		167	
Mean						0.38		0.07

Table 7. Monthly white bass angling success at Nolin River Lake during 1 March - 30 October 2004 creel survey period.

Month	Total no. of white bass caught	Total no. of white bass harvested	No. of white bass fishing trips	Hours fished by white bass anglers	White bass caught by white bass anglers	White bass caught/hour by white bass anglers	White bass harvested by white bass anglers	White bass harvested/hour by white bass anglers
Mar	1,374	891	56	187	594	3.17	557	2.98
Apr	1,015	940						
May	501	21	83	274	459	1.67		
Jun	1,316	283	136	450	547	1.21	223	0.49
Jul	407	119						
Aug	721	416	20	66	352	5.33	256	3.88
Sep	3,433	907	100	331	3,010	9.09	726	2.19
Oct	4,739	2,623	360	1,190	4,249	3.57	2,343	1.97
Total	13,506	6,200	755	2,499	9,211		4,105	
Mean						3.26		1.38

Table 8. Species composition, relative abundance, and CPUE (no./hour) of black bass collected during 4.5 hours of 30-minute diurnal electrofishing runs at Nolin River Lake in April 2004.

Area	Species	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	Total	CPUE	Std. Error
Upper	Largemouth bass	3	11	12	16	17	13	15	17	11	10	12	12	3	11	9	7	1				180	72.00	11.63
	Spotted bass	2	1	1	1	7	8	3	5	8												35	14.00	6.87
Lower	Largemouth bass	4	15	25	11	10	8	5	1	7	15	11	6	4	1	6	2	2	1			134	67.50	11.76
	Spotted bass	2	7	9	3	6	7	4														38	19.00	4.36
Total	Largemouth bass	7	26	37	27	27	21	20	18	18	25	23	18	7	12	15	9	3	1	1		315	70.00	7.82
	Spotted bass	2	7	8	16	11	9	12	12													77	16.22	4.13

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Table 9. Spring electrofishing CPUE for each size class of largemouth bass collected at Nolin River Lake during spring electrofishing 1999-2004. CPUE = fish/hour.

Year	Inch Class												Total	
	<8.0			8.0-11.9			12.0-14.9			>15.0				
	CPUE	Std. err.	CPUE	Std. err.	CPUE	Std. err.	CPUE	Std. err.	CPUE	Std. err.	CPUE	Std. err.	CPUE	Std. err.
2004	27.56	4.13	17.11	3.51	14.67	2.29	10.67	2.77	7.82	2.21	7.56	1.99	70.00	7.82
2003	12.89	3.73	10.22	2.3	8.89	2.21	7.56	1.99	39.56	9.16	8.00	1.63	29.78	5.44
2002	4.00	1.33	9.78	2.59	8.00	3.13	8.00	2.80	59.50	11.72	9.00	2.80	100.00	13.07
2001	5.50	1.68	27.00	7.44	18.00	3.30	14.00	4.34	126.22	26.01	8.00	1.76		
2000	9.50	3.11	35.00	6.27	41.50	5.12	8.00	1.76						
1999	n/d		61.33	16.84	56.89	9.18								

Table 10. PSD and RSD values obtained for each black bass species taken in spring electrofishing samples in each area of Nolin River Lake during April 2004; 95% confidence intervals are in parentheses.

Area	Species	No. fish \geq 8.0"	PSD (+/- 95%)	RSD ^a (+/- 95%)
Upper	Largemouth bass	121	54 (+/- 9)	26 (+/- 7)
	Spotted bass	31	26 (+/- 16)	0
Lower	Largemouth bass	70	70 (+/- 10)	24 (+/- 10)
	Spotted bass	25	24 (+/- 17)	4 (+/- 7)
Total	Largemouth bass	191	60 (+/- 7)	25 (+/- 6)
	Spotted bass	56	25 (+/- 11)	2 (+/- 3)

^a Largemouth bass = RSD-15, spotted bass = RSD-14.
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Table 11. Electrofishing catch rate (fish/hr) for each age of largemouth bass collected from Nolin River Lake during April 2004.

Age	Year		
	2002	2003	2004
1	3.78	11.33	26.00
2	8.33	9.64	15.62
3	8.90	9.08	14.90
4	1.59	1.57	1.86
5	0.73	0.82	0.97
6	1.78	2.44	3.33
7			
8			
9			
10			

nwdnlpsd.d04, nwdnllag.d02

Table 12. Annual mortality (A) between 2003-2004, and CPUE (fish/hr) of the last five year classes estimated from largemouth bass captured in spring electrofishing samples at Nolin River Lake.

Year Class	Age Intervals	CPUE (2003)	CPUE (2004)	Mortality of Cohort (%)
2003	1+ - 2+	11.33	15.62	
2002	2+ - 3+	9.64	14.90	
2001	3+ - 4+	9.08	1.86	80
2000	4+ - 5+	1.57	0.97	38
1999	5+ - 6+	0.82	3.33	
1998	6+ - 7+	2.44	0	100

Table 13. Population assessment for largemouth bass based on spring electrofishing at Nolin River Lake from 1999-2004.

Parameter	Year											
	1999		2000		2001		2002		2003		2004	
	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score
Length at age 3	13.09	4	13.09	4.00	13.09	4	13.09	4	13.09	4	13.09	4
Spring CPUE age 1 fish	n/d		9.00	1	5.00	1	3.78	1	11.33	1	26.00	2
Spring CPUE 12-14.9 in fish	56.89	4	41.50	4	18.00	2	8.00	1	8.89	1	14.67	1
Spring CPUE \geq 15.0 inch fish	8.00	2	14.00	3	9.00	2	8.00	2	7.56	2	10.67	2
Spring CPUE \geq 20.0 inch fish	0.44	2	0.50	2	0.00	0	0.00	0	0.00	0	0.44	2
Total score				14		9		8		8		11
Assessment rating				G		F		F		F		F

Table 14. Species composition, relative abundance, and CPUE (no./hour) of black bass collected during 4.5 hours of 30-minute diurnal electrofishing runs at Noloin River Lake in September 2004.

Area	Species	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Total	CPUE	Std. Error
Upper	Largemouth bass	20	151	24	13	24	22	3	18	28	19	13	7	7	4	3			1	357	142.80	43.27	
	Spotted bass	7	47	5	2	3	3	2	2	3	4	2	4								84	33.60	6.18
Lower	Largemouth bass	27	54	10	8	14	4	7	3	2	12	11	1	4	1	2					160	80.00	19.54
	Spotted bass	22	43	5	1	10	9	4	11	8	5		2		1						121	60.50	18.19
Total	Largemouth bass																				517	114.89	26.56
	Spotted bass																				205	45.56	9.39

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Table 15. Indices of year class strength at age 0 and age 1 and mean lengths (in) of largemouth bass collected in the fall in electrofishing samples at Noloin River/Lake.

Year Class	Area	Age 0			Age 0 > 5.0			Age 1		
		Mean length	Std. error	CPUE	Std. error	CPUE	Std. Error	CPUE	Std. Error	
2001	Total	3.0		76.0	29.2	7.3	0.9	3.78	1.10	
2002	Total	4.5		28.6	11.8	14.4	1.4	11.33	3.11	
2003	Total	4.4		28.4	4.9	14.2	2.6	22.89	1.57	
2004	Total	4.1		41.3	11.2	9.6	1.6			

Table 16. Length frequency and CPUE for each species of crappie collected in 77 net-nights of sampling at Nolin River Lake during October 2004.

Species	Inch Class											Total	CPUE	Std. Error
	2	3	4	5	6	7	8	9	10	11	12			
White crappie	1	223	168	9	21	95	223	157	111	40	3	1051	13.65	1.96
Black crappie	2	39	6		1	5	3	9	5	3		73	0.95	0.21

nwdnrltr.d04

Table 17. PSD and RSD10 values calculated for crappie collected in trap nets from Nolin River Lake during October 2004; 95% confidence limits are in parentheses.

Lake/Species	No.	PSD	RSD10
Nolin River Lake			
White Crappie	1051	81 (+/- 3)	23 (+/- 3)
Black Crappie	73	77 (+/- 17)	31 (+/- 18)

nwdnrltr.d04

Table 18. Mean back calculated lengths (in) at each annulus for white crappie collected at Nolin River Lake in October 2004.

Year class	No.	Age							
		0+	1	2	3	4	5	6	7
2004	7								
2003	32		4.7						
2002	21		5.6	8.3					
2001	9		5.3	8.2	9.5				
2000	2		5.8	7.7	9.3	10.1			
1997	1		6.3	8.0	9.6	10.5	11.1	11.8	12.1
Mean		4.0	5.1	8.2	9.5	10.2	11.1	11.8	12.1
No.	72	7	65	33	12	3	1	1	1
Smallest		2.8	3.5	6.1	7.7	9.6	11.1	11.8	12.1
Largest		6.5	7.1	9.9	11.4	10.5	11.1	11.8	12.1
Std error			0.1	0.2	0.3	0.3			
95% CI (±)			0.2	0.3	0.6	0.6			

nwdnlcag.d04

Table 19. Age-frequency and CPUE (no./net day) per inch class of white crappie trap netted for 77 net days at Nolin River Lake in October 2004. Numbers in parentheses are standard errors.

Age	Inch class											No.	CPUE	(Std. Error)	Age (%)	
	2	3	4	5	6	7	8	9	10	11	12					
0	1	223	168	2	1								395	5.09		37
1				7	17	74	175	43					316	4.15	0.42	30
2					3	21	32	86	78	17			236	3.07	0.33	22
3							16	29	22	23			90	1.16	0.15	9
4									11			2	13	0.16	0.02	1
7												1	1	0.02	0.01	<1
Total	1	223	168	9	21	95	223	158	111	40	3		1,051			100
(%)	<1	21	16	1	2	9	21	15	11	4	<1		100			

nwdnrtr.d04, nwdnlcag.d04

Table 20. Annual mortality (A) estimates between 2003-2004, and CPUE (fish/hr) of the last five year classes of white crappie trap netted during October 2004 at Nolin River Lake.

Year Class	Age Intervals	CPUE (2003)	CPUE (2004)	Mortality of Cohort (%)
2003	1+ - 2+	8.00	3.07	62%
2002	2+ - 3+	4.68	1.16	75%
2001	3+ - 4+	0.32	0.16	50%
2000	4+ - 5+	0.21	0.02	91%
1999	5+ - 6+	0.02	0.0	100%

Table 21. Population assessment for white crappie trap netted at Nolin River Lake during October 2004.

Parameter	Actual Value	Assessment Score
Population density (CPUE age 1 fish and older)	8.56	2
Growth rate (Mean length of age 2+ fish at capture)	9.72	4
Size Structure (CPUE fish \geq 8.0 in.)	6.93	3
Recruitment (CPUE of age 1 fish)	4.15	2
Recruitment (CPUE of age 0 fish)	5.09	2
Total Score		13
Assessment rating		G
Instantaneous mortality (Z)	0.6294	
Annual mortality (A)	46.71%	

Table 22. Population assessment for white crappie based on fall trapnetting at Nolin River Lake from 1999-2004.

Parameter	1999		2001		Year 2002		2003		2004	
	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score
CPUE (excluding age 0)	8.72	2	10.21	2	11.99	2	13.23	3	8.56	2
CPUE of age 1	4.85	2	4.82	2	10.02	3	8.0	3	4.15	2
CPUE of age 0	0.18	1	2.62	1	4.26	2	2.04	1	5.09	2
CPUE of crappie \geq 8.0 in.	5.55	3	3.87	2	8.78	3	8.65	3	6.93	3
Mean length age 2 at capture	9.8	4	9.1	3	9.5	3	9.8	4	9.72	4
Total score	12		10		13		14		13	
Assessment rating	F		F		G		G		G	

Table 23. Species composition, relative abundance, and CPUE (no./hour) of black bass collected during 4.5 hours of 30-minute diurnal electrofishing runs at Rough River Lake in April 2004.

Area	Species	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	22	Total	CPUE	Std. Error
Upper	Largemouth bass	6	26	9	12	12	12	15	14	26	14	7	8	6	6	7	6	2			176	70.40	7.63
	Spotted bass				6	3	2	2	1	1		1		1	1						15	6.00	3.52
Lower	Largemouth bass	12	19	18	9	17	16	31	30	14	11	11	11	15	8	3	8	2	1	1	226	113.00	10.4
	Spotted bass	4	6	1		10	8	6		5	3	1									44	22.00	2.16
Total	Largemouth bass	18	45	27	21	29	31	45	56	28	18	18	19	21	14	10	14	4	1	1	402	89.33	9.5
	Spotted bass																						

nwdmpsd.d04

Table 24. Spring electrofishing CPUE for each size class of largemouth bass collected at River River Lake during April 2004. CPUE = fish/hour.

Year	Inch Class												Total		
	<8.0				8.0-11.9				12.0-14.9					>15.0	
	CPUE	Std. err.	CPUE	Std. err.	CPUE	Std. err.	CPUE	Std. err.	CPUE	Std. err.	CPUE	Std. err.		CPUE	Std. err.
2004	31.11	3.86	35.56	5.12	12.89	2.16	20.00	5.56	9.78	1.08	18.44	3.18	89.33	9.5	
2003	61.56	7.01	27.78	6.93	2.00	0.88	2.00	0.88	16.44	4.96	3.11	1.74	127.78	15.36	
2002	7.33	1.70	7.11	2.29	16.44	4.96	21.33	4.47	5.33	2.11	71.56	11.18	18.00	3.82	
2001	30.67	7.45	21.33	4.47	21.78	2.76	2.76	2.76	8.89	2.38	75.11	6.42	75.11	6.42	
2000	15.11	3.45	32.89	4.31	21.33	4.11	21.33	4.11	8.89	2.38	58.67	4.57	58.67	4.57	
1999	n/d		28.44	2.05	21.33	4.11	21.33	4.11	8.89	2.38	58.67	4.57	58.67	4.57	

Table 25. PSD and RSD values obtained for each black bass species taken in spring electrofishing samples in each area of Rough River Lake during April 2004; 95% confidence intervals are in parentheses.

Area	Species	No. fish \geq 8.0"	PSD (+/- 95%)	RSD ^a (+/- 95%)
Upper	Largemouth bass	111	38 (+/- 9)	19 (+/- 7)
	Spotted bass	9	33 (+/- 33)	22 (+/- 28)
Lower	Largemouth bass	151	40 (+/- 7)	15 (+/- 6)
	Spotted bass	33	27 (+/- 15)	0
Total	Largemouth bass	262	39 (+/- 6)	17 (+/- 5)
	Spotted bass	42	29 (+/- 14)	5 (+/- 7)

^a Largemouth bass = RSD-15, spotted bass = RSD-14.

nwrrpsd.d004

Table 26. Mean back calculated lengths (in) at each annulus for largemouth bass collected at Rough River Lake in April 2004.

Year class	No.	Age						
		1	2	3	4	5	6	7
2003	44	5.8						
2002	39	6.0	9.9					
2001	27	6.7	11.5	13.4				
2000	11	6.7	11.1	14.1	15.1			
1999	2	6.4	11.1	13.1	15.4	16.3		
1998	4	7.6	11.4	13.3	14.9	16.1	16.7	
1997	1	5.7	9.3	11.8	13.4	14.9	16.5	17.5
Mean		6.2	10.6	13.6	15.0	16.0	16.6	17.5
No.	128	128	84	45	18	7	5	1
Smallest		2.9	7.1	11.6	12.8	14.9	16.2	17.5
Largest		10.1	14.1	15.8	17.5	17.5	16.9	17.5
Std error		0.1	0.1	0.2	0.3	0.3	0.1	
95% CI (+)		0.2	0.3	0.3	0.5	0.6	0.5	

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Table 27. Electrofishing catch rate (fish/hr) for each age of largemouth bass collected from Rough River Lake during spring samples 2002- 2004.

Age	Year		
	2002	2003	2004
1	7.93	44.30	32.82
2	6.19	25.63	34.10
3	2.33	11.40	12.00
4	0.22	8.00	5.75
5	0	0	1.01
6	0	0	2.31

nwdrrpsd.d03, nwdrrlag.d02, nwdrrpsd.d04, nwdrrlag.d04

Table 28. Annual mortality (A) between 2003-2004, and CPUE (fish/hr) of the last five year classes estimated from largemouth bass captured in spring electrofishing samples at Rough River Lake.

Year Class	Age Intervals	CPUE (2003)	CPUE (2004)	Mortality of Cohort (%)
2002	1+ - 2+	44.30	34.10	23%
2001	2+ - 3+	25.63	12.00	53%
2000	3+ - 4+	11.40	5.75	50%
1999	4+ - 5+	8.00	1.01	87%
1998	5+ - 6+	0.00	2.31	
1997	6+ - 7+	0.00	0.89	

Table 29. Population assessment for largemouth bass based on spring electrofishing at Rough River Lake from 1999-2004.

Parameter	Year											
	1999		2000		2001		2002		2003		2004	
	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score
Length at age 3 at capture	12.5	4	12.5	4	12.5	4	12.5	4	12.5	4	13.6	4
Spring CPUE age 1 fish	2.96	1	10.52	1	28.00	2	7.93	1	44.30	3	32.82	3
Spring CPUE 12-14.9 in fish	21.33	2	21.78	2	16.44	2	2.00	1	20.00	2	12.89	1
Spring CPUE \geq 15.0 inch fish	8.89	2	5.33	2	3.11	1	1.56	1	18.4	3	9.78	2
Spring CPUE \geq 20.0 inch fish	0.44	2	1.78	2	0.00	1	0.00	1	0.67	2	0.22	2
Total score	11	12	10	8	14	12	10	8	14	14	12	12
Assessment rating	F	G	F	F	G	F	F	F	G	G	G	G

Table 30. Species composition, relative abundance, and CPUE (no./hour) of black bass collected during 4.5 hours of 30-minute diurnal electrofishing runs at Rough River Lake in September 2004.

Area	Species	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Total	CPUE	Std. Error
Upper	Largemouth bass	46	181	12	23	47	16	7	12	21	14	20	15	2	2	2	1	1	1	1	423	169.20	21.21
	Spotted bass	3	8			1	2	2			2											16	6.40
Lower	Largemouth bass	13	79	12	11	7	7	7	4	7	10	6	4	6	4	2	1	2			182	91.00	23.78
	Spotted bass	3	7		1	2	2	5	1			2									23	11.50	4.19
Total	Largemouth bass	59	260	24	34	54	23	14	16	28	24	26	19	8	6	4	2	3	1		605	260.20	44.99
	Spotted bass	6	15		1	2	3	7	1		2	2									39	17.90	6.83

Table 31. Indices of year class strength at age 0 and age 1 and mean lengths (in) of largemouth bass collected in the fall in electrofishing samples at Rough River Lake.

Year Class	Area	Age 0		Age 0		Age 0 ≥ 5.0		Age 1	
		Mean length	Std. error	CPUE	Std. error	CPUE	Std. Error	CPUE	Std. Error
2001	Total	4.0		38.6	3.9	29.3	0.9	7.93	1.70
2002	Total	5.0		60.5	18.3	34.3	2.6	44.30	5.61
2003	Total	4.8		34.9	3.2	20.0	2.9	32.82	3.85
2004	Total	4.0	0.06	100.4	18.6	24.2	5.9		

Table 32. Length frequency and CPUE for each specie of crappie collected in 80 net-nights of sampling at Rough River Lake during October 2004.

Species	Inch Class											Total	CPUE	Std. Error	
	2	3	4	5	6	7	8	9	10	11	12				13
White crappie		4	71	67	17	71	209	223	99	33	4	1	799	9.99	1.13
Black crappie		14	15	1	20	11	12	4	9				86	1.08	0.16

nwdrrctn.d04

Table 33. PSD and RSD10 values calculated for crappie collected in trap nets from Rough River Lake during October 2004; 95% confidence limits are in parentheses.

Lake/Species	No.	PSD	RSD10
Rough River Lake			
White Crappie	799	78 (+/-3)	19 (+/-3)
Black Crappie	86	44 (+/-13)	16 (+/-10)

nwdrrtn.d04

Table 34. Mean back calculated lengths (in) at each annulus for white crappie collected at Rough River Lake in October 2004.

Year class	No.	Age							
		0+	1	2	3	4	5	6	7
2004	17								
2003	36		5.2						
2002	21		5.9	8.4					
2001	2		5.7	8.3	9.9				
2000	2		6.1	8.6	10.7	11.9			
1997	1		5.1	7.1	8.9	9.8	10.5	11.2	11.8
Mean		4.9	5.5	8.4	10.0	11.2	10.5	11.2	11.8
No.	89	17	62	45	24	3	1	1	1
Smallest		4.2	3.5	7.1	8.9	9.8	10.5	11.2	11.8
Largest		5.9	8.9	9.4	11.6	12.8	10.5	11.2	11.8
Std error			0.1	0.1	0.5	0.9			
95% CI (±)			0.2	0.3	0.9	1.6			

nwdrrcag.d04

Table 35. Age-frequency and CPUE (no./net day) per inch class of white crappie trap netted for 80 net days at Rough River Lake in October 2004. Numbers in parentheses are standard errors.

Age	Inch class													No.	CPUE	Std. Error	Age (%)
	2	3	4	5	6	7	8	9	10	11	12	13					
0	4	4	71	67										142	1.77		17.8
1					17	71	171	156	18	7				440	5.50	0.69	55.1
2							38	67	72	23	1			201	2.52	0.29	25.1
3									9	3				12	0.15	0.02	1.5
4											1	1		2	0.03	0.02	0.2
7											1			1	0.02	0.01	0.1
Total	4	4	71	67	17	71	209	223	99	33	3	1	799				
(%)	0.3	8.9	8.4	2.1	8.9	26.1	27.9	12.4	4.1	<0.5	<0.5	<0.5	100				

nwdrrcra.d04, nwdrrcra.d04

Table 36. Annual mortality (A) estimates between 2002-2003, and CPUE (fish/hr) of the last five year classes of white crappie trap netted during October 2004 at Rough River Lake.

Year	Age Intervals	CPUE (2003)	CPUE (2004)	Mortality of Cohort (%)
2003	1+ - 2+	10.77	2.52	77%
2002	2+ - 3+	1.46	0.15	90%
2001	3+ - 4+	0.66	0.03	95%
2000	4+ - 5+	0.14	0.02	86%
1999	5+ - 6+	0	0	

Table 37. Population assessment for white crappie trap netted at Rough River Lake during October 2004.

Parameter	Actual Value	Assessment Score
Population density (CPUE age 1 fish and older)	8.22	2
Growth rate (Mean length of age 2+ fish at capture)	10.4	4
Size Structure (CPUE fish \geq 8.0 in.)	7.1	3
Recruitment (CPUE of age 1 fish)	5.5	2
Recruitment (CPUE of age 0 fish)	1.77	1
Total Score		12
Assessment rating		F
Instantaneous mortality (Z)	0.7342	
Annual mortality (A)	52.00%	

Table 38. Population assessment for white crappie based on fall trapnetting at Rough River Lake from 1999-2003.

Parameter	1998		2000		Year 2002		2003		2004	
	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score
CPUE (excluding age 0)	12.11	2	4.03	1	11.99	2	13.1	3	8.22	2
CPUE of age 1	7.5	3	1.36	1	10.02	3	10.8	3	5.5	2
CPUE of age 0	1.87	1	2.12	1	4.26	2	18.85	4	1.8	1
CPUE of crappie \geq 8.0 in.	5.46	3	3.07	2	8.78	3	9.92	3	7.1	3
Mean length age 2 at capture	9.5	3	9.2	3	9.5	3	10.6	4	10.4	4
Total score		12		8		13		17		12
Assessment rating		F		F		G		G		F

Table 39. Relative abundance, and CPUE (no./hour) of largemouth bass collected during 2.5 hours of 30-minute diurnal electrofishing runs at Lake Malone in April 2004.

Lake	Species	Inch Class																						Total	CPUE	Std. Error
		3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22					
Malone	Largemouth bass	12	18	16	3	22	38	28	37	31	21	20	25	25	31	17	23	22	7	5	3	404	161.60	12.75		
nwdlmpsd.d04																										

Table 40. Spring electrofishing CPUE for each size class of largemouth bass collected at Lake Malone 1999-2003. CPUE = fish/hour.

Year	Inch Class												Total
	<8.0			8.0-11.9			12.0-14.9			>15.0			
	CPUE	Std. err.	CPUE	Std. err.	CPUE	Std. err.	CPUE	Std. err.	CPUE	Std. err.	CPUE	Std. err.	
2004	28.40	3.87	53.60	5.74	26.40	4.17	53.20	3.93	161.60	12.75			
2003	57.00	3.32	76.50	6.75	35.00	5.00	57.50	4.86	226.00	12.08			
2002	8.57	3.32	43.43	4.97	43.43	8.48	41.71	7.55	137.14	17.45			
2001	18.00	8.05	66.00	12.03	50.00	7.98	31.33	6.32	165.33	15.55			
2000	13.33	3.37	46.00	4.23	51.33	7.83	24.00	4.00	134.67	14.52			
1999	n/d		48.67	9.82	61.33	6.98	23.33	4.89	133.33	12.72			

Table 41. PSD and RSD values obtained for largemouth bass taken in spring electrofishing samples at Lake Malone, Carpenter Lake, Kingfisher, Mauzy Lake, and Washburn Lake during April 2004; 95% confidence intervals are in parentheses.

Lake	Species	No. fish \geq 8.0"	PSD (+/- 95%)	RSD ^a (+/- 95%)
Malone	Largemouth	333	60 (+/- 5)	40 (+/- 5)
Carpenter	Largemouth	129	26 (+/-8)	12 (+/-5)
Kingfisher	Largemouth	101	6 (+/-5)	0
Mauzy	Largemouth	108	8 (+/-5)	5 (+/-4)
Washburn	Largemouth	138	0	0

^a Largemouth bass = RSD-15

Table 42. Electrofishing catch rate (fish/hr) for each age of largemouth bass collected from Lake Malone during spring samples 2002- 2003.

Age	2002*	2003	Year 2004
1	6.00	35.00	19.00
2	28.3	69.16	37.54
3	28.85	34.51	29.81
4	31.09	30.13	23.43
5	15.78	16.03	13.93
6	6.84	9.31	8.74
7	7.37	12.39	12.24
8	2.86	7.03	6.77
9	5.71	9.53	7.57
10	1.49	1.90	1.36

*nocturnal sample

Table 43. Annual mortality between 2002-2003, and CPUE (fish/hr) of the last 10 year classes estimated from largemouth bass captured in spring electrofishing samples at Lake Malone.

Year Class	Age Intervals	CPUE (2003)	CPUE (2004)	Mortality of Cohort (%)
2002	1+ - 2+	35.00	37.54	
2001	2+ - 3+	69.16	29.81	57%
2000	3+ - 4+	34.51	23.43	62%
1999	4+ - 5+	30.13	13.93	54%
1998	5+ - 6+	16.03	8.74	46%
1997	6+ - 7+	9.31	12.24	
1996	7+ - 8+	12.39	6.77	45%
1995	8+ - 9+	7.03	7.57	
1994	9+ - 10+	9.53	1.36	86%
1993	10+ - 11+	1.90	0.0	100%

Table 44. Population assessment for largemouth bass based on spring electrofishing at Lake Malone from 1999-2004.

Parameter	Year							
	1999	2000	2001	2002	2003	2004	2004	2004
	Value	Score	Value	Score	Value	Score	Value	Score
Length at age 3 at capture	12.9	4	12.9	4	11.5	4	11.5	4
Spring CPUE age 1 fish	n/d		14.00	1	6.00	1	35.00	2
Spring CPUE 12-14.9 in fish	61.33	4	50.00	4	43.43	3	35.00	3
Spring CPUE ≥ 15.0 inch fish	23.33	3	31.33	4	41.71	4	48	4
Spring CPUE ≥ 20.0 inch fish	2.67	3	2.00	3	0.67	1	8.00	4
Total score	14+	15	14	16	17	16	17	16
Assessment rating		G	G	G	E	G	E	G

Z=0.365, A=30.55%

Table 45. Relative abundance, and CPUE (no./hour) of largemouth bass collected during 2.5 hours of 30-minute diurnal electrofishing runs at Lake Malone in October 2004.

Area	Species	Inch Class																							
		2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	23	Total	CPUE	Std. Error
Total	Largemouth bass	3	49	50	21	8	36	19	36	35	28	9	14	8	8	12	6	6	7	1	2	1	359	143.60	25.23

nwd\lmb.d04

Table 46. Indices of year class strength at age 0 and age 1 and mean lengths (in) of largemouth bass collected in the fall in electrofishing samples at Lake Malone.

Year Class	Area	Age 0		Age 0		Age 0 \geq 5.0		Age 1	
		Mean length	Std. error	CPUE	Std. error	CPUE	Std. Error	CPUE	Std. Error
2002	Total	4.3		39.20		14.40		35.00	5.12
2003	Total	3.1		103.20		2.40		19.00	2.88
2004	Total	4.1	0.07	49.20	10.73	8.40	1.72		

nwdlmlmb.d04

Table 47. Length frequency and CPUE for bluegill and redear sunfish collected in 1.25 hours of electrofishing at Lake Malone in April 2004.

Species	Inch Class											Total	CPUE	Std. Error	
	1	2	3	4	5	6	7	8	9	10	11				
Bluegill	1	20	84	169	138	64	31						507	390.00	56.47
Redear sunfish			1		1	1			2		1		6	4.62	2.05

nwdlmbg.d04

Table 48. Electrofishing catch rate (fish/hr) for each age of bluegill collected from Lake Malone during spring samples 2002- 2004.

Age	Year		
	2002	2003	2004
1	16.67	23.85	15.38
2	167.38	106.59	120.33
3	169.72	69.19	189.63
4	53.73	19.60	63.88

nwdlmbg.d04

Table 49. PSD and RSD values calculated for bluegill and redear sunfish collected by electrofishing from Lake Malone during April 2004; 95% confidence limits are in parentheses.

Lake/Species	No.	PSD	RSD
Lake Malone			
Bluegill	486	19 (+/-4)	0
Redear sunfish	5		

nwdlmbg.d04

Table 50. Population assessment for bluegill based on spring electrofishing at Lake Malone from 1999-2004.

Parameter	Year											
	1999		2000		2001		2002		2003		2004	
	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score
Mean length age 2+ at capture	3.9	2	3.9	2	3.9	2	3.9	2	3.9	2	3.9	2
Years to 6 inches	3-3+	3	3-3+	3	3-3+	3	3-3+	3	3-3+	3	3-3+	3
CPUE of > 6.0 inch fish	21.33	1	52.67	3	47.33	2	56.80	3	7.75	1	73.08	3
CPUE of > 8.0 inch fish	0.67	2	2.00	2	0.67	2	0.00	0	0.00	0	0.00	0
Total score	8	8	10	10	9	9	8	8	6	6	8	8
Assessment rating	F	F	F	F	F	F	F	F	P	P	F	F

Table 51. Spring electrofishing CPUE for each size class of bluegill collected at Lake Malone during spring 1999-2003. CPUE = fish/hour.

Year	Inch Class											
	<3.0		3.0-5.9		6.0-7.9		> 8.0		>10.0		Total	
	CPUE	Std. err.	CPUE	Std. err.	CPUE	Std. err.	CPUE	Std. err.	CPUE	Std. err.	CPUE	Std. err.
2004	16.15	9.62	300.77	49.90	73.08	15.44					390.00	56.47
2003	25.38	6.49	173.08	24.06	22.31	6.22					220.77	25.54
2002	16.67	6.21	331.67	40.59	59.17	10.50					407.50	50.54
2001	7.33	2.17	222	30.51	46.67	8.98	0.67	0.67			276.67	34.54
2000	21.33	5.23	130.67	21.95	50.67	15.79	2	0.89			204.67	30.51
1999	53.33	14.3	20.67	4.31	0.67	0.67					74.67	18.03

Table 52. Length frequency and CPUE (no./hour) of largemouth bass collected during 0.75 hours of 15-minute diurnal electrofishing runs at Carpenter Lake in April 2004.

Lake	Species	Inch Class																					
		3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	Total	CPUE	Std. Error
Carpenter Lake	Largemouth bass	1	17	34	7	1	19	41	9	27	11	3	3	2	4	4	4	4	1	1	189	252.00	47.72
nwdclpsd.d04																							

Table 53. Spring electrofishing CPUE for each size class of largemouth bass collected at Carpenter Lake during 1999-2004. CPUE = fish/hour.

Year	Inch Class												Total	
	<8.0			8.0-11.9			12.0-14.9			>15.0			CPUE	Std. err.
	CPUE	Std. err.	CPUE	Std. err.	CPUE	Std. err.	CPUE	Std. err.	CPUE	Std. err.	CPUE	Std. err.	CPUE	Std. err.
2004	80.00	16.65	128.00	28.00	22.67	3.53	21.33	8.74	252.00	47.72				
2003	181.33	49.33	97.33	11.39	18.67	4.81	36.00	12.22	333.33	63.43				
2002	12.00	4.62	52.00	4.62	12.00	0.00	21.33	3.53	97.33	4.81				
2001	14.67	8.74	29.33	5.33	90.67	9.33	66.67	2.67	201.33	17.64				
2000	2.67	1.33	45.33	7.06	48.00	2.31	0.00		96.00	8.33				
1999	1.33	1.33	142.67	18.52	29.33	13.53	1.33	1.33	174.67	31.01				

Table 54. Electrofishing catch rate (fish/hr) for each age of largemouth bass collected from Carpenter Lake during spring samples 2002- 2004.

Age	Year		
	2002	2003	2004
1	12.00	162.67	56.00
2	36.93	57.60	90.13
3	25.73	55.73	56.53
4	1.33	2.67	4.00
5	0.00	0.00	0.00
6	10.67	14.67	8.00

nwdcllag.d04

Table 55. Annual mortality (A) between 2003-2004, and CPUE (fish/hr) of the last 6 year classes estimated from largemouth bass captured in spring electrofishing samples at Carpenter Lake.

Year Class	Age Intervals	CPUE (2003)	CPUE (2004)	Mortality of Cohort (%)
2003	1+ - 2+	162.67	90.13	45%
2002	2+ - 3+	57.60	56.53	2%
2001	3+ - 4+	55.73	4.00	93%
2000	4+ - 5+	2.67	0.00	100%
1999	5+ - 6+	0.00	8.00	
1998	6+ - 7+	14.67	0.00	100%

Table 56. Population assessment for largemouth bass based on spring electrofishing at Carpenter Lake from 1999-2004.

Parameter	Year							
	1999	2000	2001	2002	2003	2004	2003	2004
	Value	Score	Value	Score	Value	Score	Value	Score
Length at age 3 at capture	11.6	4	11.6	4	11.6	4	11.6	4
Spring CPUE age 1 fish	n/d	1	8.00	1	12.00	1	162.67	4
Spring CPUE 12-14.9 in fish	29.33	2	48.00	3	90.67	4	54.67	4
Spring CPUE ≥ 15.0 inch fish	1.33	1	0.00	1	66.67	4	36.00	4
Spring CPUE ≥ 20.0 inch fish	0.00	1	0.00	1	1.33	2	1.33	2
Total score		8+	10	15	10	18	17	17
Assessment rating		F	F	G	F	E	E	E

Table 57. Length frequency and CPUE for bluegill and redear sunfish collected during 0.63 hours of electrofishing at Carpenter Lake in April 2004.

Species	Inch Class								Total	CPUE	Std. Error
	2	3	4	5	6	7	8				
Bluegill	8	6	7	4	3	27	1	56	86.15	20.41	
Redear sunfish							1	1	1.54	1.54	

Table 58. PSD and RSD values calculated for bluegill and redear sunfish collected by electrofishing from Carpenter Lake during April 2004; 95% confidence limits are in parentheses.

Lake/Species	No.	PSD	RSD
Carpenter			
Bluegill	48	65 (+/-13)	2 (+/-4)
Redear sunfish	1		

nwdclbg.d04

Table 59. Electrofishing catch rate (fish/hr) for each age of bluegill collected from Carpenter Lake during spring samples 2002- 2004.

Age	Year		
	2002	2003	2004
1	2.30	7.69	12.31
2	14.71	98.80	25.23
3	9.43	27.26	33.23
4	2.30	7.26	6.15

Table 60. Spring electrofishing CPUE for each size class of bluegill collected at Carpenter Lake during spring 1999-2004. CPUE = fish/hour.

Year	Inch Class											
	<3.0		3.0-5.9		6.0-7.9		≥ 8.0		≥10.0		Total	
	CPUE	Std. err.	CPUE	Std. err.	CPUE	Std. err.	CPUE	Std. err.	CPUE	Std. err.	CPUE	Std. err.
2004	12.31	4.62	26.15	7.13	46.15	11.41	1.54	1.54			86.15	20.41
2003	7.69	2.81	102.56	22.96	47.44	13.24	3.85	1.72			161.54	34.11
2002	2.30		8.05		17.24		1.15				28.74	0.00
2001			198.67	74.7	152.00	22.74	41.33	12.72			392.00	108.89
2000			4.00	2.31	10.67	4.81	12.00	6.11			26.67	9.61
1999			10.67	2.57	82.67	10.91	12.00	8.00			105.33	17.99

Table 63. Spring electrofishing CPUE for each size class of largemouth bass collected at Kingfisher Lake during April 1999-2004. CPUE = fish/hour.

Year	Inch Class													
	<8.0			8.0-11.9			12.0-14.9			≥15.0			Total	
	CPUE	Std. err.	CPUE	Std. err.	CPUE	Std. err.	CPUE	Std. err.	CPUE	Std. err.	CPUE	Std. err.	CPUE	Std. err.
2004	161.54	45.07	243.59	45.58	12.82	6.78	2.56	2.56	420.51	92.45				
2003	105.56	28.19	425.00	55.49	8.33	4.81	0.00	0.00	538.89	59.77				
2002	116.28		258.14		4.65		0.00		379.07					
2001	89.74		364.10		20.51		2.56		476.91					
2000	137.78		493.33		24.44		6.67		662.22					
1999	n/d		315.56		17.78		2.22		335.56					

Table 64. Electrofishing catch rate (fish/hr) for each age of largemouth bass collected from Kingfisher Lake during April 2004.

Age	Year	
	2002	2003
1	116.28	57.69
2	193.45	16.67
3	60.51	3.42
4	5.74	6.84
5	0.00	5.13

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Table 65. Annual mortality (A) between 2002-2003, and CPUE (fish/hr) of the last 4 year classes estimated from largemouth bass captured in spring electrofishing samples at Kingfisher Lake.

Year Class	Age Intervals	CPUE (2003)	CPUE (2004)	Mortality of Cohort (%)
2003	1+ - 2+	100.00	169.00	
2002	2+ - 3+	297.22	66.90	88%
2001	3+ - 4+	109.44	16.24	85%
2000	4+ - 5+	23.89	1.71	93%
1999	5+ - 6+	2.78	0.00	100%
1998	6+ - 7+			

Table 66. Population assessment for largemouth bass based on spring electrofishing at Kingfisher Lake from 1999-2004.

Parameter	Year											
	1999		2000		2001		2002		2003		2004	
	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score
Length at age 3 at capture	11.0	3	11.0	3	11.0	3	11.0	3	11.0	3	11.0	3
Spring CPUE age 1 fish	n/d		135.56	4	89.74	4	116.28	4	100.00	4	94.87	4
Spring CPUE 12-14.9 in fish	17.78	1	24.44	2	20.51	2	4.65	1	8.33	1	12.82	1
Spring CPUE \geq 15.0 inch fish	2.22	1	6.67	2	2.56	1	0.00	1	0.00	1	2.56	1
Spring CPUE \geq 20.0 inch fish	0.00	1	4.44	4	0.00	0	0.00	0	0.00	0	0.00	0
Total score		6+		15		10		9		9		9
Assessment rating				G		F		F		F		F

Table 67. Length frequency and CPUE for bluegill collected in 0.37 hours of electrofishing at Kingfisher Lake in April 2004.

Species	Inch Class						Total	CPUE	Std. Error
	3	4	5	6	7	8			
Bluegill	2	3	1	1	8		15	38.46	4.44

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Table 68. Spring electrofishing CPUE for each size class of bluegill collected at Kingfisher Lake during spring 1999- 2004. CPUE = fish/hour.

Year	Inch Class												
	<3.0		3.0-5.9		6.0-7.9		≥ 8.0		≥10.0		Total		
	CPUE	Std. err.	CPUE	Std. err.	CPUE	Std. err.	CPUE	Std. err.	CPUE	Std. err.	CPUE	Std. err.	
2004	0	0	15.38	8.88	23.08	11.75	0.00					38.46	4.44
2003	12.82	6.78	56.41	2.56	15.38	7.69	5.13	2.56				89.74	5.13
2002			9.3		62.79		6.98					79.07	0.00
2001			61.54		66.67		7.69					135.90	0.00
2000			31.11		66.67		11.11					108.99	0.00
1999			6.67		20		4.44					31.11	0.00

Table 69. PSD and RSD values calculated for bluegill collected by electrofishing from Kingfisher Lake during April 2004; 95% confidence limits are in parentheses.

Lake/Species	No.	PSD	RSD
Kingfisher Lake			
Bluegill	15	60 (+/- 25)	0

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Table 70. Electrofishing catch rate (fish/hr) for each age of bluegill collected from Kingfisher Lake during spring samples 2002- 2004.

Age	Year		
	2002	2003	2004
1	7.56	57.69	13.46
2	22.67	16.67	4.49
3	13.95	3.42	6.84
4	27.91	6.84	13.68
5	6.98	5.13	

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Table 71. Population assessment for bluegill based on spring electrofishing at Kingfisher Lake from 1999-2004.

Parameter	Year											
	1999		2000		2001		2002		2003		2004	
	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score
Mean length age 2+ at capture	5.7	4	5.7	4	5.7	4	5.7	4	5.7	4	5.7	4
Years to 6 inches	2-2+	4	2-2+	4	2-2+	4	2-2+	4	2-2+	4	2-2+	4
CPUE of > 6.0 inch fish	24.44	1	77.78	4	64.44	3	69.77	3	21.62	1	23.08	1
CPUE of > 8.0 inch fish	4.44	2	11.11	3	6.67	2	6.98	2	5.40	2	0.00	0
Total score		11		15		13		13		11		9
Assessment rating		G		E		G		G		G		F

Table 72. Length-frequency and CPUE (no./hour) of largemouth bass collected during 0.41 hours of diurnal electrofishing runs at Mauzy Lake in April 2004.

Lake	Species	Inch Class																	Total	CPUE	Std. Error
		4	5	6	7	8	9	10	11	12	13	14	15	16	17	18					
Mauzy Lake	Largemouth bass	1	1	13	38	24	20	17	3					1	1	1	2	1	123	164.00	10.58

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Table 73. Spring electrofishing CPUE for each size class of largemouth bass collected at Mauzy Lake during spring 1999-2004. CPUE = fish/hour.

Year	Inch Class									
	<8.0		8.0-11.9		12.0-14.9		≥15.0		Total	
	CPUE	Std. err.	CPUE	Std. err.	CPUE	Std. err.	CPUE	Std. err.	CPUE	Std. err.
2004	20.00	9.24	132.00	2.31	5.33	1.33	6.67	1.33	164.00	10.58
2003*	98.61	18.69	163.19	31.92	73.61	6.05	20.83	6.36	356.25	58.72
2002	36.00	14.05	169.33	40.55	9.33	1.33	6.67	2.67	221.33	45.39
2001	12.00	2.31	246.67	53.53	26.67	10.67	4.00	2.31	289.33	64.18
2000	37.33	5.81	224.00	20.53	2.67	1.33	5.33	3.53	269.33	25.33
1999	n/d		165.33	8.74	17.33	5.35	4.00	2.31	186.67	14.11

* Mauzy renovated summer 2003

Table 74. Mean back calculated lengths (in) at each annulus for largemouth bass collected at Mauzy Lake in April 2004.

Year class	No.	Age						
		1	2	3	4	5	6	7
2003	2	5.6						
2002	27	6.2	8.0					
2001	19	6.1	9.5	10.1				
2000	4	5.8	9.0	10.8	11.5			
1999	5	5.6	8.5	9.9	11.1	11.3		
1998	1	5.1	8.1	9.2	10.2	11.0	11.2	
Mean		6.1	8.6	10.1	11.2	11.2	11.2	
No.	58	58	56	29	10	6	1	
Smallest		5.0	7	9.2	10.2	10.4	11.2	
Largest		7.5	10.6	11.7	12.1	12.0	11.2	
Std error		0.1	0.1	0.1	0.2	0.2		
95% CI (±)		0.1	0.2	0.2	0.4	0.4		

Table 75. Population assessment for largemouth bass based on spring electrofishing at Mauzy Lake from 2000-2004.

Parameter	Year									
	2000		2001		2002		2003*		2004	
	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score
Length at age 3 at capture										
Spring CPUE age 1 fish	25.33	2	5.33	1	25.33	2	86.81	4	2.67	1
Spring CPUE 12-14.9 in fish	2.67	1	26.67	2	9.33	1	73.61	4	5.33	1
Spring CPUE \geq 15.0 inch fish	5.33	2	4.00	2	6.67	2	20.83	3	6.67	2
Spring CPUE \geq 20.0 inch fish	0.00	0	0.00	0	1.33	2	2.78	3	0.00	0
Total score	5		5		7		14		4	
Assessment rating	P		P		P		G		P	

*Mauzy renovated summer2003

Table 76. Length frequency and CPUE for bluegill collected during .87 hours of electrofishing at Mauzy Lake in April 2004.

Species	Inch Class								Total	CPUE	Std. Error
	1	2	3	4	5	6	7	8			
Bluegill	2	90	52	19	6	29	30	1	229	251.65	36.11

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Table 77. PSD and RSD values calculated for bluegill collected by electrofishing from Mauzy Lake during April 2004; 95% confidence limits are in parentheses.

Lake/Species	No.	PSD	RSD
Mauzy			
Bluegill	137	44 (+/-8)	1 (+/-1)

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Table 78. Spring electrofishing CPUE for each size class of bluegill collected at Mauzy Lake during spring 1999-2004. CPUE = fish/hour.

Year	Inch Class										Total	
	<3.0		3.0-5.9		6.0-7.9		> 8.0		>10.0		CPUE	Std. err.
	CPUE	Std. err.	CPUE	Std. err.	CPUE	Std. err.	CPUE	Std. err.	CPUE	Std. err.	CPUE	Std. err.
2004	101.1	18.03	84.62	17.53	64.84	11.97	1.10	1.10			251.65	36.11
2003*												
2002	9.33	3.53	94.67	19.64	125.33	29.24	1.33	1.33			230.67	48.02
2001	5.33	3.53	65.33	16.22	137.33	27.94	1.33	1.33			209.33	40.68
2000	1.33	1.33	52.00	4.00	73.33	5.33	4.00	2.31			130.67	10.91
1999			28.00	6.11	114.67	6.67	4.00	0.00			146.67	5.33

*Mauzy could not be sampled during 2003 due to renovation drawdown

Table 79. Relative abundance, and CPUE (no./hour) of largemouth bass collected during 0.37 hours of 7.5-minute diurnal electrofishing runs at Washburn Lake in April 2004.

Lake	Species	Inch Class										Total	CPUE	Std. Error
		4	5	6	7	8	9	10	11	12				
Washburn Lake	Largemouth bass	1	7	9	1	5	46	77	10			156	400.00	51.22

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Table 80. Spring electrofishing CPUE for each size class of largemouth bass collected at Washburn Lake* during April 2001-2004. CPUE = fish/hour.

Year	Inch Class								Total	
	<8.0		8.0-11.9		12.0-14.9		≥15.0		CPUE	Std. err.
	CPUE	Std. err.	CPUE	Std. err.	CPUE	Std. err.	CPUE	Std. err.		
2004	46.15	4.44	353.85	49.45	0.00				400.00	51.22
2003	123.08	33.53	438.46	49.45	0.00				561.54	52.36
2002	50.00		321.43		0.00				371.43	0.00
2001	260.00		8.00		0.00				268.00	0.00

*Washburn Lake renovated summer 1999 and restocked spring 2000

Table 81. Mean back calculated lengths (in) at each annulus for largemouth bass collected at Washburn Lake in April 2004.

Year class	No.	Age			
		1	2	3	4
2003	18	5.9			
2002	18	7.3	9.3		
2001	4	6.8	10.1	11.0	
2000	10	7.2	8.7	10.0	10.6
Mean		6.7	9.2	10.3	10.6
No.	50	50	32	14	10
Smallest		4.0	7.8	9.3	10.0
Largest		8.0	10.5	11.4	11.4
Std error		0.1	0.1	0.2	0.2
95% CI (+)		0.2	0.2	0.3	0.3

nwdwllag.d04

Table 82. Population assessment for largemouth bass based on spring electrofishing at Washburn Lake from 2003-2004*.

Parameter	Year			
	2003		2004	
	Value	Score	Value	Score
Length at age 3 at capture	11.2	3	11.2	3
Spring CPUE age 1 fish	131.62	4	48.29	3
Spring CPUE 12-14.9 in fish	0.00	0	0.00	0
Spring CPUE \geq 15.0 inch fish	0.00	0	0.00	0
Spring CPUE \geq 20.0 inch fish	0.00	0	0.00	0
Total score		7		6
Assessment rating		P		P

*Washburn Lake renovated and restocked spring 2000

Table 83. Length frequency and CPUE for bluegill collected in 0.50 hours of electrofishing at Washburn Lake in April 2004.

Species	Inch Class								Total	CPUE	Std. Error
	1	2	3	4	5	6	7	8			
Bluegill	3	39	18	5	2		6	11	84	161.54	12.95

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Table 84. PSD and RSD values calculated for bluegill and redear sunfish collected by electrofishing from Washburn Lake during April 2004; 95% confidence limits are in parentheses.

Lake/Species	No.	PSD	RSD
Washburn Lake Bluegill	42	40 (+/-15)	26 (+/-13)

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Table 85. Spring electrofishing CPUE for each size class of bluegill collected at Washburn Lake during April 2004. CPUE = fish/hour.

Year	Inch Class										Total	
	<3.0		3.0-5.9		6.0-7.9		≥ 8.0		≥10.0		CPUE	Std. err.
2004	80.77	7.36	48.08	3.68	11.54	4.97	21.15	10.59			161.54	12.95
2003	7.69	3.14	71.15	12.71	113.46	39.89					192.31	39.85
2002			46.51		102.33						148.84	0.00
2001			28.00		64.00		4.00				96.00	0.00

*Washburn Lake renovated summer 1999 and restocked spring 2000

Table 86. Population assessment for bluegill based on spring electrofishing at Washburn Lake 2003-2004.

Parameter	Year			
	2003		2004	
	Value	Score	Value	Score
Mean length age 2+ at capture	5.4	4	5.4	4
Years to 6 inches	2-2+	4	2-2+	4
CPUE of > 6.0 inch fish	118.00	4	32.69	2
CPUE of > 8.0 inch fish	0.00	0	22.00	4
Total score		12		14
Assessment rating		G		E

SOUTHWESTERN FISHERY DISTRICT

Project 1: Lake and Tailwater Fishery Surveys

FINDINGS

Barren River Lake

The headwater of Barren River Lake was sampled for white bass and hybrid striped bass use. Yellow bass appeared in numbers (82) during the sampling. A total of 277 white bass (32.23 / hr.) was sampled during the spring sampling. Spring electrofishing was conducted for research purposes when a total of 139 white bass were sampled. Most white bass sampled were in the 8-inch class during 2003 but during 2004 most were 11 inch. Spring diurnal electrofishing results are presented in Tables 1 through 7.

Largemouth bass was the predominant black bass species found throughout the lake followed by spotted and smallmouth bass. Size structure of largemouth and spotted bass in Barren River Lake that was determined from the spring electrofishing was good. Due to the low numbers of fish sampled, determination of the smallmouth bass population characteristics was not as satisfactory as the other black bass. The condition of the largemouth bass population was good for all size groups. A total of 541 largemouth bass, 60 spotted bass and 0 smallmouth bass were sampled. The largemouth bass assessment was rated "Fair" but the spotted bass assessment was "Good". Results of the black bass sampling are presented in Tables 6 through 19. Sunfish were also electrofished during the spring and their results are presented in Tables 8 through 30. Bluegill was the dominant sunfish species with 595 sampled compared to 323 longear sunfish and 57 green sunfish.

Diurnal fall electrofishing was completed to evaluate the spawn success and to measure the relative condition of the bass (Wr). A heavy spawn was observed and the relative condition of the black bass remains satisfactory. A total of 1,423 largemouth bass was sampled with the majority of the fish being in the 3-inch length group. Sampling differences allowed for the larger than normal sampling of the smaller fish. Of the 1,423 fish sampled, 965 were YOY fish. Of the 263 spotted bass sampled 176 were YOY (Tables 31 through 40).

Crappie sampling with trap nets is presented in Tables 41 thru 55. Crappie sampling was lower than average largely because of the lack of a successful crappie spawn during 2001 and 2002. A total of 846 black crappie and 192 white crappie were sampled during the 112 net days fished. The population was dominated by black crappie age-1 as the catch of 6-inch black crappie numbered 318 fish. A total of 11 white bass were sampled, much lower than last year's sampling. Channel catfish numbered 135 fish. Length-weight analysis was calculated for crappie, white bass and channel catfish sampled. Crappie assessment values was rated as "Fair" for black and white crappie and the combined population.

Fall experimental gill netting sampling of white bass and hybrid striped bass was completed for 8 net days with two crews. A total of 133 hybrid striped bass and 56 white bass were sampled in the area around Walnut Creek during the last week of October for the SWFD crew only (4 net nights). Other personnel will complete age determination and stocking/natural production determinations at a later date. White bass population analysis will also be presented in next years report. Hybrid striped bass population assessment was rated as "Excellent" with a total score of 16. Channel catfish were also collected in the gill netting studies. Results of the netting are presented in Tables 56 through 65.

An overall evaluation of the fish population of Barren River Lake was mixed; the population of largemouth bass did not exceed the expected norm but sampling techniques and target sizes changed with new standardization. Then number of small YOY and age 1+ fish was sampled more intently and the resulting numbers reflected the same. The population of bluegill/sunfish was less than expected but the catch of smaller fish was high. The population of white bass is increasing with the stocking of white bass during 2002, 2003 and 2004. The population of hybrid striped bass continues to increase. The population of channel catfish exceeded expected in all categories except no fish greater than 21 inches was collected during gill netting. The population of crappie was much lower than expected with low numbers of larger fish. Reproduction is expected to be high for 2003 with most being black crappie which is reflected in the age-1 fish during 2004. The 1998 and 1999 year classes of crappie support the crappie fisheries and their numbers are declining. The 2000 and the 2001 year classes failed to meet expectations.

The low water level of 2001 during the crappie-spawning period and throughout the entire year has had a negative impact on the crappie population. Age 1 and older fish during 2001 was not acceptable. The expected population of 20 fish per net day was not attained as only 8 fish per net day was sampled. The expected population density of 8 fish per net day equal to or greater than 8 inches was not attained.

A total of 93,130 fishing trips were extended on Barren River Lake far more than the 44,804 fished during 1999. A total of 478,401 man/hours were fished greater than the 257,703 hours during 1999. Total catch was 633,454 compared to 212,093 and the harvest was 317,666 compared to 91,411. Bluegill (245,796 fish) was the most commonly harvested species during 2004 followed by largemouth bass (152,285) and black crappie (78,665). The greatest weight harvested was the hybrid striped bass at 81,543.5 pounds. A total of 1.28 fish per hour was caught with 0.63 fish being harvested. Data for the 2004 creel survey is presented in tables 66 through 77.

An angler attitude survey was conducted during the creel survey by giving each angler a mail in survey with prepaid postage. A total of 340 responses was received. Black bass was the most commonly sought fish on the lake followed by crappie and hybrid striped bass. Of the black bass anglers, 60% were satisfied with the fisheries and 81% support the current regulation on largemouth bass. Of the crappie fishermen, 56% were satisfied with the fisheries and 66% supported the current limit of 9-inch fish and 72% support the creel limit of 30 fish. Hybrid striped bass fishermen were 63% satisfied with the current fisheries and 74% supported the current regulations on their fishery. Results of the survey are presented in tables 78 through 81.

Briggs Lake

Largemouth bass remained somewhat stockpiled below 12 inches although larger fish were sampled. The leak in the dam was repaired during the summer 2002 but a small leak remains in the spillway side. The siltation problems were not addressed during the dam repairs. Bluegill and redear sunfish CPUE is low but size structure yields large fish. Results are presented in Table 82 through 91.

Green River Lake

Results of muskellunge sampling are presented in Table 92 and 93. Mid to late winter (January – March) diurnal electrofishing yielded a muskellunge CPUE of 14.77 fish/hour; higher than last several years. The lower CPUE in 2000 and 2001 was likely due to water clarity reduction from rainfall and deviation from the normal guide curve (dropped from 5 foot instead of the normal 11 feet) in 1999. Water levels were altered during 2003. Experimental water level manipulation is being conducted in conjunction with TNC. The water level was lowered only 7 feet during 2003 and 2004. Muskellunge in Green River Lake continued to attain 30 inches during their third growing season.

Headwater sampling for white bass and walleye was successful for white bass but lack of sampling frequency somewhat missed the spawning walleye or they did not try to spawn in the river (table 94 and 95). White bass sampling included 167 fish or 116 fish per hour. Walleye totaled 16 fish or 12.8 fish per hour.

Diurnal and nocturnal spring and fall electrofishing samples indicated largemouth bass remained the dominant black bass species in Green River Lake followed by spotted and smallmouth bass Tables 96 through 116. Largemouth bass size structure remains diverse and was similar to other years. Age determinations for largemouth bass were completed for spring and fall samples. Population assessment for largemouth bass was “Fair” as was spotted bass and “Good” for smallmouth bass. Spring electrofishing was dominated by 6, 10 and 11-inch largemouth bass and 8 inch spotted bass. Smallmouth although few in numbers was dominated by 8 inch fish.

Results from the trap netting sampling results for white crappie are presented in Tables 117 through 122. White crappie catch/trap net day was above the catch of 12.99 fish/net in 1998 and 8.36 in 1999, 6.30 during 2000, 13.56 during 2001 and 11.40 during 2002 and 2003. The 2004 catch rate was 21.51 fish per net night. The 2001 and 2002-year class provided the bulk of the fishes due to the poor spawns of 1999 and 2000. The crappie population assessment for Green River Lake was “Fair”.

Results of the experimental gill net sampling for white bass and walleye are presented in Tables 123 through 127. A total of 92 white bass and 41 walleye were sampled during the netting. The white bass assessment was “Fair” with low recruitment of small fish and fish over 12 inch. White bass reached preferred size (12 inches)

before their third year. Walleye sampled by gill nets decreased from 8.25 fish per net day during 2001, 3.61 during 2002 and 3.88 during 2003 to 2.56 during 2004.

Marion County Lake

Marion County Lake was refilled and fish were stocked during 1996. Local assistance was provided in the stocking of the lake and several less than desirable fish. Largemouth bass have not grown to the size expected and are hampering the development of the lake population. Removal of several of the smaller bass was conducted to improve the largemouth bass population. A total of 295 largemouth bass was sampled during the spring or 376.21 fish per hour. The population assessment for largemouth bass was "Fair". Fall sampling resulted in 451 fish or 556.79 per hour. Results of the electrofishing are presented in Tables 128 through 137.

Metcalf County Lake

Results of the 2004 sampling on Metcalfe County Lake are presented in tables 138 and 139. A good population is available in this lake and rainbow trout are stocked during the spring.

Shanty Hollow Lake

Shanty Hollow Lake was drawn down during the summer of 1997 to locate and repair a leak. A leak was found in the underlying rock formation and a compacted clay plug was installed during the fall of 1997. The water level reached pool by early 1998. A pool, with fish, remained in the lake during the 1997 repair process restocked the lake. Unfortunately, common carp were part of the lake's population. The plug used to fix the leak was unsuccessful and the water level decreased to almost the previous level during the hot summer months of 1999 and 2000 and was below normal during the summer months of 2001, 2002, 2003 and 2004. Rainfall during all years was about 10 inches below normal for each year except for 2002 and 2003 when a more normal rainfall occurred. The rainfall during 2004 was above average and the lake still was below pool throughout parts of the summer. A total of 374 largemouth bass were sampled during the spring or 213.7 per hour. The sunfish assessment was "Good" with a score of 11. Fall largemouth bass sampling yielded 337 fish or 224.67 per hour. Fish sampling in the lake was somewhat limited (Tables 140 through 149). Common carp were removed on several occasions with electrofishing gear. Less than satisfactory removal occurred although numerous large individuals were removed.

Age-growth of largemouth bass electrofished at Shanty Hollow Lake during the spring was calculated and is presented in Table 150. Largemouth bass reached 13 inches during their fourth year.

Spurlington Lake

Largemouth bass size structure was diverse and CPUE was similar to previous years (Tables 151 through 161). Spring largemouth bass sampling yielded a catch of 186 fish or 357.7 fish per hour. Fall sampling of largemouth bass yielded a total of 91 fish or 168.5 fish per hour. The bluegill population was assessed as "Fair" with a score of 9. Age determination was conducted on largemouth bass (age 0 and 1 only).

Table 3. Length frequency for yellow bass sampled during spring electrofishing at Barren River Lake during spring 2004.

Inch class	Freq	Cum Freq	Pct	Cum Pct	CPUE	Std error
7	21	21	3.88	3.88	4.67	2.29
8	20	41	3.70	7.58	4.44	2.28
9	27	68	4.99	12.57	6.00	2.26
10	81	149	14.97	27.54	18.00	4.24

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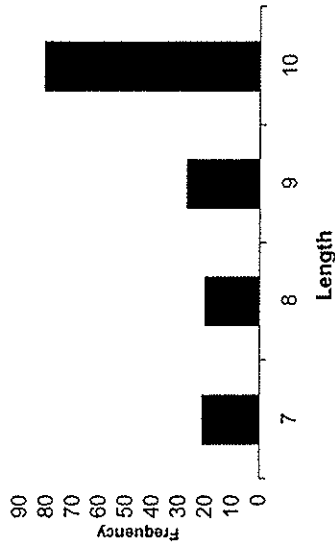


Table 4. Length frequency for hybrid striped bass sampled during spring electrofishing at Barren River Lake during spring 2004.

Inch class	Freq	Cum Freq	Pct	Cum Pct	CPUE	Std error
8	1	1	1.85	1.85	4.67	2.29
9	0	1	0.00	1.85	4.44	2.28
10	0	1	0.00	1.85	6.00	2.26
11	2	3	3.70	5.56	18.00	4.24
12	1	4	1.85	7.41	14.44	4.33
13	0	4	0.00	7.41	6.44	1.52
14	0	4	0.00	7.41	7.11	1.38
15	0	4	0.00	7.41	10.67	3.18
16	0	4	0.00	7.41	13.33	2.58
17	1	5	1.85	9.26	7.11	2.24
18	2	7	3.70	12.96	4.44	1.37
19	2	9	3.70	16.67	5.11	1.25
20	1	10	1.85	18.52	4.00	0.94
21	10	20	18.52	37.04	4.22	0.85
22	15	35	27.78	64.81	4.22	0.70
23	11	46	20.37	85.19	3.33	1.11
24	5	51	9.26	94.44	2.00	1.11
25	3	54	5.56	100.00	0.44	0.29

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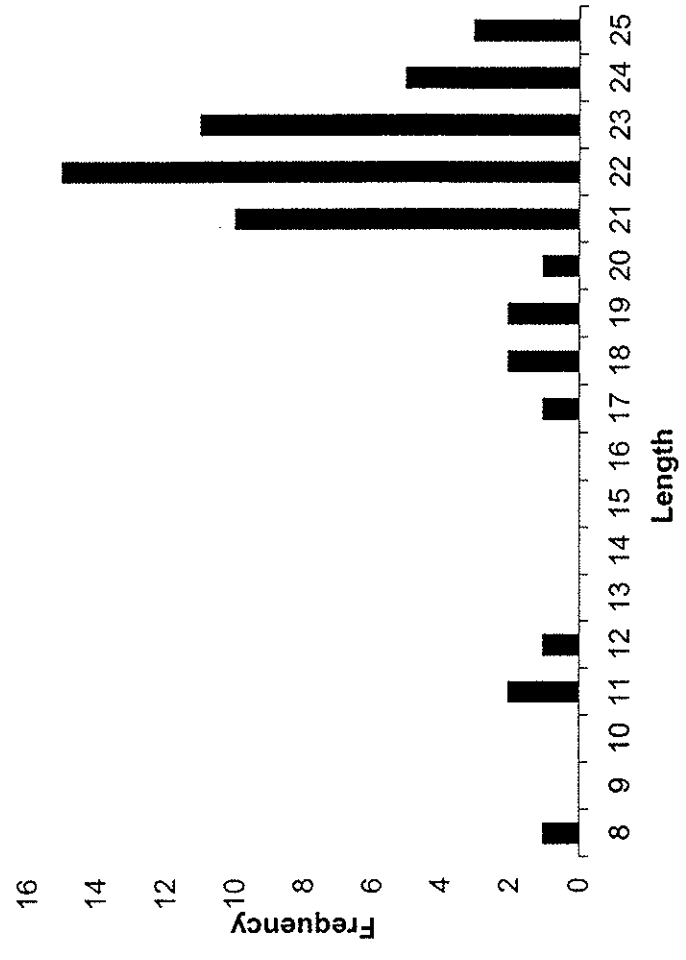


Table 5. Length/weight calculation from white bass sampled during spring headwater sampling at Barren River Lake 2004.

Inch class	Calculated wgt X.0	Actual weight			Number of fish
		Avg wt	Min wgt	Max wgt	
6	0.09	0.13	0.13	0.13	1
7	0.14	0.18	0.14	0.22	6
8					0
9	0.32	0.34	0.34	0.34	1
10	0.45	0.54	0.43	0.66	26
11	0.61	0.71	0.5	0.87	140
12	0.81	0.89	0.74	1.11	66
13	1.05	1.15	0.99	1.39	30
14	1.33	1.46	1.43	1.5	4
15	1.66	1.6	1.6	1.6	1
16	2.05	2.04	2.02	2.05	2
Weight = 0.00025681 * Length ^{3.2405971}					271

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Table 6. Length/weight calculation from white bass X striped bass hybrid sampled during spring headwater sampling at Barren River Lake 2004.

Inch class	Calculated wgt X.0	Actual weight			Number of fish
		Avg wt	Min wgt	Max wgt	
8	0.21	0.3	0.3	0.3	1
9					0
10					0
11	0.59	0.64	0.61	0.68	2
12	0.77	0.85	0.85	0.85	1
13					0
14					0
15					0
16					0
17	2.31	2.46	2.46	2.46	1
18	2.77	2.6	2.6	2.6	2
19	3.28	3.76	3.76	3.76	2
20	3.86	4.03	4.03	4.03	1
21	4.5	4.71	3.71	5.21	10
22	5.21	5.66	4.62	7	15
23	6	6.34	5.77	7.1	11
24	6.86	7.89	7.73	8.22	5
25	7.8	7.54	7.05	7.9	3
Weight = 0.00030575 * Length ^{3.152368}					54

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Table 7. Length/weight calculation from yellow bass sampled during spring headwater sampling at Barren River Lake 2004.

Inch class	Calculated wgt X.0	Actual weight			Number of fish
		Avg wt	Min wgt	Max wgt	
7	0.15	0.19	0.11	0.26	28
8	0.24	0.29	0.23	0.38	23
9	0.36	0.4	0.33	0.5	29
10	0.51	0.55	0.55	0.55	1
Weight = 0.000229 * Length^3.34494					81

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Table 8. Spring electrofishing for black bass (4.5 hours) and sunfish (2.25 hours) at Barren River Lake during spring 2004.

Species	Inch class																						Total	Fish /hour	Std err.
	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				
White bass					1						1	1										3	0.44	0.18	
Yellow bass				1																		1	0.15	0.11	
Green sunfish	5	12	14	17	9																	57	8.44	4.38	
Warmouth				1	1																	2	0.30	0.30	
Orangespotted sunfish	1																					1	0.15	0.22	
Bluegill	3	24	54	249	235	29	1															595	88.15	35.86	
Longear sunfish	3	50	182	88																		323	47.85	28.14	
Spotted bass	1	12	6	2	1	4	9	7	1	2	3	4	5	1	2							60	8.89	2.60	
Largemouth bass		21	20	27	81	65	29	32	48	60	32	20	23	18	19	19	15	9	2		1	541	80.15	18.12	
White bass X striped bass hybrid																			1			1	0.15	0.11	
Total																						1584	234.67		

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Table 9. Spring electrofishing for black bass for 4.5 hours at Barren River Lake during spring 2004.

Species	Inch class																						Total	Fish /hour	Std err.
	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				
White bass					1						1	1										3	0.67	0.33	
Yellow bass				1																		1	0.22	0.22	
Spotted bass	1	12	6	2	1	4	9	7	1	2	3	4	5	1	2							60	13.33	4.19	
Largemouth bass		21	20	27	81	65	29	32	48	60	32	20	23	18	19	19	15	9	2		1	541	120.22	22.18	
White bass X striped bass hybrid																			1			1	0.22	0.22	
Total																						606	134.67		

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Table 10. Length frequency for largemouth bass sampled during spring electrofishing at Barren River Lake during 2004.

Inch class	Freq	Cum Freq	Pct	Cum Pct	CPUE	Std error
3	21	21	3.88	3.88	4.67	2.29
4	20	41	3.70	7.58	4.44	2.28
5	27	68	4.99	12.57	6.00	2.26
6	81	149	14.97	27.54	18.00	4.24
7	65	214	12.01	39.55	14.44	4.33
8	29	243	5.36	44.91	6.44	1.52
9	32	275	5.91	50.82	7.11	1.38
10	48	323	8.87	59.69	10.67	3.18
11	60	383	11.09	70.78	13.33	2.58
12	32	415	5.91	76.69	7.11	2.24
13	20	435	3.70	80.39	4.44	1.37
14	23	458	4.25	84.64	5.11	1.25
15	18	476	3.33	87.97	4.00	0.94
16	19	495	3.51	91.48	4.22	0.85
17	19	514	3.51	94.99	4.22	0.70
18	15	529	2.77	97.76	3.33	1.11
19	9	538	1.66	99.42	2.00	1.11
20	2	540	0.37	99.79	0.44	0.29
21	0	540	0.00	99.79	0.00	0.00
22	1	541	0.18	99.97	0.22	0.22

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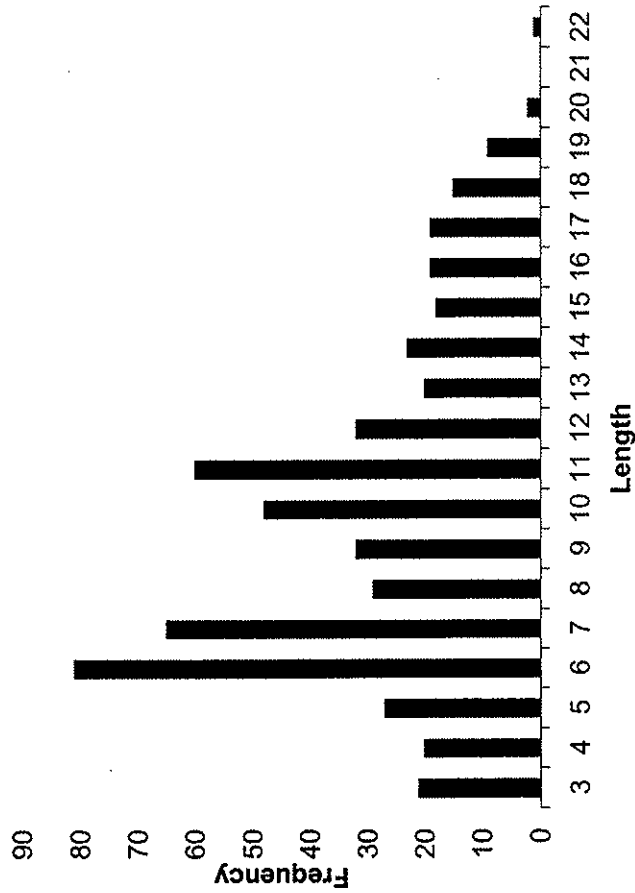


Table 11. Electrofishing catch rate (fish/hour) for each age of largemouth bass collected from Barren River Lake during 4.5 hours spring electrofishing studies 2004.

Age	Inch group													Total	Per cent	CPUE	Std error						
	2	3	4	5	6	7	8	9	10	11	12	13	14					15	16	17	18	19	20
YOY		21	20	27	81	53														202	37.06	44.89	
1						12	25	24	28	24	5									118	21.65	26.22	7.37
2							4	8	18	36	20	7								93	17.06	20.67	4.35
3									2		5	9	17	11	2					46	8.44	10.22	3.66
4										3	3	2	2	4	8	2	1			22	4.04	4.89	1.64
5											2	2	2	4	8	10	5			31	5.69	6.89	0.75
6												2	2	2	4	4	8	4		20	3.67	4.44	0.97
7																	1	1		1	0.18	0.22	0.86
8																	1	1		1	0.18	0.22	0.11
9																2	1	1		3	0.55	0.67	0.12
10															2	2	3	2		7	1.28	1.56	0.49
11																			1	1	0.18	0.22	0.11
12																				0	0.00	0.00	0.00
13																				0	0.00	0.00	0.00
Total	0	21	20	27	81	65	29	32	48	60	33	20	23	19	20	20	14	10	2	1	545		121.11

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Table 12. Largemouth bass population assessment for largemouth bass electrofishing at Barren River Lake during April and May 2004.

Parameter	Actual value	Assesment score
Growth rate (Mean length of age 3+ fish at capture)	14.13	4
Size structure (Spring CPUE fish 12 - 14.9 inches)	17.34	1
Size structure (Spring CPUE fish >= 15 inches)	11.11	1
Size structure (Spring CPUE fish >= 20 inches)	12.74	3
Recruitment (Spring CPUE of age 1 fish)	0.44	2
Total score		11
Assessment rating		Fair
Instantaneous mortality (Z)		0.31
Annual mortality (A)		26.82

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Table 13. Largemouth bass assessment from spring electrofishing from Barren River Lake 1985-2004.

Year	Mean age-3 length at capture		Spring CPUE age 1		Spring CPUE 12 - 14.9 inch		Spring CPUE >= 15 inch		Spring CPUE >= 20 inch		Assessm ent	Rating
	Value	Assessm ent	Value	Assessm ent	Value	Assessm ent	Value	Assessm ent	Value	Assessm ent		
1985	14.10	4	18.46	1	8.58	1	8.14	2	0.93	2	10	F
1986	14.10	4	8.33	1	17.65	2	3.95	1	0.23	2	10	F
1987	14.10	4	9.29	1	6.72	1	5.89	2	0.16	1	9	F
1988	14.10	4	7.92	1	13.42	1	5.90	2	0.51	2	10	F
1989	14.10	4	3.89	1	6.80	1	4.49	2	0.28	2	10	F
1990	14.10	4	15.83	1	10.02	1	9.39	2	0.45	2	10	F
1991	14.10	4	13.74	1	19.75	2	17.79	3	1.23	2	12	G
1992	14.10	4	16.02	1	10.80	1	18.15	3	1.23	2	11	F
1993	14.10	4	15.53	1	12.10	1	14.00	3	0.83	2	11	F
1994	14.10	4	5.80	1	7.46	1	4.79	2	0.25	2	10	F
1995	14.10	4	15.54	1	33.41	3	22.56	4	0.93	2	14	G
1996	14.10	4	19.00	1	20.09	2	23.91	4	0.62	2	13	G
1997	14.10	4	19.35	1	48.44	4	52.67	4	3.33	4	17	E
1998	14.10	4	8.26	1	23.20	2	33.40	4	1.20	2	13	G
1999	14.10	4	24.62	2	42.17	4	38.67	4	2.33	3	17	E
2000	14.10	4	15.59	1	33.00	3	28.71	4	1.43	2	14	G
2001	14.10	4	27.83	2	49.33	4	63.05	4	1.14	2	16	G
2002	14.10	4	14.95	1	30.36	3	38.91	4	1.27	2	14	G
2003	14.10	4	19.60	1	20.46	2	39.85	4	0.31	2	13	G
2004	14.10	4	26.00	2	16.67	2	19.11	3	0.67	2	13	G
Sum	282.00	80	305.55	23	430.43	41	453.33	61	19.33	42	247	
Avg	14.10	4	15.28	1.15	21.52	2.05	22.67	3.05	0.97	2.1	12.35	

Table 14. Largemouth bass sampled by area during spring electrofishing sampling at Batten River Lake during 2004.

Location	Inch class												Total	Fish /hour	Time								
	3	4	5	6	7	8	9	10	11	12	13	14				15	16	17	18	19	20	21	22
Beaver Creek	1			9	8	7	11	10	18	19	9	13	4	6	9	7	2	1		1	135	90.00	1.50
Walnut Creek	17	19	20	47	42	11	11	31	34	12	9	7	10	10	6	7	7	1			301	200.67	1.50
Dam area	3	1	7	25	15	11	10	7	8	1	2	3	4	3	4	1					105	70.00	1.50

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Table 15. Spring electrofishing (CPUE or fish/hour) for each size class of largemouth bass collected at Barren River Lake during spring of each year. Target fish sampling from 1981 through 1996 was all sampling. Sampling of 1997 through 2004 was for black bass only.

Year	Inch class									
	<8.0		8.0-11.9		12.0-14.9		≥15.0		Total	
	CPUE	Std.err.	CPUE	Std.err.	CPUE	Std.err.	CPUE	Std.err.	CPUE	Std.err.
2004	47.6	14.0	37.6	6.2	16.7	4.0	18.4	3.2	120.2	22.2
2003	22.2	3.4	22.5	3.5	20.5	2.9	39.5	4.7	104.2	10.6
2002	12.5	2.2	22.4	2.9	30.4	4.0	37.6	4.2	102.9	9.5
2001	11.8	1.6	42.3	4.0	49.3	6.3	61.9	4.1	165.3	9.6
2000	8.3	1.7	24.1	3.4	33.0	3.2	27.3	2.4	92.7	7.3
1999	10.7	2.4	31.7	5.7	42.2	7.3	36.3	4.7	120.8	11.2
1998	17.0	4.1	11.4	2.7	23.2	3.1	32.2	2.7	83.8	8.3
1997	6.7	1.4	31.1	5.2	48.4	6.4	19.3	6.5	135.6	11.6
1996	31.1	4.9	24.9	2.8	20.1	2.1	23.3	2.0	99.4	7.9
1995	12.9	2.8	19.3	3.2	33.4	4.5	21.6	2.8	87.3	9.2
1994	8.0	1.8	7.7	1.5	7.5	1.1	4.5	0.9	27.6	3.6
1993	20.3	3.1	22.7	1.8	12.1	1.1	13.2	1.8	68.3	4.1
1992	13.4	3.0	24.6	2.8	10.8	1.0	16.9	1.9	65.7	5.7
1991	25.6	5.3	18.8	3.0	19.8	2.6	16.6	1.7	80.7	7.7
1990	9.6	1.7	21.6	2.0	10.0	1.1	8.9	1.2	50.1	3.9
1989	1.4	0.5	6.3	0.8	6.8	0.7	4.2	0.4	18.7	1.6
1988	3.0	1.3	12.5	2.5	13.4	4.7	5.4	1.7	34.2	7.1
1987	18.9	8.8	11.4	8.4	6.7	3.4	6.3	1.8	43.2	21.7
1986	6.6	2.1	12.9	4.8	17.7	4.6	3.7	3.4	40.9	11.3
1985	8.2	1.7	32.9	3.3	8.6	1.3	7.2	2.4	56.9	5.9
1984	0.2	0.3	2.4	1.4	4.1	0.1	0.4	0.3	7.1	1.5
1983	1.0	0.6	7.6	4.5	1.2	1.2	0.2	0.2	10.0	6.4
1982			5.0	0.8	6.7	0.8	5.2	0.7	17.0	1.7
1981			11.2	4.7	13.8	4.1	5.1	0.4	30.1	9.0

Table 16. Electrofishing catch rate (fish/hour) for each age of largemouth bass collected from Barren River Lake from 1991 to 2004.

Age	Year													
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
1	13.74	15.99	15.60	5.84	15.55	18.93	28.00	25.60	37.83	20.57	27.62	14.91	16.77	26.22
2	14.66	13.09	12.69	5.59	18.18	16.09	44.67	32.80	37.50	29.86	32.38	19.82	13.85	20.67
3	11.60	7.59	7.59	4.23	18.24	15.29	40.00	52.40	31.33	27.00	36.19	20.18	18.31	10.22
4	4.97	3.95	3.32	1.56	7.12	6.76	18.89	22.80	15.17	10.86	17.00	10.18	10.31	4.89
5	6.01	5.80	4.39	1.86	8.32	8.27	26.89	31.20	18.50	12.14	23.24	14.00	14.15	6.89
6	3.19	3.58	2.97	0.96	4.60	3.64	13.78	18.00	10.50	6.00	11.43	7.64	7.54	11.11
7	0.12	0.12	0.18	0.05	0.22	0.09	0.22	0.60	0.50	0.29	0.38	0.18	0.31	0.22
8	0.12	0.12	0.18	0.05	0.22	0.09	0.22	0.60	0.50	0.29	0.38	0.18	0.31	0.22
9	0.43	0.49	0.42	0.15	0.66	0.44	2.22	2.20	1.50	0.86	1.71	1.09	1.08	0.67
10	1.53	1.60	1.42	0.40	1.53	0.98	5.78		5.50	2.57	2.86	2.91	1.69	1.56
11														
12														
13	0.31	0.43	0.18	0.05	0.49	0.18	0.89	2.00	0.67	0.57	0.19		0.15	
14														
15														

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Table 17. Annula mortality (A) between 2003 and 2004, and CPUE (fish/hour) of the last five year classes estimated from largemouth bass captured in spring electrofishing samples at Barren River Lake.

Year class	Age intervals	CPUE(2003)	CPUE(2004)	Mortality of Cohort (%)
2002	1+ - 2+	16.77	20.67	-23.26
2001	2+ - 3+	13.85	10.22	26.21
2000	3+ - 4+	18.31	4.89	73.29
1999	4+ - 5+	10.31	6.89	33.17
1998	5+ - 6+	14.15	11.11	21.48

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Table 18. Length frequency for spotted bass sampled during spring electrofishing at Barren River Lake during 2004.

Inch class	Freq	Cum Freq	Pct	Cum Pct	CPUE	Std error
2	1	1	1.67	1.67	0.22	0.22
3	12	13	20.00	21.67	2.67	1.37
4	6	19	10.00	31.67	1.33	0.67
5	2	21	3.33	35.00	0.44	0.44
6	1	22	1.67	36.67	0.22	0.22
7	4	26	6.67	43.33	0.89	0.35
8	9	35	15.00	58.33	2.00	0.94
9	7	42	11.67	70.00	1.56	0.87
10	1	43	1.67	71.67	0.22	0.22
11	2	45	3.33	75.00	0.44	0.29
12	3	48	5.00	80.00	0.67	0.67
13	4	52	6.67	86.67	0.90	0.48
14	5	57	8.33	95.00	1.11	0.68
15	1	58	1.67	96.67	0.22	0.22
16	2	60	3.33	100.00	0.44	0.29

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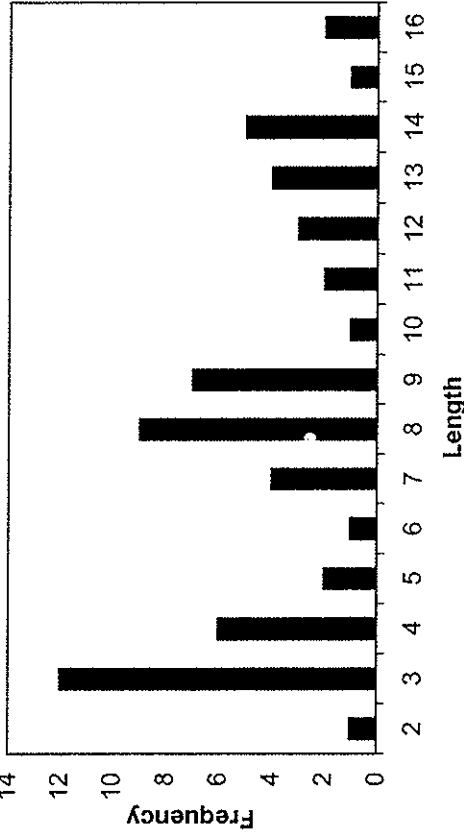


Table 19. Electrofishing catch rate (fish/hour) for each age of spotted bass collected from Barren River Lake during 9.0 hours fall electrofishing studies 2004.

Age	Inch group																Total	Per cent	Std error						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16				17	18	19	20	22	
YOY	1	12	6	2	2	1	4	3	1	1	1	1	1	1	1	1	1	1	1	1	1	21	35.00	4.67	
1						1	4	3	1													9	15.00	2.00	0.82
2								5	4	1	1											11	18.33	2.44	1.06
3								1	2		1	2	1									7	11.67	1.56	0.74
4											1	2	4	1	1							9	15.00	2.00	0.93
5														1	2							3	5.00	0.67	0.15
6																						0	0.00	0.00	0.00
7																						0	0.00	0.00	0.00
Total	1	12	6	2	2	1	4	9	7	1	2	3	3	5	1	3	0	0	0	0	0	60		13.33	

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Table 20. Spotted bass sampled by area during spring electrofishing sampling at Barren River Lake during 2004.

Location	Inch class																Fish Total	/hour	Time
	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16				
Beaver Creek			1													1	0.67	1.50	
Walnut Creek		6	5	2		1	2			1	3	1	1			22	14.67	1.50	
Dam area	1	6			1	3	7	7	1	1	3	4	1	2		37	24.67	1.50	

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Table 21. Spotted bass population assessment for spotted bass electrofishing at Barren River Lake from during April and May 2004.

Parameter	Actual value	Assessment score
Growth rate (Mean length of age 3+ fish at capture)	11.37	3
Size structure (Spring CPUE fish 11 - 13.9 inches)	1.35	3
Size structure (Spring CPUE fish >= 14 inches)	1.33	3
Size structure (Spring CPUE fish >= 17 inches)	1.19	4
Recruitment (Spring CPUE of age 1 fish)	0	1
Total score		14
Assessment rating		Good
Instantaneous mortality (Z)		64.38
Annual mortality (A)		1.03

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Table 22. Spotted bass assessment from spring electrofishing from Barren River Lake 1985-2004.

Year	Spotted bass											
	Mean age-3 length at capture		Spring CPUE age 1		Spring CPUE 11 - 13.9 inch		Spring CPUE >= 14 inch		Spring CPUE >= 17 inch		Assessment	Rating
	Value	Assessment	Value	Assessment	Value	Assessment	Value	Assessment	Value	Assessment		
1985	11.37	3	0.28	1	1.46	3	0.24	2	0.00	0	9	F
1986	11.37	3	0.86	2	1.74	3	0.23	2	0.00	0	10	F
1987	11.37	3	0.50	2	3.01	4	0.16	2	0.05	1	12	G
1988	11.37	3	0.89	2	3.99	4	0.51	3	0.00	0	12	G
1989	11.37	3	1.37	3	1.94	3	3.00	4	0.00	0	13	G
1990	11.37	3	4.42	4	5.43	4	1.64	4	0.00	0	15	G
1991	11.37	3	0.53	2	3.62	4	0.92	3	0.00	0	12	G
1992	11.37	3	1.86	3	6.67	4	2.47	4	0.00	0	14	G
1993	11.37	3	1.59	3	2.79	4	1.36	4	0.00	0	14	G
1994	11.37	3	0.48	2	1.41	3	0.25	2	0.00	0	10	F
1995	11.37	3	1.84	3	2.63	4	1.81	4	0.05	1	15	G
1996	11.37	3	0.93	2	7.73	4	3.56	4	0.18	2	15	G
1997	11.37	3	0.65	2	7.56	4	4.67	4	0.00	0	13	G
1998	11.37	3	0.98	2	3.20	4	2.60	4	0.00	0	13	G
1999	11.37	3	0.21	1	6.83	4	3.00	4	0.17	2	14	G
2000	11.37	3	1.04	3	4.71	4	2.43	4	0.00	0	14	G
2001	11.37	3	2.16	3	12.19	4	6.10	4	0.19	3	17	E
2002	11.37	3	1.63	3	3.82	4	2.36	4	0.00	0	14	G
2003	11.37	3	2.24	3	8.92	4	6.15	4	0.00	0	14	G
2004	11.37	3	2.02	3	2.00	3	1.78	4	0.00	0	13	G
Sum	227.40	60	26.48	49	91.65	75	45.24	70	0.64	9	263	
Avg	11.37	3	1.32	2.45	4.58	3.75	2.26	3.5	0.03	0.45	13.15	

Table 23. Spring electrofishing (CPUE or fish/hour) for each size class of spotted bass collected at Barren River Lake during spring of each year. Target fish sampling from 1981 through 1996 was all sampling. Sampling of 1997 through 2004 was for black bass only.

Year	Inch class									
	<7.0		7.0-10.9		11.0-13.9		≥14.0		Total	
	CPUE	Std.err.	CPUE	Std.err.	CPUE	Std.err.	CPUE	Std.err.	CPUE	Std.err.
2004	4.9	2.2	4.7	2.4	2.0	1.4	1.8	1.0	13.3	4.4
2003	2.2	0.7	7.1	1.7	8.9	2.0	6.2	1.8	24.3	4.8
2002	2.4	1.2	2.2	1.1	3.8	1.3	2.4	0.7	10.7	2.2
2001	1.5	1.1	9.9	2.5	12.2	2.6	5.9	2.3	29.5	6.2
2000	0.3	0.3	4.3	1.5	4.7	1.8	2.4	1.5	11.7	3.4
1999	0.2	0.2	1.2	0.4	6.8	2.1	2.8	1.0	11.0	2.5
1998	0.4	0.3	2.8	1.1	3.2	1.4	2.6	1.2	9.0	2.9
1997	0.2	0.2	2.7	1.4	7.6	1.6	4.7	2.6	15.1	4.2
1996	0.7	0.6	3.0	0.9	7.7	1.8	3.4	1.5	14.8	3.4
1995	1.2	1.7	3.8	2.3	2.6	1.1	1.8	1.1	9.4	4.3
1994	0.3	0.1	1.4	0.8	1.4	0.6	0.3	0.1	3.3	1.1
1993	1.5	1.2	4.0	1.2	2.8	1.3	1.4	1.2	9.7	3.0
1992	0.9	1.1	4.6	1.4	6.7	1.7	2.5	1.4	14.6	3.3
1991	1.2	0.9	3.1	1.7	3.6	2.7	0.9	1.0	7.9	4.2
1990	1.1	0.4	8.1	1.8	5.4	1.5	1.6	0.5	16.3	3.2
1989	0.5	0.2	3.2	0.7	1.9	0.4	0.4	0.1	6.0	1.2
1988	1.0	0.3	2.7	0.9	4.0	1.4	0.5	0.6	7.8	1.8
1987	0.1	0.2	3.8	3.4	3.0	3.5	0.1	0.1	7.0	6.8
1986	0.3	0.2	1.4	1.1	1.7	0.5	0.2	0.1	3.7	0.6
1985	1.0	0.5	0.9	0.7	1.5	0.9	0.2	0.6	3.6	1.2
1984			0.6	0.1	0.6	0.1			1.2	0.1
1983										
1982			1.2	0.5	3.2	2.2	0.2	0.2	4.6	2.9
1981			2.0	0.8	4.1	1.8	0.6	0.6	6.8	3.1

Table 24. PSD and RSD values obtained for each black bass species taken in spring electrofishing samples in each area of Barren River Lake during April and May 2004; 95% confidence intervals are in parentheses.

Area	Species	Num of fish >= 8"	PSD (+/- 95%)	RSD(=/- 95%)
Beaver Creek				
	Smallmouth bass	0	0	0
	Spotted bass	0	0	0
	Largemouth bass	117	61(9)	26(8)
Walnut Creek				
	Smallmouth bass	0	0	0
	Spotted bass	9	67(0)	11(0)
	Largemouth bass	156	44(8)	26(7)
Dam area				
	Smallmouth bass	0	0	0
	Spotted bass	29	38(19)	24(17)
	Largemouth bass	54	33(13)	22(11)
Total				
	Smallmouth bass	0	0	0
	Spotted bass	38	45(16)	21(13)
	Largemouth bass	327	48(5)	25(5)

swdbrlpd.d04

Table 25. Spring electrofishing for sunfish for 2.25 hours at Barren River Lake during spring 2004.

Species	Inch class									Total	Fish /hour	Std err.
	2	3	4	5	6	7	8	9				
Green sunfish	5	12	14	17	9					57	25.33	6.43
Warmouth				1	1					2	0.89	0.59
Orangespotted sunfish	1									1	0.44	0.44
Bluegill	3	24	54	249	235	29	1			595	264.44	33.08
Longear sunfish	3	50	182	88						323	143.56	45.58
Total										978	434.67	

swdbrlpd.d04

Table 26. Length frequency for bluegill sampled during spring electrofishing at Barren River Lake during 2004.

Inch class	Freq	Cum Freq	Pct	Cum Pct	CPUE	Std error
2	3	3	0.50	0.50	1.33	0.94
3	24	27	4.03	4.54	10.67	5.62
4	54	81	9.08	13.61	24.00	4.47
5	249	330	41.85	55.46	110.67	21.51
6	235	666	39.50	94.98	104.44	20.10
7	29	594	4.87	99.83	12.89	2.29
8	1	595	0.17	100.00	0.44	0.44

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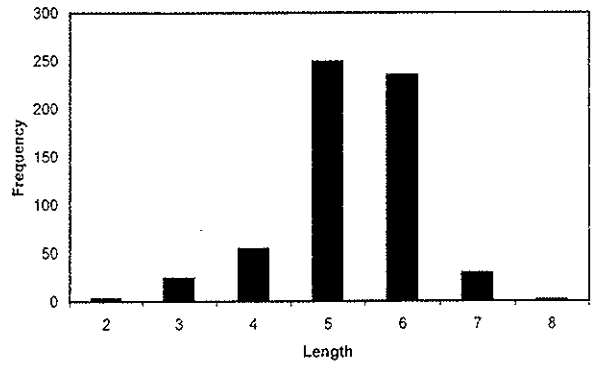


Table 27. Bluegill evaluation BRL 2004

Parameter	Value	Assessment score
Growth	0.15	1
Mean length age-2 capture		
Growth	0	1
Years to 6.0 inches		
Size structure	39.26	2
CPUE >= 6.0 inches		
Size structure	0.15	2
CPUE >= 8.0 inches		
		6
		Poor

swdbrlpd.d04

Table 28. Bluegill sampled by area during spring electrofishing sampling at Barren River Lake during 2004.

Location	Inch class							Total	Fish	
	2	3	4	5	6	7	8		/hour	Time
Beaver Creek	3	21	17	44	97	11		193	257.33	0.75
Walnut Creek			12	138	107	14		271	361.33	0.75
Dam area		3	25	67	31	4	1	131	174.67	0.75

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Table 29. Longear sunfish sampled by area during spring electrofishing sampling at Barren River Lake during 2004.

Location	Inch class							Total	Fish	
	2	3	4	5	6	7	8		/hour	Time
Beaver Creek			11	12				23	30.67	0.75
Walnut Creek	2	1	41	28				72	96.00	0.75
Dam area	1	49	130	48				228	304.00	0.75

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Table 30. Length frequency for longear sunfish sampled during spring electrofishing at Barren River Lake during 2004.

Inch class	Freq	Cum Freq	Pct	Cum Pct	CPUE	Std error
2	3	3	0.93	0.93	1.33	0.94
3	50	53	15.48	16.41	22.22	11.12
4	182	235	56.35	72.76	80.89	26.05
5	88	323	27.24	100.00	39.11	10.19

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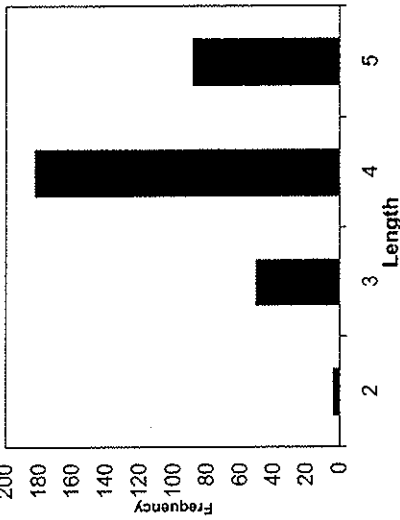


Table 31. Black bass relative weight determination for Barren River Lake during 2004.

	Size	Wrs	Num	Size	Wrs	Num	Wrs	Num
Largemouth bass	8-11.9	86.49	290	12-14.9	90.19	104	93.78	58
Smallmouth bass	7-10.9	89.05	2	11-13.9				8
Spotted bass	7-10.9	82.09	52	11-13.9	88.87	11	99.97	9
White bass	6-8.9	73.77	2	9-11.9	67.75	1	64.38	1
								4

swdbrlwr.d04

Table 32. Number of fish and the relative weight (Wr) for each length category of black bass collected at Barren River Lake during September 2004. Standard errors are in parentheses.

Species	Area	Size range					
		8.0-11.9 in		12.0-14.9 in		≥15.0 in	
		Num	Wr	Num	Wr	Num	Wr
Largemouth bass							
	Dam area	27	82.02 (1.92)	13	89.04 (2.95)	4	92.14 (4.89)
	Beaver Creek	84	88.14 (1.01)	23	91.34 (1.49)	18	96.27 (1.93)
	Peter Creek	29	84.25 (1.42)	7	88.94 (2.85)	8	91.35 (3.39)
	Browns Ford	80	87.34 (1.13)	39	89.50 (1.34)	10	96.31 (2.53)
	Lower Skaggs Creek	23	83.67 (1.25)	7	87.27 (4.02)	7	87.29 (4.93)
	Upper Skaggs Creek	47	87.43 (1.88)	15	93.15 (2.97)	11	93.89 (1.32)
		<u>7.0-10.9</u>		<u>11.0-13.9</u>		<u>≥14.0 in</u>	
		Num	Wr	Num	Wr	Num	Wr
Smallmouth bass							
	Dam area	1	76.02				
	Lower Skaggs Creek	1	102.08				
Spotted bass							
	Dam area	13	94.15 (2.05)			1	107.35
	Beaver Creek	1	86.22	1	87.95	2	104.29
	Peter Creek	15	95.61 (2.12)	3	92.56 (3.29)	3	96.68 (2.77)
	Browns Ford	1	94.18	1	108.35	1	93.10
	Lower Skaggs Creek	22	94.2 (2.08)	6	97.60 (1.62)	1	120.53
	Upper Skaggs Creek					1	117.54

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Table 33. Length frequency of fish sampled during fall electrofishing for 9.0 hours at Barren River Lake during 2004.

Species	Inch class											Total	Fish /hour	Std error					
	2	3	4	5	6	7	8	9	10	11	12				13	14	15	16	17
White bass					1		1	1	1	1	1								5
Yellow bass					1	1													2
Smallmouth bass	1	27	1	4	7	3		1										44	
Spotted bass	34	112	9	17	19	25	12	7	8	5	4	2	3	4	1	1		263	
Largemouth bass	286	445	58	110	43	28	73	85	89	43	35	41	29	24	19	8	3	1	1423
Hybrid striped bass			1	1														2	

swdbrlwr.d04

Table 34. Length frequency for largemouth bass sampled during fall electrofishing at Barren River Lake during 2004.

Inch class	Freq	Cum Freq	Pct	Cum Pct	CPUE	Std error
2	286	286	20.10	20.10	31.78	10.13
3	445	731	31.27	51.37	49.44	13.05
4	58	789	4.08	55.45	6.44	1.29
5	110	899	7.73	63.18	12.22	3.07
6	43	942	3.02	66.20	4.78	1.07
8	28	970	1.97	68.17	3.11	0.63
8	73	1043	5.13	73.30	8.11	1.27
9	85	1128	5.97	79.27	9.44	1.75
10	89	1217	6.25	85.52	9.89	2.05
11	43	1260	3.02	88.55	4.78	1.16
12	35	1295	2.46	91.00	3.89	0.85
13	41	1336	2.88	93.89	4.56	0.95
14	29	1365	2.04	95.92	3.22	0.73
15	24	1389	1.69	97.61	2.67	0.56
16	19	1408	1.34	98.95	2.11	0.47
17	8	1416	0.56	99.51	0.89	0.33
18	3	1419	0.21	99.72	0.33	0.18
19	3	1422	0.21	99.93	0.33	0.18
20	1	1423	0.07	100.00	0.11	0.11
21	0	1423	0.00	100.00	0.00	0.00

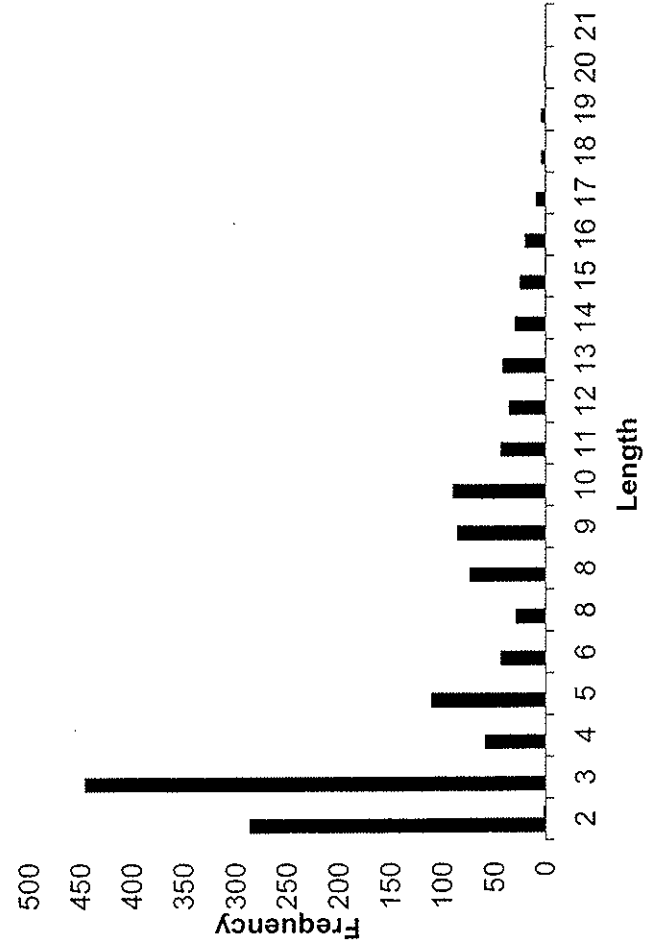
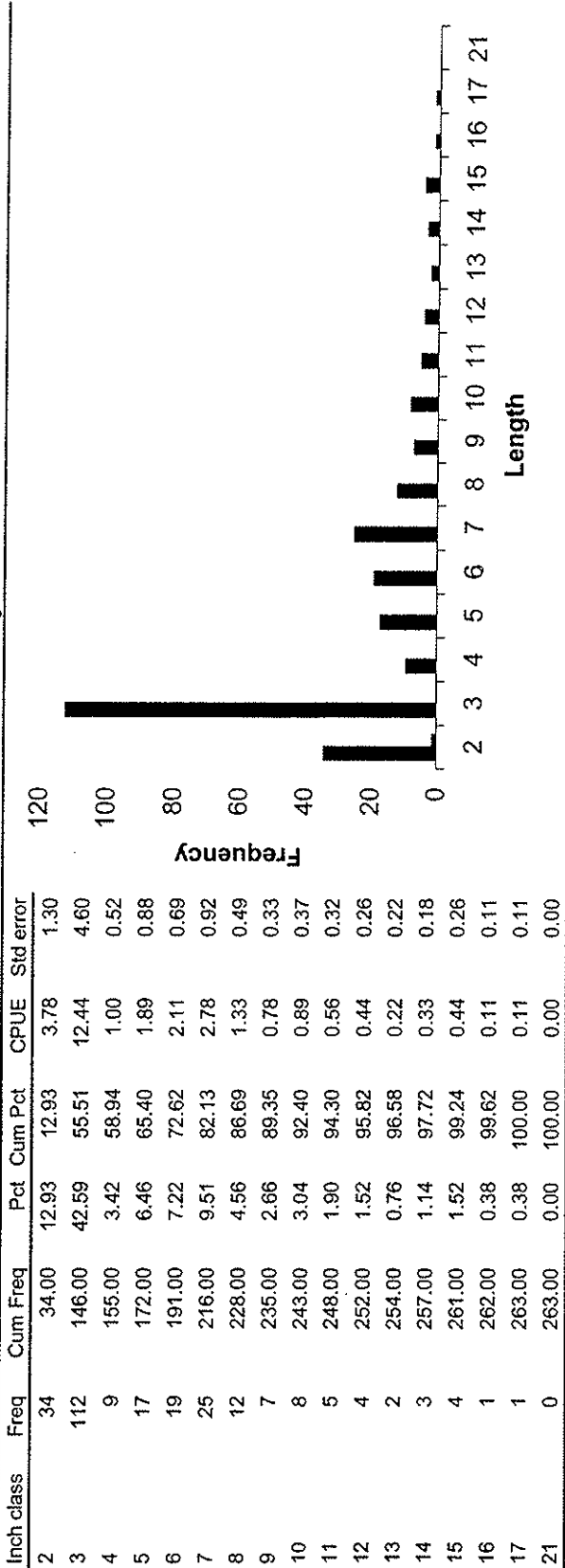


Table 35. Length frequency for spotted bass sampled during fall electrofishing at Barren River Lake during 2004.



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Table 36. Electrofishing catch rate (fish/hour) for each age of largemouth bass collected from Barren River Lake during 9.0 hours fall electrofishing studies 2004.

Age	Inch group																					Per cent	CPUE	
	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	22	Total			
YOY	286	445	58	110	43	23																965	67.81	107.22
Unknown						5	73	85	89	43	35	41	29	24	19	8	3	3	1	1		458	32.19	50.89
Total	286	445	58	110	43	28	73	85	89	43	35	41	29	24	19	8	3	3	1	1	0	1423		158.11

swdbrlwr.d04

swdbrlag.d03

Table 37. Electrofishing catch rate (fish/hour) for each age of spotted bass collected from Barren River Lake during 9.0 hours fall electrofishing studies 2004.

Age	Inch group																		Total	Per cent	CPUUE
	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18				
YOY	34	112	9	17	4														176	66.92	19.56
Unknown					15	25	12	7	8	5	4	2	3	4	1	1			87	33.08	9.67
Total	34	112	9	17	19	25	12	7	8	5	4	2	3	4	1	1	0	263			29.22

swdbriwr.d04

swdbriag.d03

Table 38. Indices of year class strength at age 0 and age 1 and mean length (in) of largemouth bass collected in the fall in electrofishing samples at Barren River Lake during 2003 and 2004.

Year class	Age 0			Age 0 >=5.0 inch			Age 1		
	Area	Mean length	Std error	CPUUE	Std Error	CPUUE	Std Error	CPUUE	Std Error
2004	Total	3.72	0.04	108.44	22.20	20.78	3.85	22.76	2.89
2003	Total	4.40	0.04	198.00	30.81	84.00	18.74	11.46	1.52

swdbriwr.d04

swdbriag.d04

swdbriwr.d03

swdbriag.d03

Table 39. Mean back calculated length (in.) at each age for otoliths from largemouth bass electrofishing at Barren River Lake

Year class	Number	Age	
		1	2
2003	25	3.86	

swdbrlag.d04

Table 40. Mean back calculated length (in.) at each age for otoliths from spotted bass electrofishing at Barren River Lake during the fall 2004.

Year class	Number	Age	
		1	2
2003	39	3.41	
2002	5		5.64

swdbrlag.d04

Table 41. Trap netting for 112 net days at Barren River Lake for crappie population evaluations.

Species	Inch class																									Total	Fish /day	Std error
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25			
Alewife				5	4																				9	0.08	0.05	
Gizzard shad			443	33																					476	4.25	1.48	
Common carp					14	4	4	1	4	16	70	172	86	13											380	3.39	0.67	
Spotted sucker																									5	0.04	0.02	
River herring																									25	0.22	0.05	
Golden redbreast																									12	0.11	0.04	
Yellow perch																									135	1.21	0.48	
Channel catfish																									1	0.01	0.01	
Mountain madtom																									66	0.59	0.27	
Flathead catfish																									11	0.10	0.04	
White bass																									25	0.22	0.06	
Yellow bass																									280	2.50	0.59	
Green sunfish			135	125	13	5	1	1																	368	3.29	0.45	
Warmouth			3	249	61	21	13	3	12	6															12	0.11	0.03	
Orangespotted sunfish			10	2																					8157	72.83	8.77	
Bluegill			20	2864	4592	206	170	271	34																102	0.91	0.14	
Longear sunfish			2	64	32	2	2																		78	0.70	0.12	
Redear sunfish			1	23	10	4	8	32																	1	0.01	0.01	
Smallmouth bass																									113	1.01	0.14	
Spotted bass																									56	0.50	0.08	
Largemouth bass			4	19	16	4	3	1	2	3	1	1													192	1.71	0.27	
White crappie																									846	7.55	0.90	
Black crappie			14	59	1	57	318	151	93	78	50	22	3												66	0.59	0.12	
Logperch																									46	0.41	0.11	
White bass x striped bass																									1	0.01	0.01	
Sunfish hybrids																									1	0.01	0.01	
Total																									11471	102.42		

swbrltr.d04

Table 42. Length frequency for white crappie sampled during trap netting at Basrren River Lake during 2004.

Inch class	Freq	Cum Freq	Pct	Cum Pct	CPUE	Std error
3	16	16	8.33	8.33	0.14	0.04
4	21	37	10.94	19.27	0.19	0.04
5	3	40	1.56	20.83	0.03	0.02
6	3	43	1.56	22.40	0.03	0.02
7	4	47	2.08	24.48	0.04	0.02
8	31	78	16.15	40.63	0.28	0.08
9	50	128	26.04	66.67	0.45	0.10
10	41	169	21.35	88.02	0.37	0.09
11	16	185	8.33	96.35	0.14	0.04
12	6	191	3.13	99.48	0.05	0.02
13	1	192	0.52	100.00	0.01	0.01

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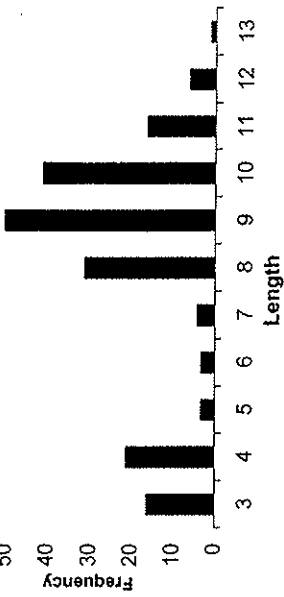


Table 43. Length frequency for black crappie sampled during trap netting at Basrren River Lake during 2004.

Inch class	Freq	Cum Freq	Pct	Cum Pct	CPUE	Std error
2	14	14	1.65	1.65	0.13	0.09
3	59	73	6.97	8.63	0.53	0.19
4	1	74	0.12	8.75	0.01	0.01
5	57	131	6.74	15.48	0.51	0.08
6	318	449	37.59	53.07	2.84	0.42
7	151	600	17.85	70.92	1.35	0.21
8	93	693	10.99	81.91	0.83	0.14
9	78	771	9.22	91.13	0.70	0.15
10	50	821	5.91	97.04	0.45	0.11
11	22	843	2.60	99.65	0.20	0.07
12	3	846	0.35	100.00	0.03	0.02

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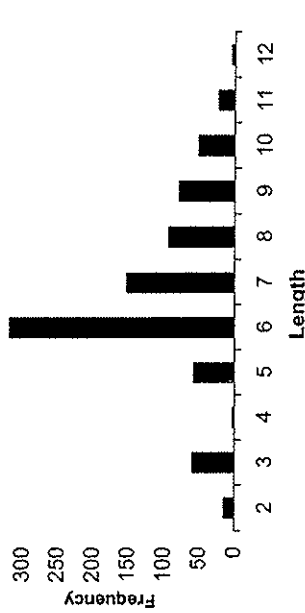


Table 44. Population assessment for white, black and white and black crappie combined from Barren River Lake trap netting data collected in October and November 2004.

Parameter	Species					
	White crappie		Black crappie		Combined	
	Actual value	Assessment	Actual value	Assessment	Actual value	Assessment
CPUE < 8.0 inches	1.55	1	6.9	2	8.45	2
CPUE of age 1 crappie	0.88	1	4.36	2	5.24	2
CPUE of age 0 crappie	0.16	1	0.65	1	0.81	1
CPUE of crappie >= 8 inches	1.29	1	2.2	1	3.49	2
Mean ag-2 length at capture	11.08	4	9.22	3	10.15	4
Instantaneous mortality (z)	0.68		0.49		0.18	
Annual mortality (A)	49.18		-63.3		-19.5	
Total score		8		9		11
Assessment rating		Fair		Fair		Fair

swdbrltr.d04

Table 45. White crappie assessment from trap netting at Barren River Lake from 1985 - 2004.

Year	White crappie															
	CPUE excluding age 0			CPUE age 1			CPUE age 0			CPUE >= 8 inches			Mean age-2 length at capture			
	Value	Assessm ent	ent	Value	Assessm ent	ent	Value	Assessm ent	ent	Value	Assessm ent	ent	Value	Assessm ent	ent	Rating
1985	30.98	4	4	24.40	4	4	0.42	1	1	2.20	1	1	9.41	3	13	G
1986	13.56	3	3	3.61	2	2	1.91	1	1	8.87	2	2	8.97	2	10	F
1987	3.99	1	1	1.26	1	1	0.41	1	1	2.48	1	1	10.79	4	8	F
1988	3.07	1	1	2.49	1	1	0.24	1	1	2.48	1	1	11.07	4	8	F
1989	4.15	1	1	1.69	1	1	3.25	2	2	2.56	1	1	11.03	4	9	F
1990	22.83	4	4	20.80	4	4	0.50	1	1	13.38	2	2	10.79	4	15	G
1991	30.98	4	4	0.52	1	1	0.98	1	1	8.86	2	2	9.83	4	12	F
1992	6.82	2	2	5.09	2	2	0.07	1	1	4.04	2	2	11.50	4	11	F
1993	5.77	2	2	0.59	1	1	0.04	1	1	5.22	2	2	10.00	4	10	F
1994	0.66	1	1	0.11	1	1	0.65	1	1	0.44	1	1	10.60	4	8	F
1995	7.95	2	2	7.69	3	3	0.64	1	1	5.47	2	2	11.50	4	12	F
1996	6.34	2	2	0.80	1	1	1.40	1	1	5.59	2	2	9.70	4	10	F
1997	6.71	2	2	5.12	2	2	1.04	1	1	5.16	2	2	10.23	4	11	F
1998	1.22	1	1	0.68	1	1	2.03	1	1	0.93	1	1	10.91	4	8	F
1999	6.48	2	2	5.91	2	2	0.54	1	1	2.93	1	1	10.85	4	10	F
2000	2.50	1	1	0.32	1	1	0.03	1	1	2.38	1	1	9.30	3	7	P
2001	1.58	1	1	0.51	1	1	0.21	1	1	1.34	1	1	10.45	4	8	F
2002	1.41	1	1	0.29	1	1	1.16	1	1	0.80	1	1	10.67	4	8	F
2003	1.37	1	1	1.02	1	1	0.43	1	1	1.05	1	1	11.45	4	8	F
2004	1.55	1	1	0.88	1	1	0.16	1	1	1.29	1	1	11.08	4	8	F
Sum	159.92	37	37	83.78	32	32	16.11	21	21	77.47	28	28	210.13	76	194	
Avg	8.00	1.85	1.85	4.19	1.6	1.6	0.81	1.05	1.05	3.87	1.4	1.4	10.51	3.8	9.7	

Table 46. Black crappie assessment from trap netting at Barron River Lake from 1985 - 2004.

Year	Black crappie											
	CPUE excluding age 0		CPUE age 1		CPUE age 0		CPUE >= 8 inches		Mean age-2 length at capture		Assessment	Rating
	Value	Assessment	Value	Assessment	Value	Assessment	Value	Assessment	Value	Assessment		
1985	3.53	1	0.72	1	0.33	1	0.78	1	7.44	1	5	P
1986	10.72	2	6.94	3	3.83	2	2.80	1	8.69	2	10	F
1987	3.27	1	1.90	1	2.82	1	1.34	1	9.57	4	8	F
1988	6.18	2	5.68	2	0.10	1	0.44	1	9.30	3	9	F
1989	9.19	2	1.48	1	7.51	3	5.90	2	8.19	1	9	F
1990	29.12	4	26.11	4	0.10	1	1.92	1	8.80	2	12	F
1991	3.53	1	0.95	1	0.86	1	3.55	1	7.63	1	5	F
1992	9.20	2	3.49	2	0.07	1	4.24	2	7.66	1	8	F
1993	12.61	2	1.06	1	0.29	1	9.13	2	8.05	1	7	P
1994	0.74	1	0.10	1	0.82	1	0.70	1	8.80	2	6	P
1995	7.39	2	6.54	2	1.29	1	0.53	1	8.94	2	8	F
1996	9.03	2	0.79	1	0.48	1	4.16	2	7.84	1	7	P
1997	9.12	2	1.45	1	0.87	1	5.98	2	7.60	1	7	P
1998	1.71	1	0.12	1	1.79	1	1.56	1	8.19	1	5	P
1999	4.66	1	3.82	2	0.26	1	0.85	1	8.61	2	7	P
2000	1.81	1	0.18	1	0.22	1	0.65	1	7.79	1	5	P
2001	5.72	2	0.33	1	0.41	1	4.47	2	7.60	1	7	P
2002	4.58	1	1.02	1	3.09	2	3.34	1	8.72	2	7	P
2003	2.37	1	1.19	1	5.35	2	0.89	1	9.68	4	9	F
2004	6.90	2	4.36	2	0.65	1	2.20	1	9.22	3	9	F
Sum	141.38	33	68.23	30	31.14	25	55.43	26	168.32	36	150	
Avg	7.07	1.65	3.41	1.5	1.56	1.25	2.77	1.3	8.42	1.8	7.5	

Table 47. Annual mortality (a) between 2003 and 2004, and CPUE (num./net-night) of the last five-year classes estimated from crappie captured in trap nets at Barren River Lake.

Year class	Age intervals	White crappie			Black crappie			Combined		
		CPUE (2003)	CPUE (20004)	Mortality of Cohort(%)	CPUE (2003)	CPUE (20004)	Mortality of Cohort(%)	CPUE (2003)	CPUE (20004)	Mortality of Cohort(%)
2003	1+ - 2+	1.09	0.43	60.55	1.26	1.82	2063.55	2.35	2.25	4.26
2002	2+ - 3+	0.02	0.05	-150.00	0.28	0.19	1852.00	0.3	0.24	20.00
2001	3+ - 4+	0.01	0.01	0.00	0.01	0.27	2001.00	0.02	0.28	-1300.00
2000	4+ - 5+	0	0	0.00	0.12	0.04	2000.00	0.12	0.04	0.00
1999	5+ - 6+	0.07	0.02	71.43	0.13	0.15	2070.43	0.2	0.17	15.00

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Table 48. PSD and RSD10 values calculated for crappie collected in trap nets at Barren River Lake during October and November 2004, 95% confidence limits are in parentheses.

Lake	Species	No	PSD	RSD
Barren River Lake				
	White crappie	155	94 (4)	41 (8)
	Black crappie	772	32 (3)	10 (2)

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Table 49. Mean back calculated length (in.) at each age for otoliths from white crappie trap netted at Barren River Lake during the fall 2004.

Year class	Number	Age					
		1	2	3	4	5	6
2003	29	4.2					
2002	21		7.39				
2001	3			8.92			
2000	1				9.5		
1998	2					9.11	10.93

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Table 50. Mean back calculated length (in.) at each age for otoliths from black crappie trap netted at Barren River Lake during the fall 2004.

Year class	Number	Age					
		1	2	3	4	5	6
2003	29	3.32					
2002	26		6.14				
2001	5			7.86			
2000	4				7.62		
1999	2					9.71	
1998	8						9.88

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Table 51. Length at age for white crappie from trap netting at Barren River Lake during 2004.

Length/ Age	Inch class											Total	Percent	Std error	
	2	3	4	5	6	7	8	9	10	11	12				13
YOY		16	21	1									38	18.91	
1				2	3	4	31	60	8				108	53.73	
2									33	13	3		49	24.38	
3										1	2		3	1.49	
4										1			1	0.50	
5													0	0.00	
6											1	1	2	1.00	
Total	0	16	21	3	3	4	31	60	41	15	6	1	201	100.00	
Percent	0.00	7.96	10.45	1.49	1.49	1.99	15.42	29.85	20.40	7.46	2.99	0.50	100.00		

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Table 52. Length at age for black crappie from trap netting at Barren River Lake during 2004.

Length/ Age	Inch class											Total	Percent	Std error	
	2	3	4	5	6	7	8	9	10	11	12				
YOY	14	59	1										74	8.77	
1				57	318	96	9	8					488	57.82	
2						27	84	62	35				208	24.64	
3								8	10	4			22	2.61	
4						27					4		31	3.67	
5											4		4	0.47	
6									5	9	3		17	2.01	
Total	14	59	1	57	318	150	93	78	50	21	3		844	100.00	0
Percent	1.66	6.99	0.12	6.75	37.68	17.77	11.02	9.24	5.92	2.49	0.36				

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Table 53. Length frequency for channel catfish sampled during trap netting at Basrren River Lake during 2004.

Inch class	Freq	Cum Freq	Pct	Cum Pct	CPUE	Std error
3	3	3	2.22	2.22	0.03	0.02
4	4	7	2.96	5.19	0.04	0.02
5	2	9	1.48	6.67	0.02	0.02
6	3	12	2.22	8.89	0.03	0.02
7	3	15	2.22	11.11	0.03	0.02
8	13	28	9.63	20.74	0.12	0.05
9	13	41	9.63	30.37	0.12	0.04
10	4	45	2.96	33.33	0.04	0.02
11	5	50	3.70	37.04	0.04	0.03
12	15	65	11.11	48.15	0.13	0.06
13	16	81	11.85	60.00	0.14	0.08
14	8	89	5.93	65.93	0.07	0.05
15	7	96	5.19	71.11	0.06	0.03
16	10	106	7.41	78.52	0.09	0.04
17	10	116	7.41	85.93	0.09	0.04
18	5	121	3.70	89.63	0.04	0.03
19	4	125	2.96	92.59	0.04	0.03
20	6	131	4.44	97.04	0.05	0.04
21	1	132	0.74	97.78	0.01	0.01
22	1	133	0.74	79.26	0.01	0.01
23	2	135	1.48	80.74	0.02	0.01

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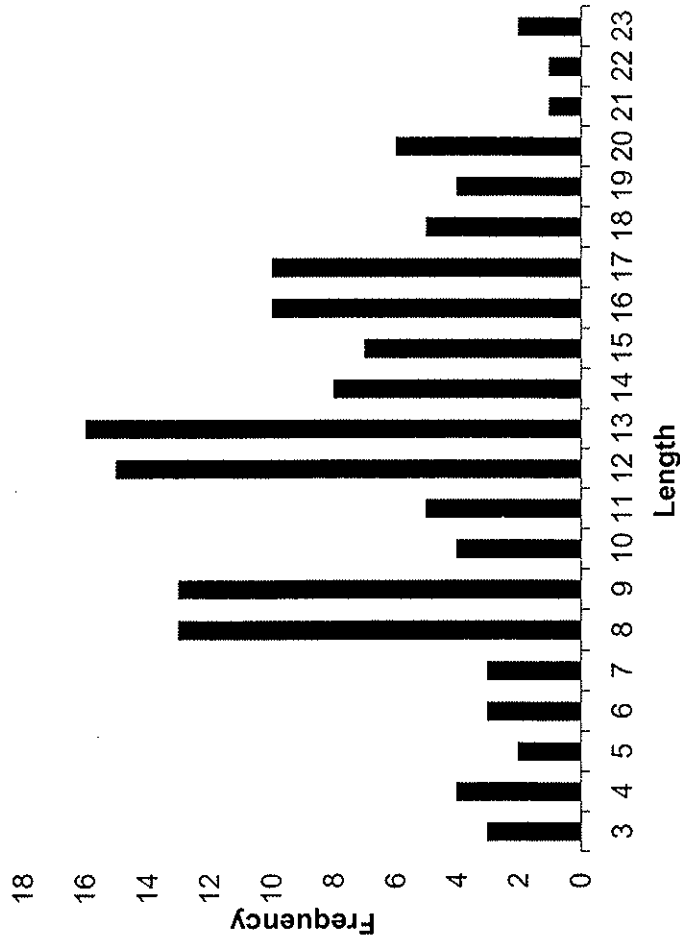


Table 54. Length frequency for bluegill sampled during trap netting at Barron River Lake during 2004.

Inch class	Freq	Cum Freq	Percent	Cum Pct	CPUE	Std error
1	20	20	0.25	0.25	0.18	0.07
2	2864	2884	35.11	35.36	25.57	3.08
3	4592	7476	56.30	91.65	41.00	4.99
4	206	7682	2.53	94.18	1.84	0.25
5	170	7852	2.08	96.26	1.52	0.28
6	271	8123	3.32	99.58	2.42	0.38
7	34	8157	0.42	100.00	0.30	0.06

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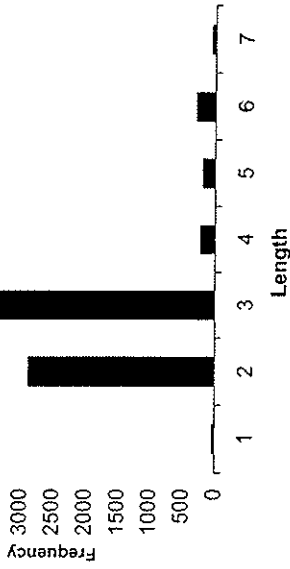


Table 55. Length frequency for redear sunfish sampled during trap netting at Barron River Lake during 2004.

Inch class	Freq	Cum Freq	Percent	Cum Pct	CPUE	Std error
1	0	0	0.00	0.00	0.00	0.00
2	1	1	1.28	1.28	0.01	0.01
3	23	24	29.49	30.77	0.21	0.06
4	10	34	12.82	43.59	0.09	0.03
5	4	38	5.13	48.72	0.04	0.02
6	8	46	10.26	58.97	0.07	0.03
7	32	78	41.03	100.00	0.29	0.07

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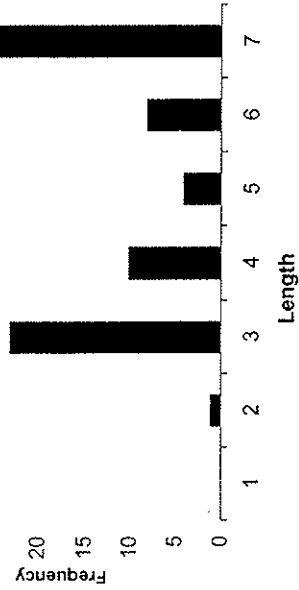
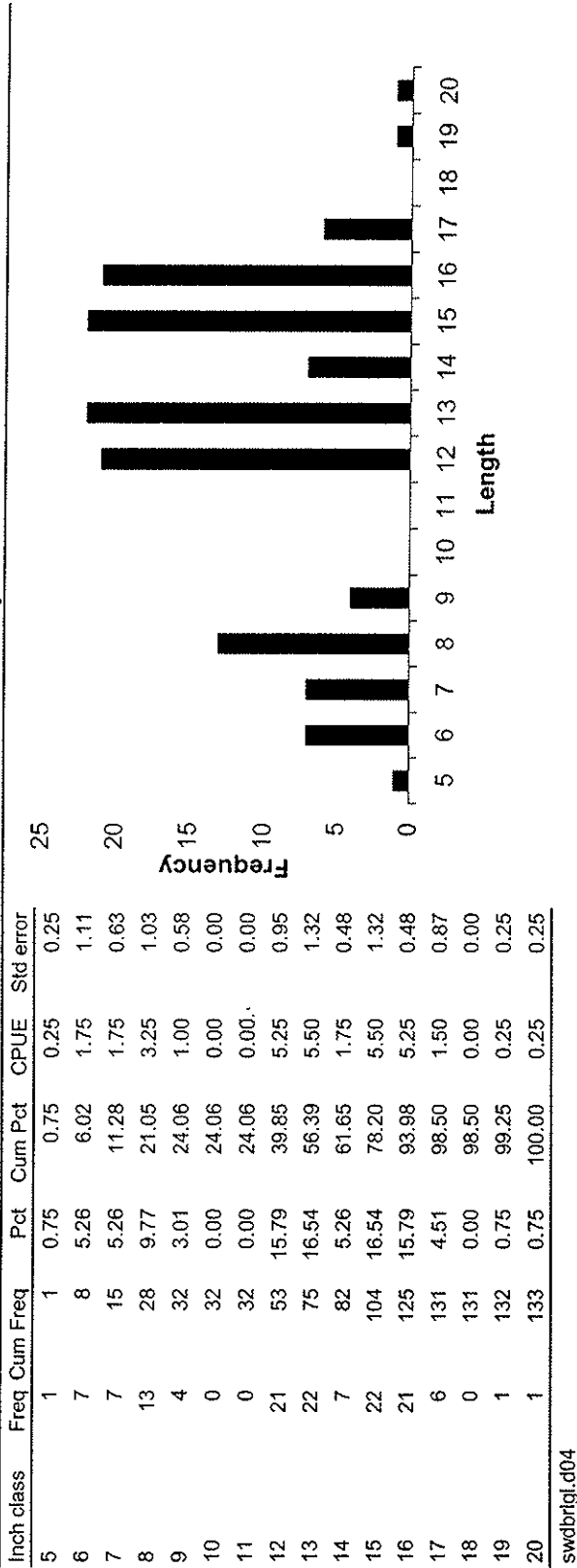


Table 56. Gill netting for 4 net days at Barren River Lake for white bass and hybrid striped bass population evaluations.

Species	Inch class																			Total	Fish /day	Std error			
	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	30	32				33	42	
Longnose gar																		1				1	5	1.25	0.95
Alewife	6	144	22																				172	43.00	6.99
Gizzard shad	134	195	289	39	12	22	5																696	174.00	17.64
Goldfish																							1	0.25	0.25
Common carp																							9	2.25	1.03
Spotted sucker	2	1	2	1	1	4	3	4	22	12	1	1	1	1									51	12.75	3.06
Golden rehorse			2			1				2													30	7.50	2.75
Yellow bullhead																							1	0.25	0.25
Channel catfish			1			1	3	2	6	4	3	6	5	3	3	3	1						46	11.50	3.84
White bass	8	8	45	4	1				17	4	4	5	1										56	14.00	3.58
Yellow bass	6	8	45	4	1																		64	16.00	2.38
Warmouth	2																						2	0.50	0.29
Bluegill	7	2																					9	2.25	1.11
Spotted bass																							4	1.00	0.58
Largemouth bass	2	2	2	2	2	3	3	1															13	3.25	0.48
White crappie			1			2	1																4	1.00	0.41
Black crappie	1	3				1	1	2															8	2.00	1.35
Logperch																							1	0.25	0.25
White bass x striped bass	1	7	7	13	4				21	22	7	22	21	6	1	1							133	33.25	5.82
Total																							1305	326.25	

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Table 57. Length frequency for hybrid striped bass sampled during gill netting at Barren River Lake during 2004.



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Table 58. Mean back calculated length (in.) at each age for otoliths from hybrid striped bass gill netting at Barren River Lake during the fall 2004.

Year class	Number	Age
2003	53	1
2002	4	2
		7.26
		11.80

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Table 60. Hybrid striped bass assessment from Barren River Lake 1985 - 2004 from gill netting.

Year	Hybrid striped bass											
	CPUE age 1 fish and older			Mean length of age 2+ fish at capture			CPUE >= 15.0 inches			CPUE of age 1 fish		
	Value	Assessm ent	Assessm ent	Value	Assessm ent	Assessm ent	Value	Assessm ent	Assessm ent	Value	Assessm ent	Assessm ent
1985	13.50	3	0.00	0	3.50	2	0.00	0	0.00	0	5	P
1986	62.75	4	18.50	4	1.75	1	30.00	4	30.00	4	13	G
1987	2.14	1	0.00	0	1.93	1	0.00	0	0.00	0	2	P
1988	8.38	2	0.00	0	7.00	3	0.00	0	0.00	0	5	P
1989	38.00	4	0.00	0	19.25	4	0.00	0	0.00	0	8	F
1990	14.00	3	17.83	3	3.90	2	7.40	3	7.40	3	11	G
1991	22.62	4	18.42	4	16.62	4	13.21	4	13.21	4	16	E
1992	22.33	4	19.10	4	7.83	3	13.19	4	13.19	4	15	E
1993	16.50	3	19.44	4	9.56	3	8.12	3	8.12	3	13	G
1994	23.88	4	18.05	4	19.25	4	5.06	3	5.06	3	15	E
1995	44.38	4	0.00	0	36.62	4	0.00	0	0.00	0	8	F
1996	24.12	4	16.84	2	10.88	4	12.71	4	12.71	4	14	E
1997	13.17	3	18.01	4	5.75	3	8.10	3	8.10	3	13	G
1998	52.75	4	17.60	3	15.38	4	41.00	4	41.00	4	15	E
1999	52.00	4	18.77	4	50.50	4	35.12	4	35.12	4	16	E
2000	82.00	4	17.62	3	50.50	4	33.92	4	33.92	4	15	E
2001	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0	
2002	34.75	4	18.77	4	16.50	4	16.75	4	16.75	4	16	E
2003	17.12	3	18.77	4	7.62	3	5.88	3	5.88	3	13	G
2004	33.25	4	18.77	4	12.75	4	20.62	4	20.62	4	16	E
Sum	577.64	66	256.49	51	297.09	61	251.08	51	251.08	51	229	
Avg	28.88	3.3	12.82	2.55	14.85	3.05	12.55	2.55	12.55	2.55	11.45	

Table 61. Length frequency for white bass sampled during gill netting at Barren River Lake during 2004.

Inch class	Freq	Cum Freq	Pct	Cum Pct	CPUE	Std error
6	8	8	14.29	14.29	2.00	0.58
7	11	19	19.64	33.93	2.75	1.75
8	6	25	10.71	44.64	1.50	0.29
9	0	25	0.00	44.64	0.00	0.00
10	0	25	0.00	44.64	0.00	0.00
11	17	42	30.36	75.00	4.25	1.18
12	4	46	7.14	82.14	1.00	0.41
13	4	50	7.14	89.29	1.00	0.41
14	5	55	8.93	98.21	1.25	0.48
15	1	56	1.79	100.00	0.25	0.25

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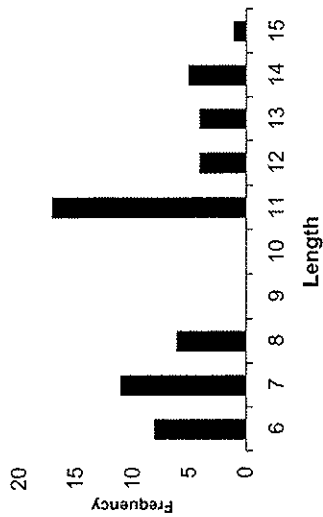


Table 62. White bass assessment from Barren River Lake 1985 - 2004 from gill netting.

Year	White bass											
	CPUE age 1 fish and older		Mean length of age 2+ fish at capture		CPUE \geq 12.0 inches		CPUE of age 1 fish		Assessment		Rating	
	Value	Assessment	Value	Assessment	Value	Assessment	Value	Assessment	Value	Assessment		
1985	6.50	2	13.13	4	4.50	2	1.79	1	9	F		
1986	26.00	4	13.13	4	6.50	3	2.33	1	12	G		
1987	2.21	1	13.13	4	0.21	1	0.26	1	7	F		
1988	2.62	1	13.13	4	1.12	1	0.71	1	7	F		
1989	16.25	3	13.13	4	14.00	4	1.25	1	12	G		
1990	5.10	2	13.13	4	2.10	1	0.40	1	8	F		
1991	3.50	1	13.18	4	0.88	1	2.21	1	7	F		
1992	3.00	1	14.20	4	2.33	1	0.61	1	7	F		
1993	1.12	1	13.07	4	0.75	1	0.38	1	7	F		
1994	2.00	1	12.80	3	1.19	1	0.58	1	6	F		
1995	5.25	2	13.13	4	4.00	2	0.88	2	10	G		
1996	4.00	1	13.90	4	0.88	1	1.25	1	7	F		
1997	0.67	1	11.85	2	0.50	1	0.17	1	5	P		
1998	0.88	1	13.90	4	0.38	1	0.12	1	7	F		
1999	2.25	1	0.00	0	2.25	1	0.50	1	3	P		
2000	2.25	1	14.41	4	2.25	1	0.00	0	6	F		
2001	0.00	0	0.00	0	0.00	0	0.00	0	0	P		
2002	1.00	1	0.00	0	0.50	1	0.25	1	3	P		
2003	5.75	2	0.00	0	0.38	1	1.12	1	4	P		
2004	14.00	3	0.00	0	3.50	2	6.25	3	8	F		
Sum	104.35	30	199.22	57	48.22	27	21.06	21	135			
Avg	5.22	1.5	9.96	2.85	2.41	1.35	1.05	1.05	6.75			

Table 63. Length frequency for yellow bass sampled during gill netting at Barren River Lake during 2004.

Inch class	Freq	Cum Freq	Pct	Cum Pct	CPUE	Std error
5	6	6	9.38	9.38	1.50	0.65
6	8	14	12.50	21.88	2.00	0.41
7	45	59	70.31	92.19	11.25	1.44
8	4	63	6.25	98.44	1.00	0.71
9	1	64	1.56	100.00	0.25	0.25

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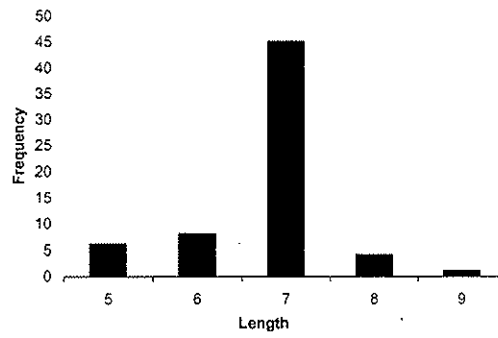


Table 64. Length frequency for channel catfish sampled during gill netting at Barren River Lake during 2004.

Inch class	Freq	Cum Freq	Pct	Cum Pct	CPUE	Std error
6	0	0	0.00	0.00	0.00	0.00
7	1	1	2.17	2.17	0.25	0.25
8	0	1	0.00	2.17	0.00	0.00
9	1	2	2.17	4.35	0.25	0.25
10	3	5	6.52	10.87	0.75	0.48
11	2	7	4.35	15.22	0.50	0.29
12	6	13	13.04	28.26	1.50	0.87
13	4	17	8.70	36.96	1.00	0.71
14	3	20	6.52	43.48	0.75	0.25
15	6	26	13.04	56.52	1.50	0.29
16	5	31	10.87	67.39	1.25	0.95
17	5	36	10.87	78.26	1.25	0.48
18	3	39	6.52	84.78	0.75	0.25
19	3	42	6.52	91.30	0.75	0.75
20	3	45	6.52	97.83	0.75	0.48
21	1	46	2.17	100.00	0.25	0.25

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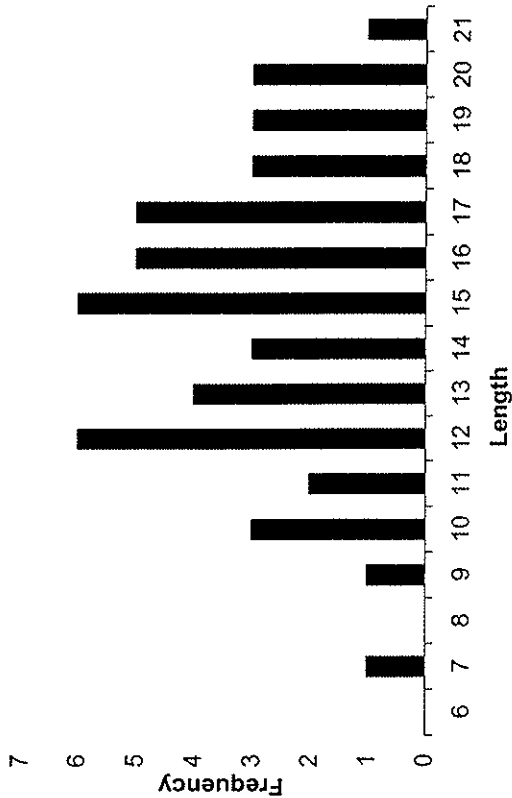


Table 65. Length frequency for gizzard shad sampled during gill netting at Barren River Lake during 2004.

Inch class	Freq	Cum Freq	Pct	Cum Pct	CPUE	Std error
4	0	0	0.00	0.00	0.00	0.00
5	134	134	19.25	19.25	33.50	3.12
6	195	329	28.02	47.27	48.75	6.12
7	289	618	41.52	88.79	72.25	7.79
8	39	657	5.60	94.40	9.75	3.57
9	12	669	1.72	96.12	3.00	1.08
10	22	691	3.16	99.28	5.50	0.65
11	5	696	0.72	100.00	1.25	0.25
12	0	696	0.00	100.00	0.00	0.00
13	0	696	0.00	100.00	0.00	0.00

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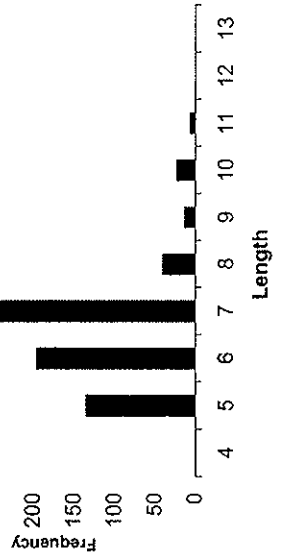


Table 66. Fish harvest statistics derived from a creel survey at Barren River Lake (10,000 acres) from 1 March through 31 October 2004.

Fishing trips		
No. of fishing trips (per acre)	93130	9.31
Fishing pressure		
Total man-hours (S>E>)	478401	5541
Man-hours / acre	47.84	
Catch/harvest		
No. of fish caught (S.E.)	633454	35241
No of fish harvested (S.E.)	317666	23408
Pounds of fish harvested	236431	
Harvest rates		
Fish/hour	0.63	
Fish/acre	31.77	
Lbs/acre	23.64	
Catch rates		
Fish/hour	1.28	
Fish/acre	63.35	
Miscellaneous characteristics (%)		
Male	87.41	
Female	12.59	
Resident	93.56	
Non-resident	6.44	
Methods(%)		
Still fishing	32.9	
Casting	49.9	
Fly fishing	0.26	
Trolling	16.32	
Others	0.62	
Mode (%)		
Boat	93.11	
Bank	4.18	
Dock	2.71	

Table B7. Fish harvest statistics derived from a creel survey at Barron River Lake (10,000 acres) from 1 March to 31 October, 2004.

	Corp	Channel catfish	Flakehead catfish	White bass	Warmouth bass	Breight sunfish	Longear sunfish	Roadrun sunfish	Smallmouth bass	Spotted bass	Largemouth bass	White crappie	Black crappie	Hybrid rockfish	Gar	Anybody	Black bass group	Catfish group	Panfish group	Crappie group	Moreno group	Illegal bass	Illegal black crappie
Number caught (per acre)	848.70	14823.5	3230.55	17459.9	2807.17	205706.4	511.29	911.7	2590.70	18578.65	152285.47	39823.76	7865.22	54199.20	49.74	49.74	173944.6	180356.88	249828.55	118486.98	118.85	345.74	338.89
	0.08	1.48	0.32	1.75	0.28	24.58	0.05	0.09	0.27	1.89	15.23	3.08	7.87	5.42	0.01	0.01	17.39	1.81	24.98	11.85	0.03	0.03	0.03
No. harvested (per acre)	237	11972	3110	3420	1402	153831	50	271	513	3990	27386	21842	46892	36129	50	50	31878	15392	155553	71024	7.16	346	337
	0.02	1.2	0.31	0.34	0.14	15.38	0.01	0.03	0.05	0.4	2.74	2.19	7.87	3.91	0.01	0.01	3.19	1.51	15.59	7.16	0.03	0.03	0.03
% total no. harvested	0.07	3.77	0.98	1.08	0.44	48.43	0.02	0.09	0.10	1.26	8.61	6.81	15.84	12.32	0.02	0.02	10.04	4.75	48.97	2.55	0.11	0.11	0.1
Lb. harvested (per acre)	942.8	11529.8	23650.7	2304.7	337.4	20515.8	3.0	37	903	3571	51016.5	11187.5	28421.3	81543.5	181.8	181.8	55490.5	39177.5	20984.1	39908.8	83848.2	235.1	52.4
	0.09	1.15	2.37	0.23	0.03	2.05		0.09	0.38	0.36	5.1	1.12	2.84	8.15	0.02	0.02	5.55	3.52	2.69	3.98	8.38	0.02	0.01
% total lb. harvested	0.4	4.88	10	0.97	0.14	8.08		0.02	0.38	1.51	21.58	4.73	12.02	34.40	0.08	0.08	23.47	14.88	8.84	16.75	35.48	0.1	0.02
Mean length (in)	22.1	15	23.1	11.8	7.1	6.1	5	6.3	10	13	15.3	10.4	10.2	18.6	35	35						11.8	7.5
Mean weight (lb)	5.51	0.0	5.24	0.88	0.25	0.14	0.08	0.2	1.98	0.94	1.85	0.52	0.57	2.61	3.66	3.66						0.85	0.17
No. of fishing trips for that species																5314.75	40443.94	2839.15	9833.6	15046.3	19651.77		
% of all trips																5.71	43.43	3.05	10.56	18.18	21.1		
Hours fished for that species (per acre)																27301.58	207758.18	142584.59	50514.66	77292	100040.89		
																2.73	20.78	1.46	5.05	7.73	10.1		
No. harvested fishing for that species																	27618	9221	139128	60391	40428		
Lb. harvested fishing for that species																	52918.2	30123	18440.9	38221.9	81839.4		
No. hour harvested fishing for that species																	0.112	0.292	3.748	0.989	0.425		
% success fishing for that species																30.84	20.14	64.35	61.07	81.09	41.8		

Table 69. Black bass catch and harvest statistics for each species derived from the creel survey at Barren River Lake during 2004.

	Smallmouth bass						Spotted bass						Largemouth bass						
	Harvest		Catch and release		Total		Harvest		Catch and release		Total		Harvest		Catch and release		Total		
	< 15.0	>= 15.0	< 15.0	>= 15.0	< 15.0	>= 15.0	< 15.0	>= 15.0	< 15.0	>= 15.0	< 15.0	>= 15.0	< 15.0	>= 15.0	< 15.0	>= 15.0	< 15.0	>= 15.0	Total
Total no of bass	140	373	513	1827	340	2167	3325	674	3999	14504	376	14880	8814	18613	27427	135348	16938	152285	
% of bass harvested by no.	27.27	72.66	100.00	84.33	15.67	100.00	83.14	16.85	100.00	97.47	2.53	100.00	32.14	67.86	100.00	88.88	11.12	100.00	
Total weight of fish (lb)	167.17	735.83	903.00	2284.8	801.30	3086.10	2456.30	1114.70	3571.00	11539.6	756.70	12296.30	2623.47	48393.03	51016.50	128427.3	39088.30	167515.60	
% of bass harvested by weight	18.51	81.49	100.00	74.04	25.96	100.00	68.78	31.22	100.00	93.85	6.15	100.00	5.14	94.86	100.00	76.67	23.33	100.00	
Mean length (in)	13.50	15.50	15.97	13.30	16.50	9.40	10.80	15.50	12.99	13.20	15.60	9.50	9.00	17.30	15.31	12.50	16.50	13.20	
Mean weight (lb)	1.20	1.97	1.98	1.25	2.36	1.42	0.74	1.51	0.94	0.80	2.01	0.83	0.30	2.60	1.85	0.95	2.31	1.10	
Rate (Fish/hour)	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.03	0.00	0.03	0.02	0.04	0.06	0.28	0.04	0.32	

Table 70. Monthly black bass angling success at Barren River Lake during the 2004 creel survey period.

Month	Total catch by all anglers		Total harvest by all anglers		Hours fishing for bass		Number of bass harvested by anglers		Harvest rate by anglers		Number caught by anglers		Actual catch rate by anglers	
	by all anglers	by anglers	by all anglers	by anglers	for bass	trips for bass	for bass	trips for bass	by anglers	by anglers	by anglers	by anglers	by anglers	by anglers
March	14428.34	1719.58	24970.92	4861.05	1692	0.060	13810	0.489						
April	18302.09	4941.57	34806.14	6775.65	4805	0.129	17251	0.463						
May	26594.49	5444.16	29559.14	5754.23	4769	0.134	24474	0.689						
June	39500.16	5497.15	37491.70	7298.45	4987	0.113	37573	0.854						
July	13281.37	2089.20	16708.64	3252.64	1542	0.084	11292	0.613						
August	12350.75	1938.26	16804.35	3271.27	1307	0.040	10186	0.548						
September	25225.41	4956.74	25941.26	5049.94	4368	0.144	23803	0.782						
October	24162.00	5291.29	21476.06	4180.70	4448	0.163	22290	0.818						
Total	173844.60	31877.95	200758.18	40443.94	27918	0.112	160679	0.065						

Table 71. Crappie catch and harvest statistics derived from a creel survey at Barren River Lake during 2004.

	White crappie				Black crappie				Combined					
	Harvest		Catch and release		Harvest		Catch and release		Harvest		Catch and release			
	< 9.0	>= 9.0	< 9.0	>= 9.0	Total	< 9.0	>= 9.0	Total	< 9.0	>= 9.0	Total	< 9.0	>= 9.0	Total
Total no of crappie harvested by	0	21942	17128	22696	39824	92	49592	49592	26592	51673	78665	92	71534	71534
% of crappie harvested by	0.00	30.67	14.46	19.15	33.61	0.13	69.33	69.33	22.44	43.61	66.39	0.08	60.37	60.37
Total weight of fish (lb)	0.00	11187.50	4102.83	10159.07	14261.90	19.50	28451.30	28451.30	6972.84	28075.66	35048.50	19.50	39638.80	39638.80
% of crappie harvested by	0.00	28.22	8.32	20.60	28.92	0.05	71.78	71.78	14.14	56.94	71.08	0.05	100.00	100.00
weight	0.00	10.36	7.20	10.50	9.40	8.00	10.23	10.23	8.00	10.00	9.50	0.05	100.00	100.00
Mean length (in)	0.00	0.52	0.24	0.45	0.36	0.21	0.57	0.57	0.26	0.54	0.45	0.21	1.09	1.09
Mean weight (lb)	0.00	0.05	0.04	0.05	0.08	1r	0.10	0.10	0.06	0.11	0.16	0.00	0.15	0.15
Rate (Fish/hour)	0.00	0.05	0.04	0.05	0.08	1r	0.10	0.10	0.06	0.11	0.16	0.00	0.15	0.15

Table 72. Monthly crappie angling success from Barren River Lake creel survey 1 March through 31 October 2004.

Month	Total catch by all anglers	Total harvest by all anglers	Hours fishing for crappie	Number of harvested trips for crappie		Harvest rate by crappie anglers		Number caught by crappie anglers		Catch rate by crappie anglers
				trips for crappie	Number of crappie	by crappie anglers	Number of crappie	Number of crappie		
March	6314.08	3331.68	9955.18	1937.96	3278	0.457	6020	0.839	0.839	
April	45526.46	29649.39	24541.28	4777.41	29237	1.303	44795	1.996	1.996	
May	6118.66	3854.27	10556.84	2055.08	3710	0.383	5781	0.596	0.596	
June	4023.69	2550.23	4056.94	789.76	2153	0.654	3286	0.998	0.998	
July	3133.81	1293.32	1991.76	387.73	945	0.483	2387	1.221	1.221	
August	12080.3	7076.89	5194.07	1011.12	6716	1.305	10908	2.119	2.119	
September	22280.81	13201.62	9281.73	1806.86	12956	1.401	21545	2.329	2.329	
October	19011.19	10676.23	11714.2	2280.38	10396	1008	18356	1.779	1.779	
Total	118488.98	71633.64	77292	15046.3	69391	0.969	113078	1.584	1.584	

Table 73. Catch and harvest statistics for hybrid striped bass from Barren River Lake creel survey during 1 March through 31 October 2004.

	Harvest			Catch and release		
	< 15.0	>= 15.0	Total	< 15.0	>= 15.0	Total
Total no of hybrids	19711	18418.13	39129.13	12648	3271	15919
% of hybrids harvested by no.	50.37	47.07	100.00	79.45	20.55	100.00
Total weight of fish (lb)	17128.25	64415.25	81543.50	8087.50	5976.32	14063.82
% of hybrids harvested by weight	21.01	78.99	100.00	57.51	42.49	100.00
Mean length (in)	12.60	19.90	16.65	11.40	16.50	12.70
Mean weight (lb)	0.87	3.50	2.61	0.64	1.83	0.88
Rate (Fish/hour)	0.04	0.04	0.08	0.03	0.01	0.03

Table 74. Monthly catch and harvest for hybrid striped bass at Barren River Lake during the 2004 creel survey.

Month	Total catch by all anglers	Total harvest by all anglers
March	886.66	26.87
April	274.53	0
May	3420.67	2746.17
June	10087.56	6403.9
July	13281.37	9301.93
August	15506.05	12080.3
September	8588.42	7165.19
October	2153.98	1404.77
Total	54199.23	39129.13

Table 75. Catfish catch and harvest statistics from Barren River Lake creel survey 1 March through 31 October 2004

Species	Weight harvested	Average length	Average weight	Number harvested	Harvest rate	harvested by weight	% of all catfish by number	Number caught and released 14.9 inches	Weight caught and released 14.9 inches	Number caught and released >15 inches	Weight caught and released >15 inches	Total number caught	Total weight caught
Channel catfish	11526.8	14.0226	0.9	11972.33	0.0237	32.768	79.382	865	512	560.207	331.3	13213.1	14823.53
Flathead catfish	23650.7	23.0867	5.237	3109.55	0.005	67.232	20.618			120.802	695.2	24345.9	3230.35
Total	35177.5	37.1093	6.137	15081.88		100	100	865	512	681.009	1026.5	37559	18053.88

Table 76. Monthly catch and harvest for catfish at Barren River Lake during the 2004 creel survey.

Month	Total catch by all anglers	Total harvest by all anglers	Hours fishing for catfish	Number of harvested trips for catfish		Harvest rate by catfish anglers		Number caught by catfish anglers		Cathd rate by anglers
				Number of catfish	Number of anglers	Number of catfish	Number of anglers	Number of catfish	Number of anglers	
March	537.37	510.5	912.56	177.65	430	0.453	0.453	430	0.453	0
April	91.51	45.76	0	0	0	0	0	0	0	0
May	4673.31	3661.56	2483.96	483.55	1686	0.704	0.704	1927	0.805	0.805
June	7083.96	6007.2	7414.4	1443.35	4533	0.54	0.54	4986	0.595	0.595
July	2686.12	2437.4	1549.15	301.57	1642	1.068	1.068	1642	1.068	1.068
August	1667.8	1442.42	1629.51	317.21	586	0.341	0.341	586	0.341	0.341
September	1079.69	883.38	594.98	115.82	344	0.778	0.778	344	0.778	0.778
October	234.19	93.65	0	0	0	0	0	0	0	0
Total	18053.88	15081.87	14584.56	2839.15	9221	0.592	0.592	9915	0.633	0.633

Table 77. Species fished for and preferred fish from angler attitude survey from anglers (340) fishing Barren River Lake during the creel survey of 2004.

What species do you fish for at Barren River Lake?

	Frequency	Percent
Bass	263	77.35%
Crappie	239	70.29%
Hybrid	137	40.29%
Channel Catfish	91	26.76%
White Bass	63	18.53%
Flathead Catfish	49	14.41%
Sunfish	31	9.12%
All	1	0.29%

What species do you Primarily fish for at Barren River Lake?

	Frequency	Percent
Bass	179	53.43%
Crappie	107	31.94%
Hybrid Striped Bass	24	7.16%
Sunfish	12	3.58%
Channel Catfish	8	2.39%
Flathead Catfish	3	0.90%
White Bass	1	0.30%
All	1	0.30%
	335	100.00%

Table 78. Fishermen attitude survey for black bass fishing from anglers (340) fishing Barren River Lake during the creel survey of 2004.

What level of satisfaction do you have with black bass fishing at Barren River Lake?

	Frequency	Percent
Very Satisfied	60	22.70%
Somewhat Satisfied	98	37.10%
Neutral	53	20.10%
Somewhat Dissatisfied	46	17.40%
Very Dissatisfied	7	2.70%
Total	264	100.00%

Do you support or oppose the 15 inch one under size limit on largemouth bass at Barren River Lake?

	Frequency	Percent
Support	217	81.00%
Oppose	40	14.90%
No Opinion	11	4.10%
Total	268	100.00%

What size limit would you prefer on largemouth bass at Barren River Lake?

	Frequency	Percent
Current (15"-1)	159	62.80%
5"	70	27.70%
2"	8	3.17%
4"	5	1.98%
8"	3	1.19%
2"-1	1	0.40%
3"	1	0.40%
4-15" Slot	1	0.40%
4" state wide all lakes	1	0.40%
5"-1 and 12"-1	1	0.40%
0"	1	0.40%
Catch & Release	1	0.40%
Same as Dale Hollow on SMB	1	0.40%
Total	253	100.00%

Do you support or oppose "no size limit" on spotted bass at Barren River Lake?

	Frequency	Percent
Support	118	43.90%
Oppose	100	37.20%
No Opinion	51	19.00%
Total	269	100.00%

What size limit would you prefer on spotted bass at Barren River Lake?

	Frequency	Percent
Current (none)	122	50.20%
2"	106	43.60%
5"	7	2.88%
5"-1	2	0.82%
4"	1	0.41%
4" 3 fish limit	1	0.41%
Catch & Release	1	0.41%
Na	1	0.41%
Same as Largemouth	1	0.41%
Total	243	100.00%

Table 79. Fishermen attitude survey about crappie fishing from anglers (340) fishing Barren River Lake during the creel survey of 2004.

What level of satisfaction do you have with crappie fishing at Barren River Lake?

	Frequency	Percent
Very Satisfied	34	14.10%
Somewhat Satisfied	100	41.50%
Neutral	41	17.00%
Somewhat Dissatisfied	48	19.90%
Very Dissatisfied	18	7.50%
Total	241	100.00%

Do you support or oppose the 9-inch size limit on crappie at Barren River Lake?

	Frequency	Percent
Support	160	65.60%
Oppose	80	32.80%
No Opinion	4	1.60%
Total	244	100.00%

What size limit would you prefer?

	Frequency	Percent
No size limit	4	1.70%
8"	9	3.80%
Current (9")	123	52.60%
10"	95	40.60%
11" (2yrs) then 10"	1	0.4%
12"	1	0.4%
9 or 10	1	0.4%
Total	234	100.00%

Do you support or oppose the 30 fish creel limit on crappie at Barren River Lake?

	Frequency	Percent
Support	173	71.50%
Oppose	67	27.70%
No Opinion	2	0.80%
Total	242	100.00%

What creel limit would you prefer?

	Frequency	Percent
Current (30)	140	61.90%
20	55	24.30%
15	27	11.90%
10	3	1.30%
25	1	0.40%
Total	226	100.00%

Table 80. Fishermen attitude survey about white bass and hybrid stripe bass fishing from anglers (340) fishing Barren River Lake during the creel survey of 2004.

What level of satisfaction do you have with hybrid striped bass fishing at Barren River Lake?

	Frequency	Percent
Very Satisfied	38	23.50%
Somewhat Satisfied	64	39.50%
Neutral	51	31.50%
Somewhat Dissatisfied	4	2.50%
Very Dissatisfied	5	3.10%
Total	162	100.00%

What level of satisfaction do you have with the white bass fishing at Barren River Lake?

	Frequency	Percent
Very Satisfied	13	9.10%
Somewhat Satisfied	29	20.30%
Neutral	78	54.50%
Somewhat Dissatisfied	16	11.20%
Very Dissatisfied	7	4.90%
Total	143	100.00%

Do you support or oppose the current regulation on hybrid striped bass and white bass?

	Frequency	Percent
Support	118	74.20%
Oppose	25	15.70%
No Opinion	16	10.10%
Total	159	100.00%

What regulation on hybrid striped bass and white bass would you prefer?

	Frequency	Percent
Current	100	71.40%
10 fish creel only 5 over 15 inches	30	21.40%
Other	10	7.10%
5 fish only over 15"	3	2.1%
quit stocking hybrids	2	1.4%
10 fish any size	1	0.7%
15 limit no size	1	0.7%
20 with 10 over 15	1	0.7%
5 over 15 - 15 creel	1	0.7%
5 under 15" & 5 over 15"	1	0.7%
No size limit	1	0.7%
Total	140	100.00%

Table 81. Fishermen attitude survey about catfish fishing from anglers (340) fishing Barron River Lake during the creel survey of 2004.

What level of satisfaction do you have with the channel catfish fishing at Barron River Lake?

	Frequency	Percent
Very Satisfied	23	19.00%
Somewhat Satisfied	53	43.80%
Neutral	35	28.90%
Somewhat Dissatisfied	7	5.80%
Very Dissatisfied	3	2.50%
Total	121	100.00%

Do you support or oppose the no size limit regulation on channel catfish at Barron River Lake?

	Frequency	Percent
Support	90	72.60%
Oppose	20	16.10%
No Opinion	14	11.30%
Total	124	100.00%

What size limit would you prefer on channel catfish at Barron River Lake?

	Frequency	Percent
Current (none)	83	73.50%
12"	8	7.10%
14"	18	15.90%
15"	3	2.70%
10"	1	0.90%
Total	113	100.00%

Do you support or oppose the no creel limit regulation on channel catfish at Barron River Lake?

	Frequency	Percent
Support	82	67.80%
Oppose	28	23.10%
No Opinion	11	9.10%
Total	121	100.00%

What creel limit would you prefer on channel catfish at Barron River Lake?

	Frequency	Percent
Current (none)	74	67.90%
5	4	3.70%
15	22	20.20%
30	5	4.60%
10	3	2.80%
20	1	0.90%
Total	109	100.00%

What level of satisfaction do you have with the flathead catfish fishing at Barron River Lake?

	Frequency	Percent
Very Satisfied	14	13.00%
Somewhat Satisfied	32	29.60%
Neutral	49	45.40%
Somewhat Dissatisfied	8	7.40%
Very Dissatisfied	5	4.60%
Total	108	100.00%

Do you support or oppose the no size limit regulation on flathead catfish at Barron River Lake?

	Frequency	Percent
Support	72	67.30%
Oppose	18	15.00%
No Opinion	19	17.80%
Total	107	100.00%

What size limit would you prefer on flathead catfish at Barron River Lake?

	Frequency	Percent
Current (none)	71	74.70%
20"	20	21.10%
15"	1	4.05%
18"	1	4.05%
30"	1	4.05%
None over 30"	1	4.05%
Total	95	100.00%

Do you support or oppose the no creel limit regulation on flathead catfish at Barron River Lake?

	Frequency	Percent
Support	69	65.70%
Oppose	22	21.00%
No Opinion	14	13.30%
Total	105	100.00%

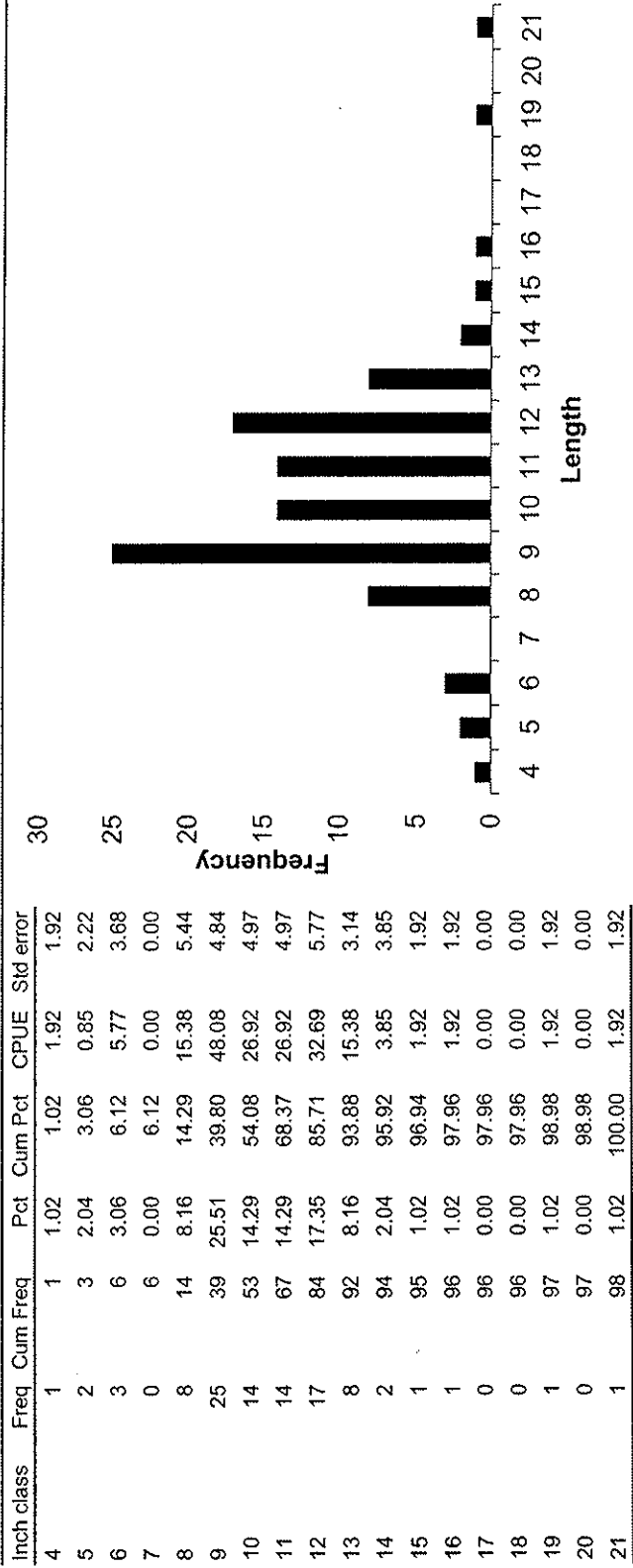
What creel limit would you prefer on flathead catfish at Barron River Lake?

	Frequency	Percent
Current (none)	62	68.70%
5	8	8.80%
15	15	16.10%
30	4	4.30%
10	3	3.20%
20	1	1.10%
Total	93	100.00%

Table 82. Largemouth bass sampling during spring 2004 at Briggs Lake for 0.52 hours.

Species	Inch class																		Total	Fish /hour	Std err.
	4	5	6	7	8	8	25	14	14	10	11	12	13	14	15	19	20	21			
Largemouth bass	1	2	3	3	8	8	25	14	14	10	11	12	13	14	15	19	20	21			
swdbrgbb.d04	1	2	3	3	8	8	25	14	14	10	11	12	13	14	15	19	20	21			
	98	188	188	188	46	19	49														

Table 83. Length frequency for largemouth bass sampled during spring electrofishing at Briggs Lake during 2004.



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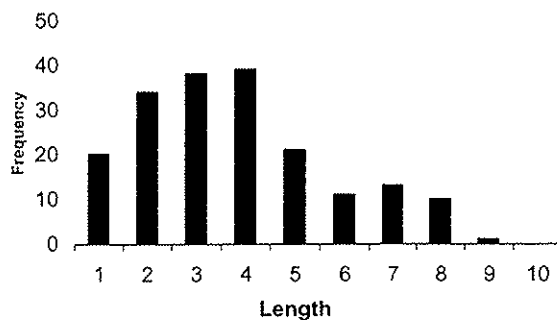
Table 84. Sunfish sampling at Briggs Lake during May 2004 for 0.52 hours.

Species	Inch class										Total	Fish /hour	Std. error
	1	2	3	4	5	6	7	8	9	10			
Warmouth					5	5	7	2			19	36.54	11.48
Bluegill	1	2	11	30	21	27	39	6			137	263.46	67.45
Redear sunfish				3	11	9	4	1	4		32	61.54	16.32

swdshlpd.d04

Table 85. Length frequency for bluegill sampled during spring electrofishing at Briggs Lake during 2004.

Inch class	Freq	Cum Freq	Pct	Cum Pct	CPUE	Std error
1	1	1	0.73	0.73	1.92	1.92
2	2	3	1.46	2.19	3.85	2.22
3	11	14	8.03	10.22	21.15	10.59
4	30	44	21.90	32.12	57.69	20.95
5	21	65	15.33	47.45	40.38	4.84
6	27	92	19.71	67.15	51.92	18.41
7	39	131	28.47	95.62	75.00	34.02
8	6	137	4.38	100.00	11.54	2.22
9	0	137	0.00	100.00	0.00	0.00
10	0	137	0.00	100.00	0.00	0.00



swdbrgpd.d04

Table 86. Bluegill population assessment for Briggs Lake during 2004.

Parameter	Value	Assessment score
Growth	5.24	4
Mean length age - 2 at capture		
Growth	3	3
Years to 6.0 inches		
Size Structure	138.46	4
CPUE >= 6.0 inches		
Size Structure	11.54	3
CPUE >= 8.0 inches		
Total score		14
Assessment rating		Excellent

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swdbrgag.d02

Table 87. Length frequency of fish sampled during fall electrofishing for 0.75 hours at Briggs Lake during 2004.

Species	Inch class																			Total	Fish /hour
	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20			
Largemouth bass	10	24	5	1	15	17	1	1	11	10	6	5	3	1	1	1	1	1	132	176.00	

swdbgrwr.d04

Table 88. Length frequency for largemouth bass sampled during fall electrofishing at Briggs Lake during 2004.

Inch class	Freq	Cum Freq	Pct	Cum Pct	CPUE	Std error
3	10	10	7.35	7.35	13.33	3.53
4	24	34	17.65	25.00	32.00	8.00
5	5	39	3.68	28.68	6.67	2.67
6	1	40	0.74	29.41	1.33	1.33
7	15	55	11.03	40.44	20.00	10.07
8	17	72	12.50	52.94	22.67	8.74
9	8	80	5.88	58.82	8.00	2.31
10	11	91	8.09	66.91	14.67	3.53
11	18	109	13.24	80.15	21.33	10.41
12	10	119	7.35	87.50	13.33	7.06
13	6	125	4.41	91.91	8.00	4.00
14	5	130	3.68	95.59	8.67	1.33
15	3	133	2.21	97.79	4.00	2.31
16	0	133	0.00	97.79	0.00	0.00
17	1	134	0.74	98.53	1.33	1.33
18	1	135	0.74	99.26	1.33	1.33
19	0	135	0.00	99.26	0.00	0.00
20	1	136	0.74	100.00	1.33	1.33
21	0	136	0.00	100.00	0.00	0.00
22	0	136	0.00	100.00	0.00	0.00

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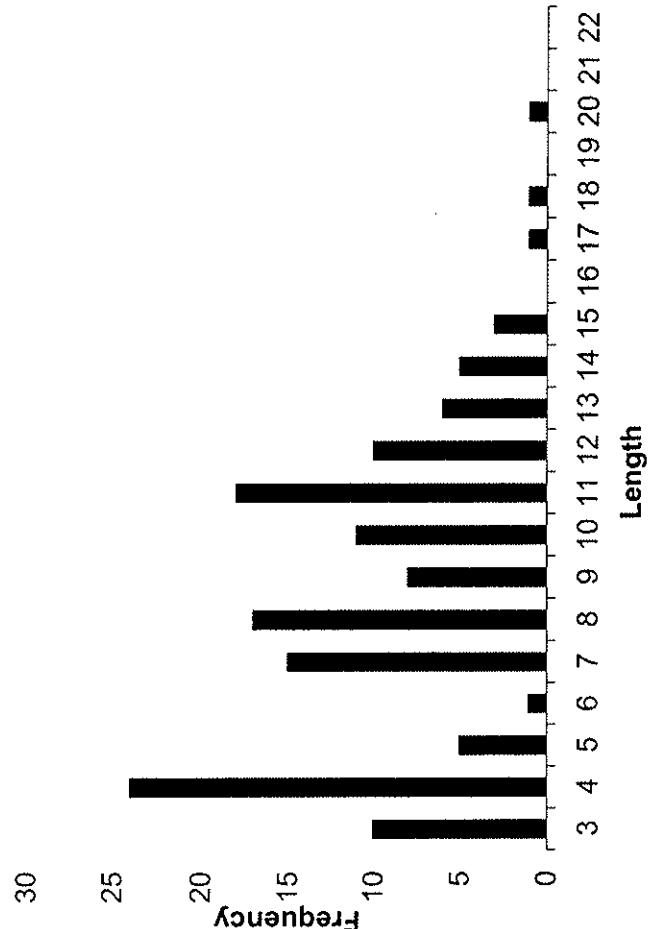


Table 89. Black bass relative weight determination for Briggs Lake during 2004.

Size	Wrs	Num	Size	Wrs	Num	Size	Wrs	Num	Wrs	Num
Largemouth bass	84.1	50	12-14.9	80.97	21	=>15	88.41	6	86.35	98

swdbrgwr.d04

Table 90. Age-growth for largemouth bass collected during fall electrofishing at Briggs Lake during 2004.

Length/ Age	Inch groups																				Total	Percent
	3	4	5	6	7	8	9	10	11	12	13	14	15	17	18	20						
0	10	24	4	1																	39	29.55
Unknown			1		15	17	6	11	16	10	6	5	3	1	1	1					93	70.45
Total	10	24	5	1	15	17	6	11	16	10	6	5	3	1	1	1					132	
Percent	7.58	18.18	3.79	0.76	11.36	12.88	4.55	8.33	12.12	7.58	4.55	3.79	2.27	0.76	0.76	0.76						

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swdbrgag.d04