

**BEAR CREEK RESERVOIR
MANAGEMENT REPORT**

2004

Prepared by

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Introduction

Bear Creek Reservoir, a 670 acre Tennessee Valley Authority impoundment, is one of four TVA reservoirs in North West Alabama managed by the Bear Creek Development Authority, an agency of the state of Alabama. Excellent habitat exists for black bass, bream, crappie, and catfish due to the nutrient rich water. Sampling in 2004 indicated that the bass population has a high percentage of bass 12 inches and larger, growing at a moderate rate, and subjected to low exploitation. Bear Creek Reservoir was previously sampled in 1994 (Darr et al. 1995). Darr recommended the removal of the nine inch minimum length limit on crappie to reduce competition through increased angler harvest. Sampling in 2004 indicated that this strategy has helped the crappie population by improving the size structure, increasing catch rates, increasing recruitment and growth rates.

Methods

Bear Creek Reservoir was sampled in 2004 using the guidelines of the Alabama Reservoir Management Manual.

The Bass Anglers Information Team (B.A.I.T.) program provides tournament catch information on all participating reservoirs and these data are often used to compliment the Reservoir Management Reports. In 2002, 2003, and 2004 no B.A.I.T. reports were received for Bear Creek Reservoir. Since 2000, only 2 tournaments have submitted B.A.I.T. reports.

The organization of this report is such that all tables and figures may not be referenced in the text of the discussion. Appendix A includes all the tables and figures and Appendix B includes a general reconnaissance survey and fact sheet. No access area creel survey was conducted.

Results and Discussion

The largemouth bass sample consisted of 101 stock size and larger fish, 45% of which were in the quality size category. Nearly equally split were the stock and preferred categories with 24% and 26% respectively. The 2004 total catch per unit effort (CPUE) for largemouth bass, 37.2 fish per hour, was higher than the 1994 rate of 25.3 (Table 4). This is similar to the CPUE of 39.3 at Cedar Creek Reservoir (Floyd, *et al.* 1999), another tributary reservoir in the Bear Creek watershed. The CPUE of stock to trophy length largemouth bass, 32.2 fish per hour, is below the statewide mean of 47.9 fish per hour. Catch rates for all size categories fell below the statewide mean, except for the memorable category, which was slightly above the statewide mean.

Relative stock density (RSD) values for quality, preferred and memorable size groups were equal to or above the 75th percentile, with values of 45, 26 and 6 respectively. The substock ratio of 13 was slightly above the 25th percentile, while the stock RSD value of 24 fell below the 25th percentile of Alabama reservoirs (Figure 5).

The proportional stock density (PSD) value was 76 (Table 4), which suggests a presence of larger bass in the population. This value ranks in the top quartile for Alabama reservoirs and is above the recommended range of 47-68 suggested by Alabama reservoir data, and is also above the 50-70 range recommended by Anderson and Weithman (1978) for reservoirs where shad are the dominant prey species. Relative weight values for all RSD size categories, except preferred, were near the 25th percentile mark of statewide reservoir data. Average relative weight for preferred sized fish was 93, nearly equal to the statewide mean of 94.

The time it took for largemouth bass to reach lengths of 12, 15 and 20 inches was 2.56, 4.00 and 8.15 years respectively. This is a longer period of time than the statewide average of 2.47, 3.79 and 7.45 years to reach those same lengths. Age three fish dominated the catch with a CPUE of 11.5 and a mean length of 13 inches (Table 5).

The total annual mortality estimate for largemouth bass, ages 3-9, was 43.17%, with adjusted r^2 of 0.98 (Figure 9). This is higher than the 27.4% reported on Bear Creek Reservoir in 1994 (Darr et al. 1995), and closely resembles the mortality estimate of 43.6% on Upper Bear Creek Reservoir in 2001 (Green et al. 2001).

The spotted bass sample consisted of 38 stock size and larger fish, down from the 79 collected in 1994. The majority of these fish fell into the stock and quality size groups, with 47% and 45% respectively (Table 4). The preferred category completed the catch with 8%. Catch rates for spotted bass were 15.3 fish per hour, less than half the CPUE for largemouth. Catch rates for spotted bass were below the 25th percentile for all size groups. Values for all RSD categories fell between the 25th and 75th percentile, except for RSD-Q, which exceeded the 75th percentile (Figure 6). Relative weights for all RSD groups fell below the 25th percentile of statewide reservoir data. A valid total annual mortality estimate for spotted bass could not be computed due to a high confidence interval.

Bluegill collected during the spring of 2004, were caught at the rate of 250.0 fish per hour. All fish (N=130) sampled fell into the stock and quality size categories with 82% and 18% respectively (Table 4). No memorable or larger bluegill were captured in the 1994 sample either (Darr et al. 1995). This lack of larger fish is reflected in the low PSD value of 18, which falls below the statewide mean for Alabama reservoirs. Catch rates for both stock and quality size groups exceeded the 75th percentile of reservoir averages. Values for both RSD-S and RSD-Q, exceeded the statewide mean. Relative rate values were down from the 1994 sample and below the statewide mean.

Gizzard shad and threadfin shad, both important forage species for black bass, were also targeted in the 2004 electrofishing sample. No threadfin shad were caught in the 2004 electrofishing survey. In 1994 only 15 threadfin shad were captured. Gizzard shad were collected at the rate of 78.5 fish per hour (Table 4). This is higher than the 1994 CPUE of 72.8 (Darr et al. 1995), and much higher than the CPUE of 9.2 on Upper

Bear Creek Reservoir in 2001 (Greene et al. 2001). All gizzard shad caught fell within the stock size category, which allows them to be utilized as forage by preferred size and larger black bass. The gizzard shad relative weight value of 73 is low and indicates slow growth.

During the fall of 2003, white crappie (N=534) were collected from Bear Creek Reservoir with trap nets. No black crappie were collected. Crappie were caught at a rate of 18.4 fish per net-night (Table 4), two times the 1994 value of 9.2 fish per net-night (Darr et al. 1995). Most of the crappie sampled, 316, were substock size. The substock ratio of 145 more than doubles the 75th percentile value for Alabama upland reservoirs. The catch rate value of 10.9 is two times the maximum catch rate of 5.4 for substock fish in Alabama reservoirs above the fall line. These values indicate a very strong 2003 year class of white crappie. Catch rates for stock through trophy size fish (7.5 fish per net-night) was more than two times the 75th percentile value of 3.1 for Alabama upland reservoirs. RSD values for stock through memorable size categories fell within the 25th and 75th percentile range for Alabama upland reservoirs (Figure 8). Crappie relative weights were higher than the 75th percentile for the stock category, but fell below the 25th percentile of Alabama upland reservoirs for RSD-Q through RSD-M, and exceeded the 1994 values for all size categories. This indicates there is plenty of food available to the crappie less than 200 mm in length, but not as much forage available to the larger fish. Crappie reached lengths of 9 inches (229mm) in 2.15 years, indicating fairly fast growth rates. This is much faster than that observed on Bear Creek Reservoir in 1994, where it took crappie 4.17 years to reach 9 inches (Darr et al.). Removal of the 9 inch MLL in 1995 appears to have increased the crappie harvest through angling, reducing intra-specific competition, resulting in faster growth and higher relative weights. A valid total annual mortality estimate for white crappie could not be computed due to a high confidence interval.

Recommendations

The largemouth bass population in Bear Creek Reservoir appears to be in relatively good shape, when compared to statewide data. Relative weights for all RSD groups fell within the 25th and 75th percentiles for Alabama reservoirs. Catch rates for all RSD groups, except RSD-S, were also within the range, and RSD values for quality and larger bass equaled or exceeded the 75th percentile for Alabama reservoirs. The PSD value fell in the top quartile of statewide averages. These data indicate a bass population with a high percentage of 12 inch and larger fish, growing at a moderate rate, and subjected to low exploitation. Participation in the B.A.I.T. program remains poor. Bass clubs will be contacted and encouraged to submit their tournament results so angler catch data can compliment future reservoir management reports. No changes in the black bass management strategy are recommended.

The crappie population has shown improvements since the 1994 survey and the removal of the 9 inch MLL in 1995. Catch rates for all RSD groups exceeded the statewide 75th percentile for Alabama upland reservoirs, with an extremely strong 2003 year class being represented. RSD values and relative weights for all categories fell within the 25th and 75th percentiles for Alabama reservoirs above the fall line. Growth rates have increased too, with the time to reach 9 inches decreasing from 4.17 years in 1994 to 2.15 years in 2003. No changes in the current management strategy for crappie in Bear Creek Reservoir are recommended.

Literature Cited

- Alabama reservoir management manual 1999. Alabama Game and Fish Division. 77pp.
- Anderson, R. O. and A. S. Weithman. 1978. The concept of balance for coolwater fish populations. Page 371-381 *in* R. L. Kendall, editor. Selected coolwater Fishes of North America. American Fisheries Society special Publication 11.
- Darr, D.P., P. D. Ekema, and K. B. Floyd. 1995. Bear Creek Reservoir management report. Alabama Department of Conservation and Natural Resources, Montgomery, AL.
- Floyd, K. B., P. D. Ekema, and J. C. Greene. 1999. Cedar Creek Reservoir management report. Alabama Department of Conservation and Natural Resources, Montgomery, AL.
- Greene, J. C., T. D. Berry, K. B. Floyd. 2001. Upper Bear Creek Reservoir management report. Alabama Department of Conservation and Natural Resources, Montgomery, AL.

APPENDIX A

Tables and Figures

TABLE 1. BEAR CREEK RESERVOIR MORPHOMETRIC, PHYSICAL AND CHEMICAL CHARACTERISTICS.

| | | |
|-----------------------------|----------|--------------------------------|
| Surface area | 670 | surface acres |
| Volume of water | 9581 | acre-feet |
| Drainage area | 232 | square miles |
| Full pool elevation | 602 | feet-msl |
| Mean annual fluxuation | 11 | feet |
| Shoreline distance | 39 | miles |
| Shoreline development index | 10.8 | (Welch 1948) |
| Mean depth | 14.3 | feet |
| Maximum depth | 74 | feet |
| Thermocline depth | none | |
| O ₂ -cline depth | 6.5-9.75 | feet |
| Average annual discharge | 380 | cfs |
| Hydraulic retention time | 12.7 | days |
| Growing season | 214 | frost free days (Jenkins 1967) |
| Reservoir age (1969) | 35 | years |

TABLE 2. FISH STOCKED IN BEAR CREEK RESERVOIR
FROM 1980-2004.

| Species | Year | No/Ac | Size (in) | Total |
|--------------------|------|-------|-----------|-------|
| Channel Catfish | 2004 | 10.01 | 8-15" | 6,708 |

TABLE 3. LIST OF TARGET SPECIES AND THE NUMBERS
COLLECTED BY GEAR TYPE FROM BEAR CREEK RESERVOIR, 2004.

| Species | Trap netting (Fall 2003) | | | Electrofishing | | | |
|-----------------|--------------------------|-------|---------------|----------------|--------|--------------|-------|
| | No. | CPE | Net Nights | No. | CPE | Total Effort | |
| | | | | | | seconds | hours |
| Largemouth bass | -- | -- | -- | 117 | 37.26 | 11,297 | 3.14 |
| Spotted bass | -- | -- | -- | 48 | 15.29 | 11,297 | 3.14 |
| Bluegill | -- | -- | -- | 130 | 250.00 | 1,884 | 0.52 |
| Gizzard shad | -- | -- | -- | 112 | 78.32 | 5,137 | 1.43 |
| White crappie | 534 | 18.41 | 29 | -- | -- | -- | -- |

TABLE 4. RELATIVE STOCK DENSITY, CATCH PER EFFORT, RELATIVE WEIGHT, AND PROPORTIONAL STOCK DENSITY OF TARGET SPECIES FROM BEAR CREEK RESERVOIR, 1994 AND 2004.

| Year | Specie | Gear | No. Samples | SUBSTOC | | | RSD-S | | | | RSD-Q | | | | RSD- | | | | RSD-M | | | | TOTAL | | |
|------|-----------------|----------------------|-------------|---------|------|-------------------|-------|-------|-----|----|-------|------|-----|----|------|-----|-----|----|-------|-----|-----|-----|-------|-------|-----|
| | | | | NO. | CPE | PCT. ¹ | NO. | CPE | PCT | Wr | NO. | CPE | PCT | Wr | NO. | CPE | PCT | Wr | NO. | CPE | PCT | Wr | NO. | CPE | PS |
| 1994 | Largemouth bass | Electro. | 11 | 33 | 6.3 | 33 | 35 | 6.7 | 35 | 83 | 24 | 4.6 | 24 | 85 | 29 | 5.6 | 29 | 89 | 11 | 2.1 | 11 | 89 | 132 | 25.3 | 65 |
| 2004 | Largemouth bass | Electro. | 7 | 16 | 5.1 | 13 | 24 | 7.6 | 24 | 85 | 45 | 14.3 | 45 | 86 | 26 | 8.3 | 26 | 93 | 6 | 1.9 | 6 | 90 | 117 | 37.2 | 76 |
| 1994 | Spotted | Electro. | 10 | 57 | 11.4 | 72 | 46 | 9.2 | 58 | 91 | 26 | 5.2 | 33 | 92 | 5 | 1.0 | 6 | 99 | 2 | 0.4 | 3 | 115 | 136 | 27.2 | 42 |
| 2004 | Spotted | Electro. | 7 | 10 | 3.2 | 26 | 18 | 5.7 | 47 | 87 | 17 | 5.4 | 45 | 89 | 3 | 1.0 | 8 | 91 | -- | -- | -- | -- | 48 | 15.3 | 53 |
| 1994 | Bluegill | Electro. | 6 | 24 | 10.0 | 21 | 102 | 42.8 | 87 | 92 | 15 | 6.3 | 13 | 91 | -- | -- | -- | -- | -- | -- | -- | -- | 141 | 59.1 | 13 |
| 2004 | Bluegill | Electro. | 3 | -- | -- | -- | 106 | 203.8 | 82 | 82 | 24 | 46.2 | 18 | 81 | -- | -- | -- | -- | -- | -- | -- | -- | 130 | 250.0 | 18 |
| 1994 | Threadfin shad | Electro. | 11 | -- | -- | -- | -- | -- | -- | -- | 15 | 2.9 | 100 | -- | -- | -- | -- | -- | -- | -- | -- | -- | 15 | 2.9 | 100 |
| 2004 | Threadfin shad | Electro. | 10 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 0 | 0.0 | 0 |
| 1994 | Gizzard shad | Electro. | 8 | 135 | 40.3 | 124 | 105 | 31.3 | 96 | 83 | 4 | 1.2 | 4 | 76 | -- | -- | -- | -- | -- | -- | -- | -- | 244 | 72.8 | 4 |
| 2004 | Gizzard shad | Electro. | 5 | -- | -- | -- | 112 | 78.5 | 100 | 73 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 112 | 78.5 | 0 |
| 1994 | White crappie | Trap Net (fall 1994) | 15 | 35 | 2.3 | 34 | 44 | 2.9 | 42 | 65 | 40 | 2.7 | 39 | 75 | 15 | 1.0 | 14 | 77 | 5 | 0.3 | 5 | 85 | 139 | 9.2 | 58 |
| 2004 | White crappie | Trap Net (fall 2003) | 29 | 316 | 10.9 | 145 | 82 | 2.8 | 38 | 88 | 80 | 2.8 | 37 | 85 | 41 | 1.4 | 19 | 91 | 15 | 0.5 | 7 | 90 | 534 | 18.4 | 62 |

¹ SUBSTOCK PCT. is a ratio of the number of substock size fish to 100 of stock size and larger.

TABLE 5 . AGE COMPOSITION AND MEAN LENGTH OF LARGEMOUTH BASS FROM BEAR CREEK RESERVOIR, SPRING 2004.

| Annulus | Year Class | Number | Percent | CPE | Mean Length | Standard Error (SE) |
|---------|------------|--------|---------|------|-------------|---------------------|
| 1 | 2003 | 24 | 20.5 | 7.6 | 181.9 | 5.60 |
| 2 | 2002 | 13 | 11.1 | 4.1 | 287.0 | 5.00 |
| 3 | 2001 | 36 | 30.8 | 11.5 | 329.7 | 3.90 |
| 4 | 2000 | 16 | 13.7 | 5.1 | 375.9 | 9.80 |
| 5 | 1999 | 10 | 8.5 | 3.2 | 417.0 | 16.80 |
| 6 | 1998 | 8 | 6.8 | 2.5 | 457.3 | 22.10 |
| 7 | 1997 | 4 | 3.4 | 1.3 | 447.3 | 27.50 |
| 8 | 1996 | 2 | 1.7 | 0.6 | 503.5 | -- |
| 9 | 1995 | 1 | 0.9 | 0.3 | 565.0 | -- |
| 10 | 1994 | 0 | 0.0 | 0.0 | 0.0 | -- |
| 11 | 1993 | 1 | 0.9 | 0.3 | 552.0 | -- |
| 12 | 1992 | 1 | 0.9 | 0.3 | 485.0 | -- |
| 13 | 1991 | 0 | 0.0 | 0.0 | 0.0 | -- |
| 14 | 1990 | 0 | 0.0 | 0.0 | 0.0 | -- |
| 15 | 1989 | 1 | 0.9 | 0.3 | 543.0 | -- |
| Total | | 117 | 100.0 | 37.3 | | |

TABLE 6. LENGTH AT AGE OF LARGEMOUTH BASS FROM BEAR CREEK RESERVOIR, SPRING 2004.

| Length (mm) | I | II | III | IV | V | VI | VII | VIII | IX | X | XI | XII | XIII | XIV | XV | TOTAL |
|-------------|----|----|-----|----|----|----|-----|------|----|---|----|-----|------|-----|----|-------|
| 125 | 2 | | | | | | | | | | | | | | | 2 |
| 150 | 8 | | | | | | | | | | | | | | | 8 |
| 175 | 6 | | | | | | | | | | | | | | | 6 |
| 200 | 7 | | | | | | | | | | | | | | | 7 |
| 225 | 1 | | | | | | | | | | | | | | | 1 |
| 250 | | 4 | 1 | 1 | | | | | | | | | | | | 6 |
| 275 | | 6 | 4 | | | | | | | | | | | | | 10 |
| 300 | | 3 | 6 | | | 1 | | | | | | | | | | 10 |
| 325 | | | 16 | | 2 | | | | | | | | | | | 18 |
| 350 | | | 9 | 8 | | | | | | | | | | | | 17 |
| 375 | | | | 2 | | | | | | | | | | | | 2 |
| 400 | | | | 4 | 3 | 1 | 2 | | | | | | | | | 10 |
| 425 | | | | | 2 | | | | | | | | | | | 2 |
| 450 | | | | 1 | 2 | 2 | 1 | | | | | | | | | 6 |
| 475 | | | | | 1 | 2 | 1 | 1 | | | | 1 | | | | 6 |
| 500 | | | | | | 2 | | | | | | | | | | 2 |
| 525 | | | | | | | | 1 | | | | | | | 1 | 2 |
| 550 | | | | | | | | | 1 | | 1 | | | | | 2 |
| Total | 24 | 13 | 36 | 16 | 10 | 8 | 4 | 2 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 117 |

TABLE 7. AGE COMPOSITION AND MEAN LENGTH OF SPOTTED BASS FROM BEAR CREEK RESERVOIR, SPRING 2004.

| Annulus | Year Class | Number | Percent | CPE | Mean Length | Standard Error (SE) |
|---------|------------|--------|---------|------|-------------|---------------------|
| 1 | 2003 | 10 | 20.8 | 3.2 | 116.4 | 10.20 |
| 2 | 2002 | 16 | 33.3 | 5.1 | 238.8 | 4.80 |
| 3 | 2001 | 13 | 27.1 | 4.1 | 297.1 | 7.90 |
| 4 | 2000 | 5 | 10.4 | 1.6 | 341.2 | 25.50 |
| 5 | 1999 | 4 | 8.3 | 1.3 | 336.0 | 21.20 |
| Total | | 48 | 100.0 | 15.3 | | |

TABLE 8. LENGTH AT AGE OF SPOTTED BASS
FROM
BEAR CREEK RESERVOIR, SPRING 2004.

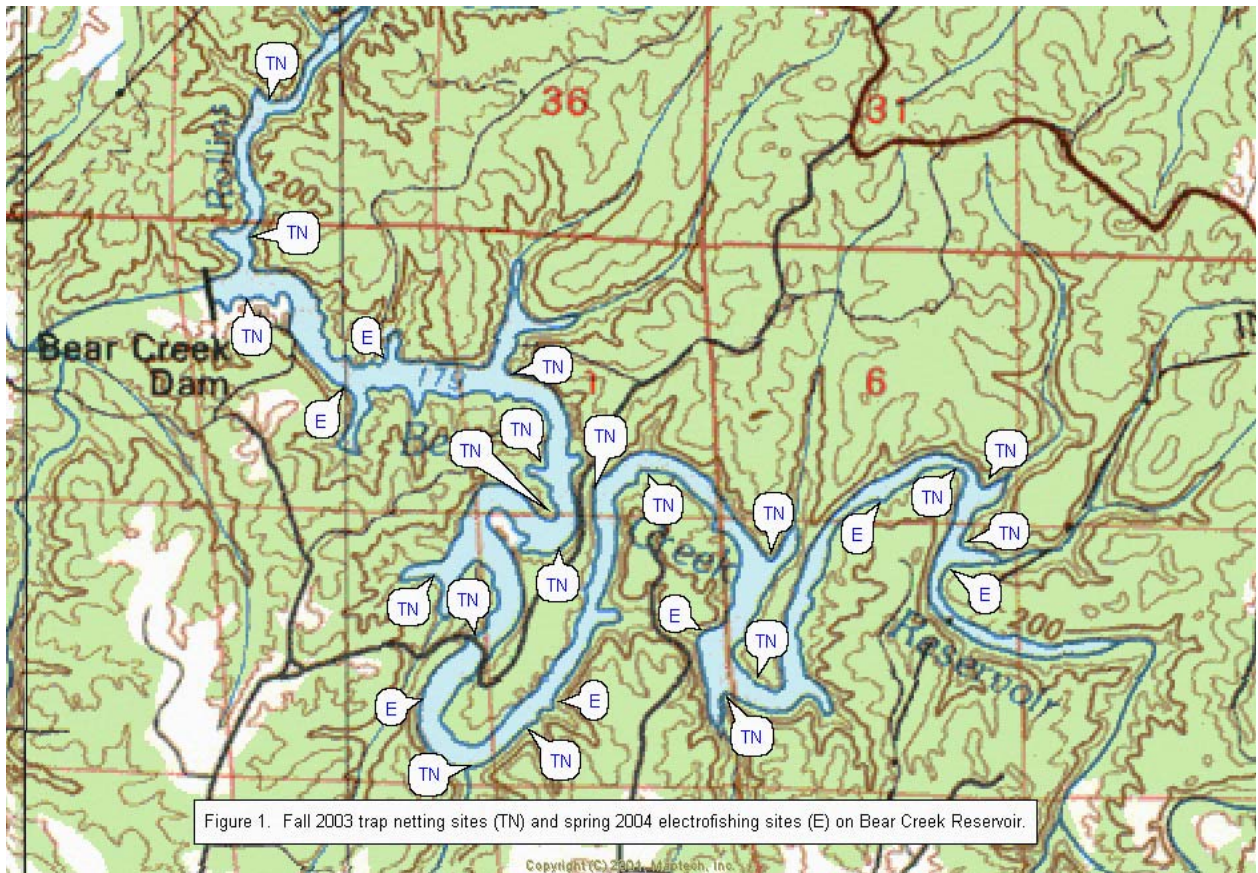
| Length (mm) | I | II | III | IV | V | TOTAL |
|-------------|----|----|-----|----|---|-------|
| 50 | 2 | | | | | 2 |
| 75 | | | | | | 0 |
| 100 | 4 | | | | | 4 |
| 125 | 3 | | | | | 3 |
| 150 | | | | | | 0 |
| 175 | 1 | 1 | | | | 2 |
| 200 | | 4 | | | | 4 |
| 225 | | 8 | 1 | | | 9 |
| 250 | | 3 | 1 | | | 4 |
| 275 | | | 6 | 2 | 1 | 9 |
| 300 | | | 3 | | 1 | 4 |
| 325 | | | 2 | 1 | 1 | 4 |
| 350 | | | | 1 | | 1 |
| 375 | | | | | 1 | 1 |
| 400 | | | | | | 0 |
| 425 | | | | 1 | | 1 |
| Total | 10 | 16 | 13 | 5 | 4 | 48 |

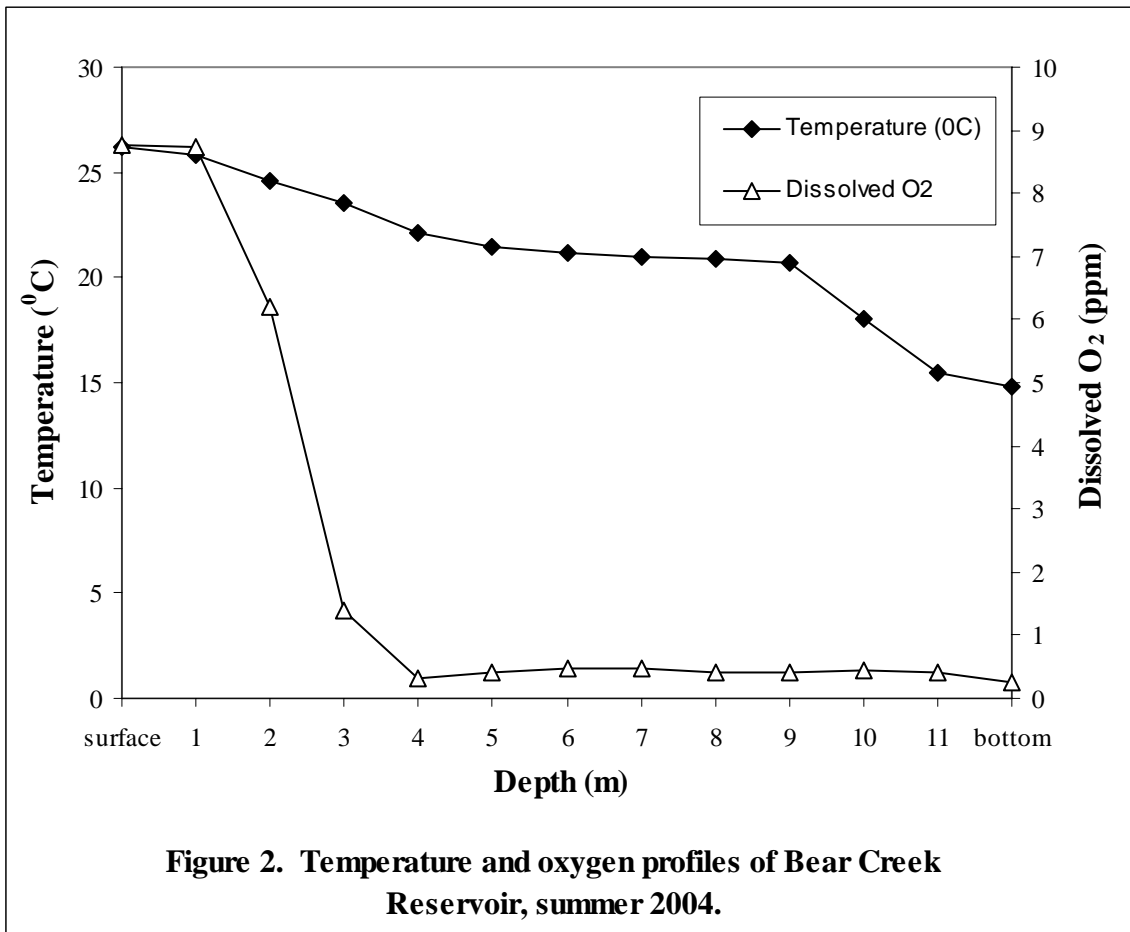
TABLE 9. AGE COMPOSITION AND MEAN LENGTH OF WHITE CRAPPIE
FROM BEAR CREEK RESERVOIR, FALL 2003.

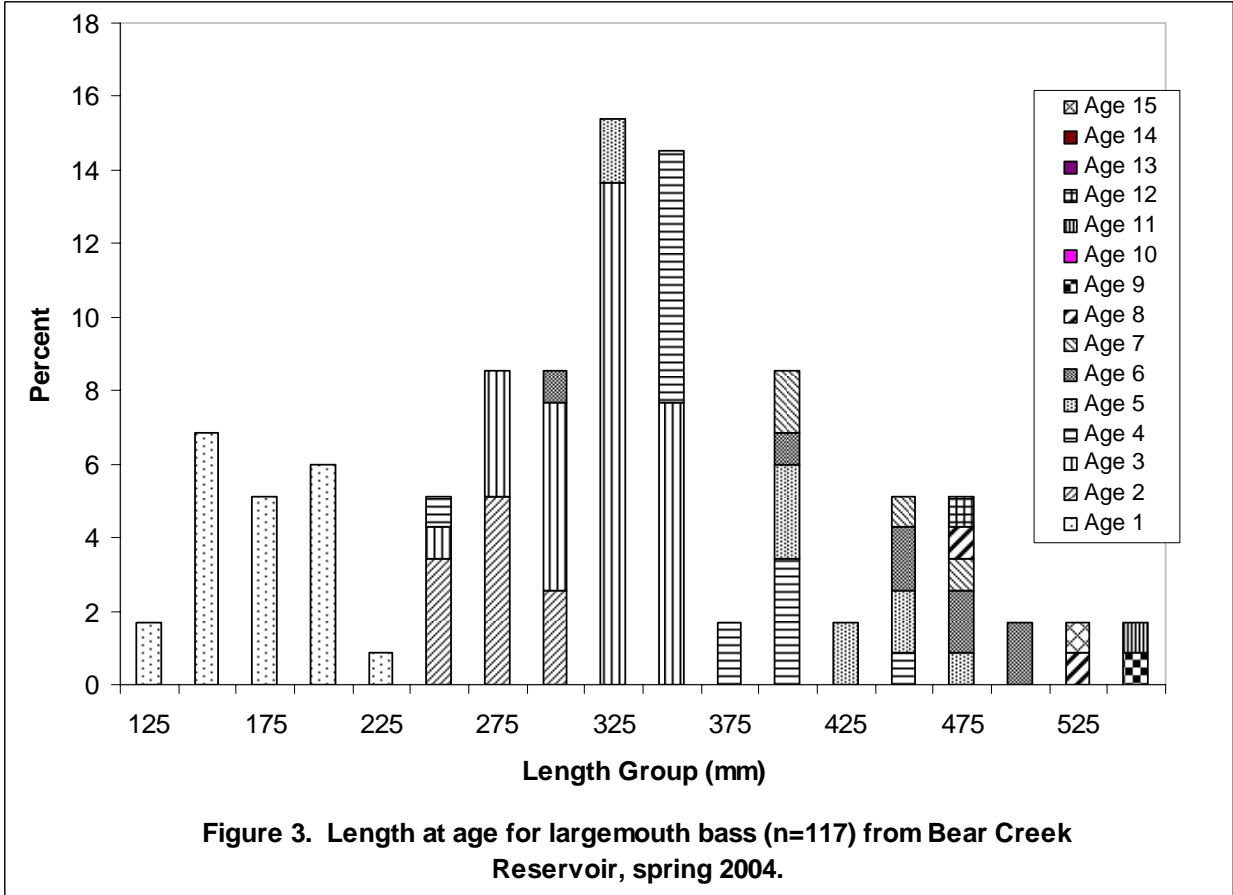
| Annulus | Year Class | Number | Percent | CPE | Mean Length | Standard Error (SE) |
|---------|---------------|--------|---------|------|----------------|------------------------|
| YOY | 2003 | 315 | 59 | 10.9 | 75.2 | 0.5 |
| 1+ | 2002 | 55 | 10.3 | 1.9 | 151.2 | 1.9 |
| 2+ | 2001 | 123 | 23.0 | 4.2 | 220.7 | 2.4 |
| 3+ | 2000 | 29 | 5.4 | 1.0 | 276.9 | 4.3 |
| 4+ | 1999 | 10 | 1.9 | 0.3 | 305.7 | 8.7 |
| 5+ | 1998 | 0 | 0.0 | 0.0 | 0.0 | -- |
| 6+ | 1997 | 2 | 0.4 | 0.1 | 336.0 | 16.0 |
| Total | | 534 | 100.0 | 18.4 | | |

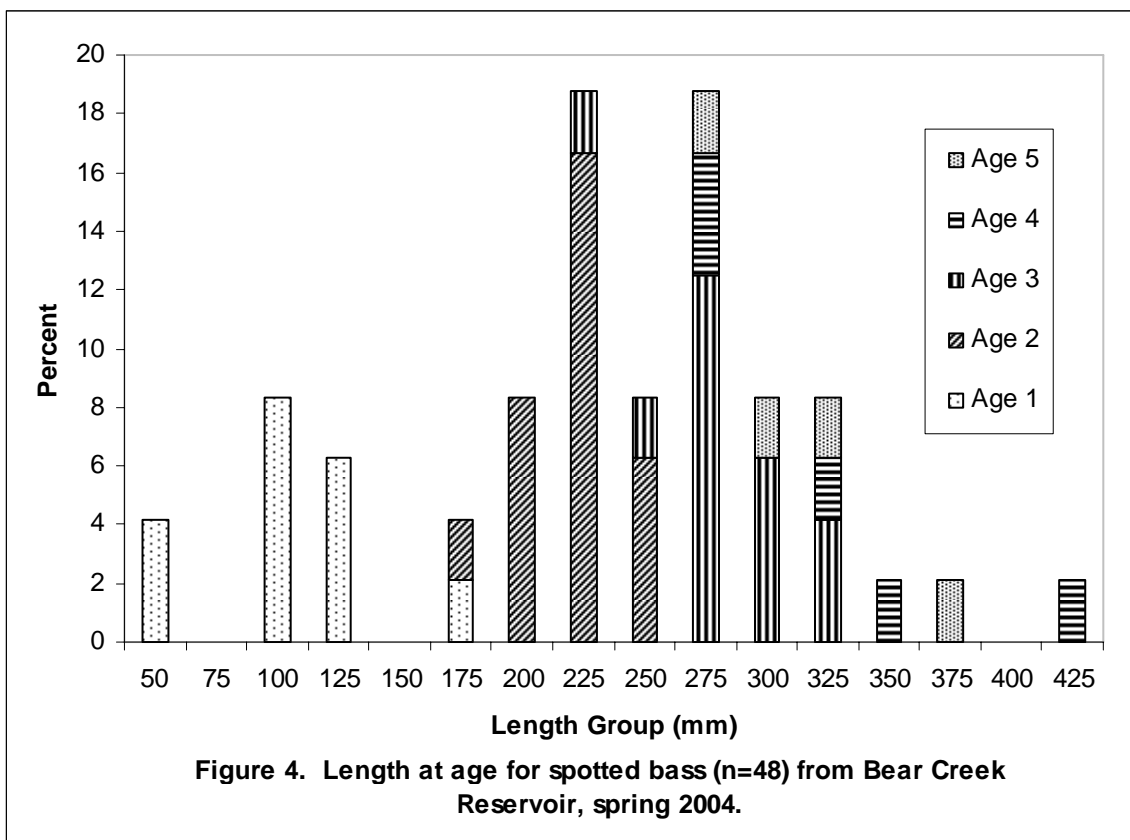
TABLE 10. LENGTH AT AGE OF WHITE CRAPPIE FROM
BEAR CREEK RESERVOIR, FALL 2003.

| Length (mm) | YOY | I+ | II+ | III+ | IV+ | V+ | VI+ | TOTAL |
|-------------|-----|----|-----|------|-----|----|-----|-------|
| 50 | 1 | | | | | | | 1 |
| 60 | 73 | | | | | | | 73 |
| 70 | 155 | | | | | | | 155 |
| 80 | 71 | | | | | | | 71 |
| 90 | 10 | | | | | | | 10 |
| 100 | 4 | | | | | | | 4 |
| 110 | 1 | | | | | | | 1 |
| 120 | | 1 | | | | | | 1 |
| 130 | | 6 | 1 | | | | | 7 |
| | | 2 | | | | | | |
| 140 | | 4 | | | | | | 24 |
| | | 1 | | | | | | |
| 150 | | 4 | | | | | | 14 |
| 160 | | 5 | 3 | | | | | 8 |
| 170 | | 1 | 2 | | | | | 3 |
| 180 | | 2 | 10 | | | | | 12 |
| 190 | | 2 | 12 | | | | | 14 |
| 200 | | | 9 | | | | | 9 |
| 210 | | | 22 | | | | | 22 |
| 220 | | | 18 | 1 | | | | 19 |
| 230 | | | 18 | 1 | | | | 19 |
| 240 | | | 9 | 2 | | | | 11 |
| 250 | | | 10 | 2 | 1 | | | 13 |
| 260 | | | 6 | 4 | | | | 10 |
| 270 | | | 2 | 4 | 1 | | | 7 |
| 280 | | | | 7 | 1 | | | 8 |
| 290 | | | | 3 | | | | 3 |
| 300 | | | 1 | 2 | 1 | | | 4 |
| 310 | | | | 2 | 2 | | | 4 |
| 320 | | | | 1 | 2 | | 1 | 4 |
| 330 | | | | | 2 | | | 2 |
| 340 | | | | | | | | 0 |
| 350 | | | | | | | 1 | 1 |
| Total | 315 | 5 | 12 | 29 | 10 | 0 | 2 | 534 |









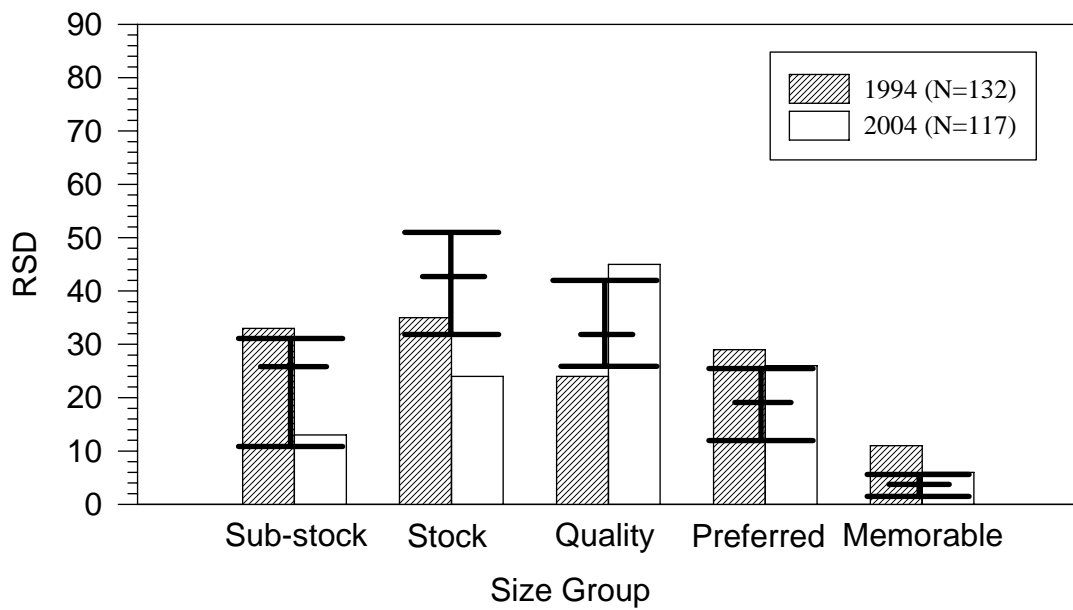


Figure 5. Relative Stock Density (RSD) for individual size groups of largemouth bass collected from Bear Creek Reservoir. The I-beams represent the twenty-fifth percentiles, seventy-fifth percentiles, and the mean from Alabama reservoir data (Reeves and McHugh 1993).

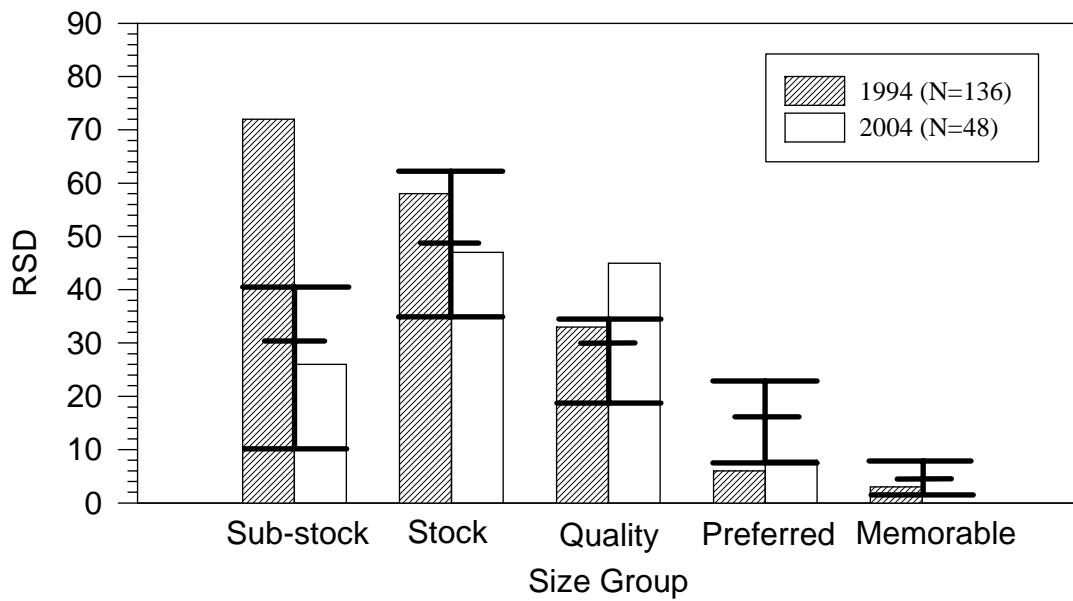
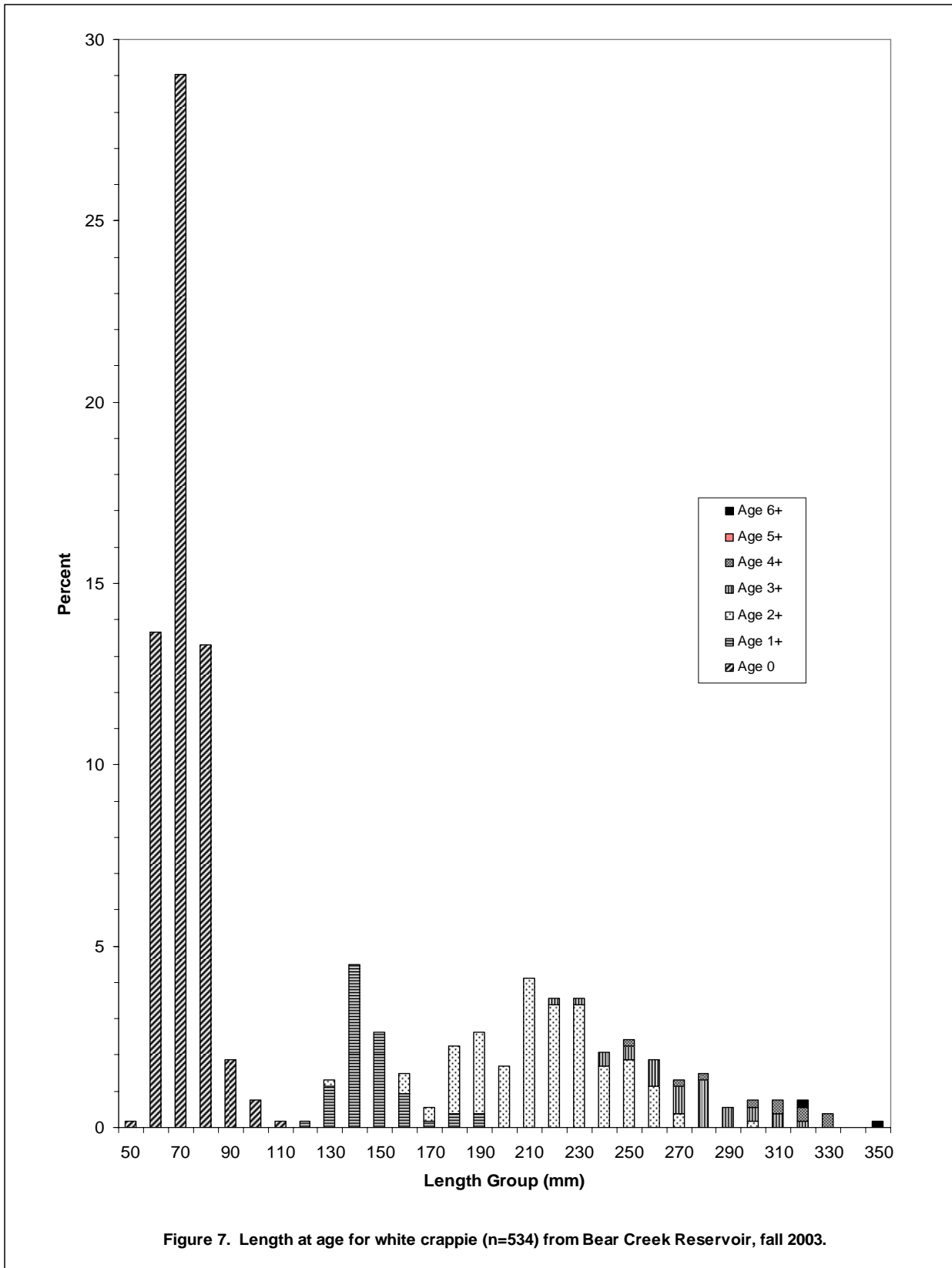


Figure 6. Relative Stock Density (RSD) for individual size groups of spotted bass collected from Bear Creek Reservoir. The I-beams represent the twenty-fifth percentiles, seventy-fifth percentiles, and the means from Alabama reservoir data (Reeves and McHugh 1993).



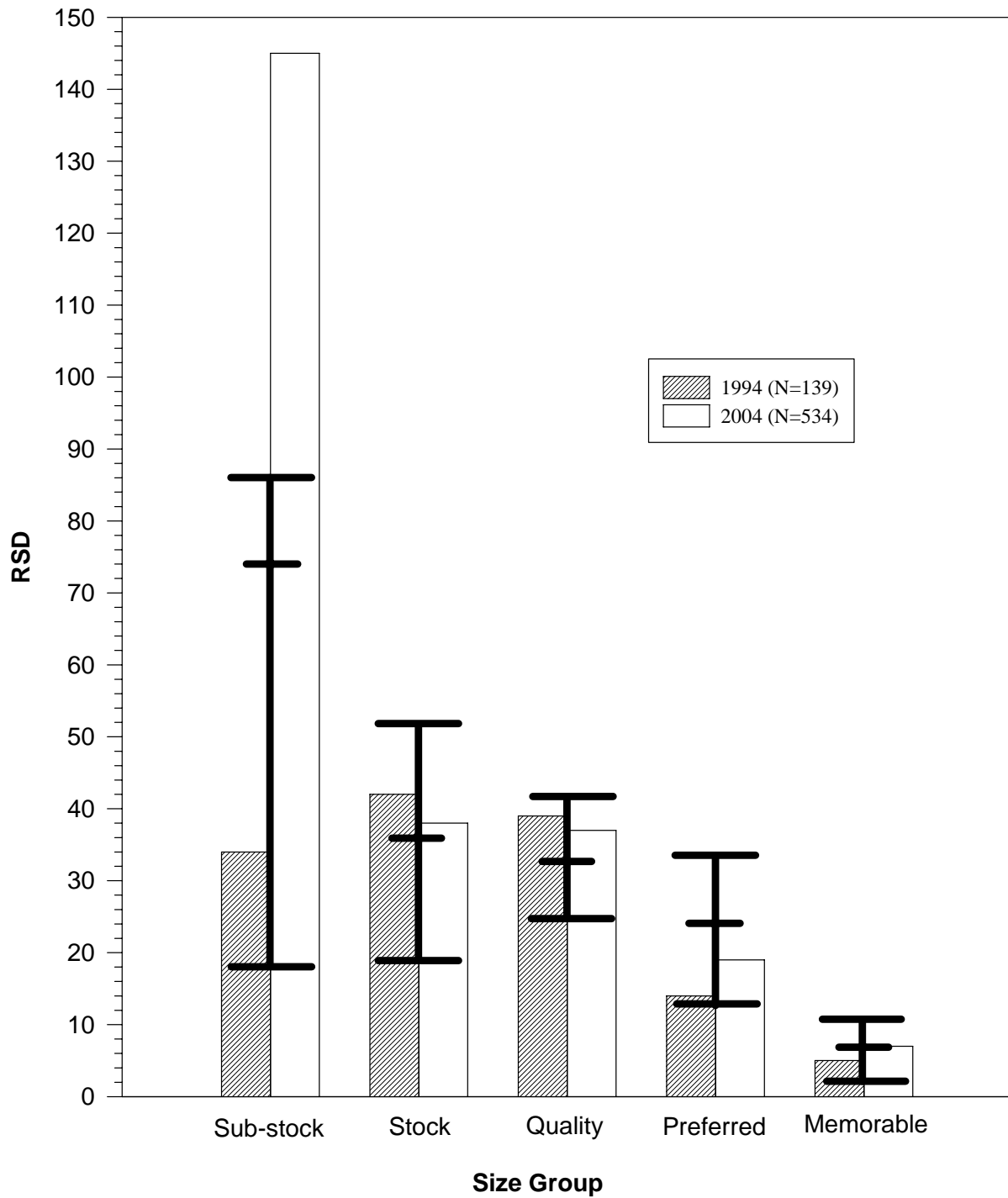


Figure 8. Relative Stock Density (RSD) for individual size groups of white crappie collected from Bear Creek Reservoir. The I-beams represent the twenty-fifth and seventy-fifth percentiles, and the horizontal bars represent the means from Alabama reservoir data (Reeves and McHugh 1993).

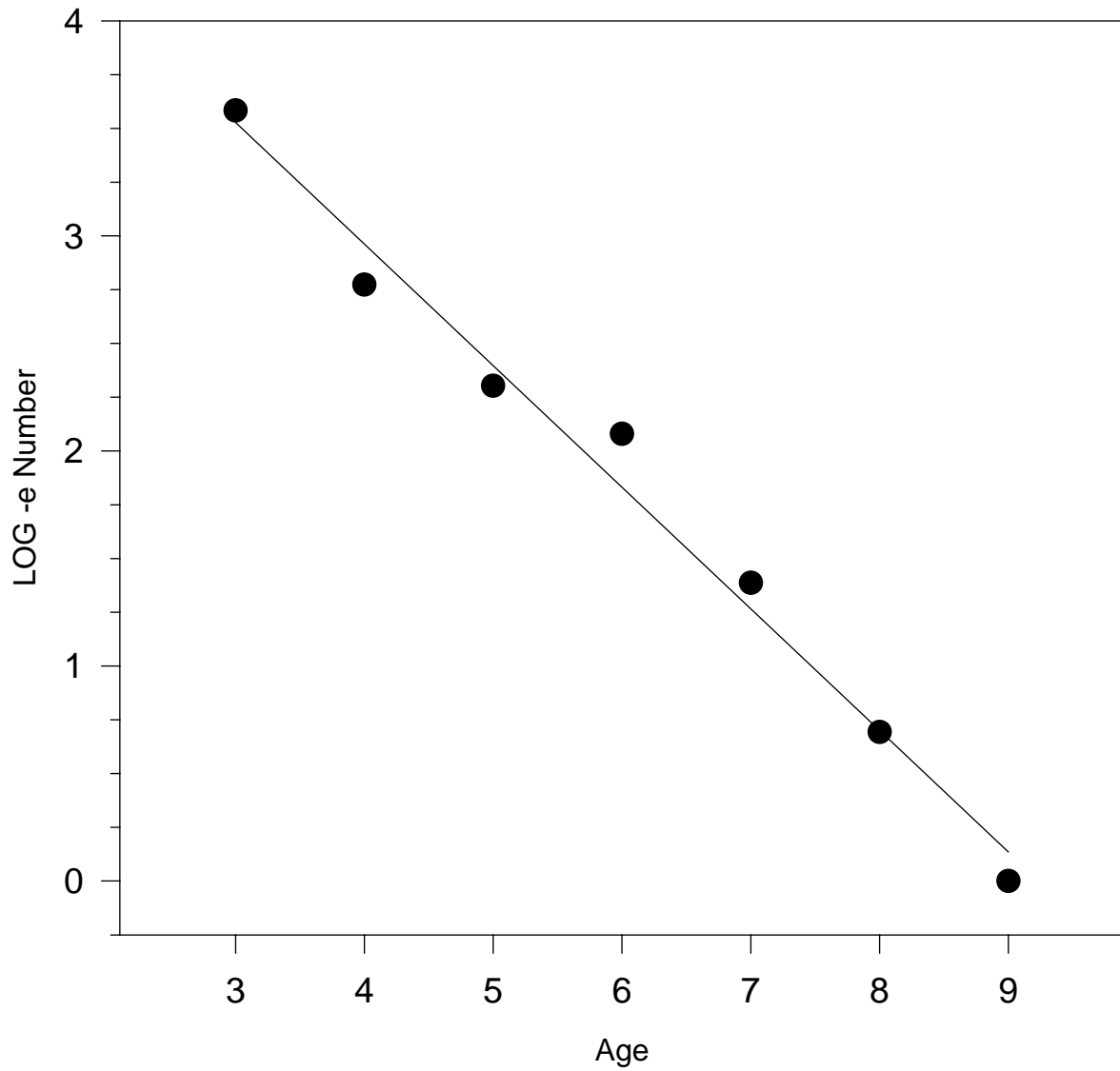


Figure 9. Total annual mortality (z) regression for largemouth bass (ages 3-9) collected from Bear Creek Reservoir, spring 2004.

APPENDIX B

General Reconnaissance Survey of Bear Creek Reservoir

1. Reservoir: Bear Creek
2. Number of free public access areas in Alabama: Two
3. Number of user fee access areas in Alabama: None
4. Free public access areas not shown on Game and Fish Division Public Access Areas Map. Describe location and identify on an attached map.
 - a. None
5. Wildlife and Freshwater Fisheries Access Areas needing repair. List by priority of repair.
 - a. None
6. List possible locations of additional access areas. Designate on reservoir map.
 - a. None
7. Tailwater access.
 - a. Is there suitable access for bank and boat anglers? Not applicable
 - b. Are parking facilities adequate? Not Applicable
 - c. Fishing pier present? Not Applicable List needed repairs, if any:
 - d. Is there a need for a tailwater fishing pier? Not Applicable
8. Summarize your observations of the tailwater fishery to include species caught, anglers success, and attitudes. Not Applicable
9. Are fish shelters needed? no
 - a. Recommend locations for fish shelters. Note locations on reservoir map.
None.
 - b. If maintenance is needed on existing fish shelters and/or marker buoys, list locations.
None present.
10. Identify Public Relations problems or desires concerning the fishery that need attention.

Need to have more bass clubs participate in the B.A.I.T. program.

General Reconnaissance Survey (cont.)

11. Identify areas of nuisance aquatic weeds and new exotic weeds that were during sampling operations. Note areas on an attached reservoir map.

Aquatic plants are nominal but desired by anglers.

12. Is shoreline access development (non-tailwater) needed on this reservoir? If so, suggest several public areas suitable for bank access development. Note areas on an attached reservoir map. Not Applicable

13. Describe the presence of any commercial fisheries.

None present.

ALABAMA RESERVOIR FACT SHEET

DATE: November 11, 2005

RESERVOIR: Bear Creek (Big Bear)

LOCATION: Franklin County

YEAR IMPOUNDED: 1969

OPERATOR: Bear Creek Development Authority

PRIMARY USES: Flood control and recreation

PUBLIC FACILITIES: Public access areas and campgrounds

NOTABLE CHARACTERISTICS OF FISHERY: Fair abundance of largemouth bass, spotted bass and crappie, but fisheries are under fished and large game fish are present in high percentages.

OTHER RECREATIONAL OPPORTUNITIES: Recreational boating, camping and picnicking.

MAJOR SPORT FISHERIES

SPECIES STATUS: 1. Largemouth Bass: Little harvest pressure, slow growth, moderate abundance, large fish present. 2. Crappie: Moderate harvest, good growth, large fish present.

COMMENTS: A permit is required for fishing (Daily - \$3, Annual - \$20)

Water levels can vary widely due to primary purpose of flood control. Wild setting with little development.

HABITAT STATUS AND IMPROVEMENTS: A limited consumption advisory for largemouth bass due to Mercury pollutant in the dam forebay area is in effect on this reservoir.

FOR MORE INFORMATION CONTACT: Alabama Wildlife and Freshwater Fisheries Division (21438 Harris Station Road, Tanner, Alabama 35671) 256-353-2634 or Bear

Creek Development Authority (P. O. Box 670, Russellville, AL 35653) 256-332-4392.