

ALICEVILLE RESERVOIR SPRING MANAGEMENT REPORT 2006

Prepared by

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Introduction

The Alabama Reservoir Management Program was established in 1986 with the objective of collecting baseline information on important sport species in the State's reservoirs. Reservoirs are sampled periodically to establish trends in growth, recruitment, mortality and to identify problems with the major sport fisheries.

Aliceville Reservoir was previously sampled in 2001, 1999, 1994, 1990 and 1988. A popular bass fishery exists at Aliceville Reservoir and fish exhibited satisfactory growth, size structure and recruitment.

Methods

Aliceville Reservoir was sampled in spring 2006 according to the guidelines of the Alabama Reservoir Management Manual. Electrofishing samples were collected at five sites on Aliceville Reservoir to assess the fish population. Total length (mm) and weight (g) were recorded for all target species collected during sampling activities. Bass tournament information was collected through the Bass Angling Information Team (BAIT) and a creel survey was conducted from March – May 2006.

Results and Discussion

Largemouth Bass

The electrofishing catch per hour (CPH) of largemouth bass (N=118) in 2006 was 57.3, a catch rate slightly below the lake average of 61.6 fish/hr (Table 2). Catch rates for stock and quality size fish were at or slightly above statewide means, but preferred and memorable size fish fell below the statewide average for largemouth bass (Figure 3). RSD values for Aliceville largemouth bass were 46%, 37%, 16%, and 1% for stock, quality, preferred and memorable size fish, respectively. RSD values approximated lake averages but preferred and memorable size fish were near the 25th percentile of RSD values for largemouth bass, statewide (Figure 4). The substock ratio (SSR) for largemouth bass in Aliceville Reservoir was 26 as compared to the statewide mean of 27.

Relative condition (W_r) of largemouth bass from Aliceville Reservoir (86-94) approximated statewide values (88–97) and was similar to previous collections. Seven age classes were represented in the 2006 collection; however, the sample was

dominated by one, two and three year old largemouth bass (Figure 2). The annual mortality estimate for largemouth bass in Aliceville Reservoir was determined to be 50% (Confidence Interval range = 35.7 – 61.2).

Aliceville Lake was not ranked among 23 Alabama reservoirs reporting five or more tournaments in the 2005 BAIT report. Only one tournament report was received by the Division of Wildlife and Freshwater Fisheries and this provided only limited information concerning bass tournament activity. However, the report indicated that 14 anglers caught 19 bass weighting 27.6 pounds having an average weight of 1.45 pounds with 126 total hours of angling effort.

A creel survey conducted in the spring of 2006 interviewed 292 anglers in 159 parties, which were surveyed at a rate of 29.2 anglers/creel-day and fished an average of 171.2 hours/creel day. Bass and crappie anglers made up 57% and 33% of all anglers interviewed in the survey.

Bluegill sunfish

One hundred and thirty four bluegill were collected in the 2006 spring electrofishing sample ranging from 30-190 mm in total length (Figure 5). Bluegill sunfish had an overall catch rate of 86.2 fish/hr as compared to the lake average of 87.5 fish/hr. The size structure of the population was very similar to that from previous collections and relative weight ranged from 99–106 for quality and stock size fish, respectively. Bluegill measuring from 60-130 mm TL were abundant in the 2006 sample.

Threadfin shad

Threadfin shad were captured at a rate of 39.1 fish/hr in 2006, which was well below the lake average of 55.7 fish/hr. Threadfin shad ranged from 80-160 mm TL and fish measuring from 100-120 mm TL dominated the collection.

Gizzard shad

One hundred and sixteen gizzard shad were sampled at a catch rate of 47.9 fish/hr during spring 2006. This represented the lowest catch rate for gizzard shad since the 1988 collection (41.9 fish/hr) and fell considerable below the lake average of 74.4 fish/hr. Fifty two percent of the sample was composed of substock fish, which indicates recruitment was relatively high and the population was dynamic.

Summary

Overall, the largemouth bass population in Aliceville Reservoir exhibited satisfactory size structure and catch rates were near state wide means and lake averages. However, larger fish were less abundant and their electrofishing catch rates were near the 25th percentile for CPH values, statewide. Threadfin and gizzard shad populations were dynamic, but electrofishing catch rates for both of these species were lower than in previous collections.

Recommendations

- 1) Resample Aliceville Lake in FY 2008-09.
- 2) Encourage an aggressive aquatic plant management program by the Army Corps of Engineers directed at preventing the spread of exotic aquatic plants such as Cuban bulrush and water hyacinth.
- 3) Data analysis indicates that there is no need to change the current black bass management regulations for Aliceville Reservoir.
- 4) Encourage more local bass clubs to participate in the BAIT Program since compliance with reporting procedures has been low in recent years.

Literature Cited

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APPENDIX A

Tables and Figures

TABLE 1. MORPHOMETRIC, PHYSICAL AND CHEMICAL CHARACTERISTICS OF ALICEVILLE RESERVOIR.

Surface area	8,300	acres
Drainage area	5,785	sq. mi.
Full pool elevation	136	feet-msl
Mean annual fluxuation	2	feet
Shoreline distance	148	miles
Shoreline development index	11.3	(Welch 1948)
Mean depth	7.2	feet
Maximum depth	42	feet
Outlet depth		Surface
Thermocline depth		None
Total dissolved solids	68	mg/l
Morphoedaphic index	9.4	TDS/mean depth(ft) (Ryder 1965)
Growing season	235	frost free days (Jenkins 1967)
Reservoir age	21	years

TABLE 2. RELATIVE STOCK DENSITY (RSD), CATCH PER HOUR (CPH), AND RELATIVE WEIGHT (Wr) OF LARGEMOUTH BASS DURING SPRING ELECTROFISHING SURVEYS AT ALICEVILLE RESERVOIR.

YEAR	NO. OF SAMPLES	TOTAL EFFORT	SUBSTOCK			RSD-S				RSD-Q				RSD-P				RSD-M				TOTAL	
			NO.	CPE	SSR	NO.	CPE	PCT.	Wr	NO.	CPE	PCT.	Wr	NO.	CPE	PCT.	Wr	NO.	CPE	PCT.	Wr	NO.	CPE
1988	9	4.39	15	3.4	15	37	8.4	37	84	38	8.7	38	86	20	4.6	20	86	4	0.9	4	89	114	26.0
1990	5	2.19	65	29.7	65	62	28.3	62	82	24	11.0	24	85	12	5.5	12	87	2	0.9	2	95	165	75.3
1994	4	2.11	24	11.4	24	53	25.1	52	88	19	9.0	19	89	27	12.8	27	93	2	0.9	2	111	125	59.2
1999	3	1.46	27	18.5	24	49	33.6	44	84	45	30.8	41	86	11	7.5	10	81	6	4.1	5	76	138	94.3
2002	3	2.03	14	6.9	14	49	24.1	48	86	39	19.2	38	85	14	6.9	14	91	1	0.5	1	94	117	57.5
2006	4	2.06	24	11.7	26	43	20.9	46	86	35	17.0	37	89	15	7.3	16	91	1	0.5	1	94	118	57.3
LAKE AVERAGE			13.6	28		23.4	48	85		15.9	33	87		7.4	16	88		1.3	3	93		61.6	

TABLE 3. RELATIVE STOCK DENSITY (RSD), CATCH PER HOUR (CPH), AND RELATIVE WEIGHT (Wr) OF BLUEGILL SUNFISH DURING SPRING ELECTROFISHING SURVEYS AT ALICEVILLE RESERVOIR.

YEAR	NO. OF SAMPLES	TOTAL EFFORT	SUBSTOCK			RSD-S				RSD-Q				RSD-P				RSD-M				TOTAL		
			NO.	CPE	SSR	NO.	CPE	PCT.	Wr	NO.	CPE	PCT.	Wr	NO.	CPE	PCT.	Wr	NO.	CPE	PCT.	Wr	NO.	CPE	
1988	3	1.19	0	0.0	0	85	71.4	81		20	16.8	19		0.0	0							105	88.2	
1990	3	0.83	0	0.0	0	90	108.5	90		10	12.1	10		0.0	0							100	120.5	
1994	4	1.94	3	1.5	3	73	37.6	72	91	27	13.9	26	92	2	1.0	2	95					105	54.1	
1999	3	1.09	23	21.1	22	97	89.0	92	98	8	7.3	8	91	1	0.9	1	116					129	118.3	
2002	4	2.03	18	8.9	18	87	42.9	88	90	12	5.9	12	86	0.0	0							117	57.6	
2006	3	1.55	27	17.4	25	86	55.3	80	106	21	13.5	20	99	0.0	0							134	86.2	
LAKE AVERAGE			8.1	11		67.4	84	96		11.6	16	92		0.3	0	106							87.5	

TABLE 4. RELATIVE STOCK DENSITY (RSD) AND CATCH PER HOUR (CPH) OF THREADFIN SHAD DURING SPRING ELECTROFISHING AT ALICEVILLE RESERVOIR.

YEAR	NO. OF SAMPLES	TOTAL EFFORT	SUBSTOCK			RSD-S				RSD-Q				RSD-P				RSD-M				TOTAL		
			NO.	CPE	SSR	NO.	CPE	PCT.	Wr	NO.	CPE	PCT.	Wr	NO.	CPE	PCT.	Wr	NO.	CPE	PCT.	Wr	NO.	CPE	
1988	8	3.85	0.0	0		62	16.1	61		39	10.1	39										101	26.2	
1990	5	1.98	0.0	0	0	0	0.0	0		101	51.0	100										101	51.0	
1994	4	2.11	0.0	0	3	1.4	3			98	46.4	97										101	47.9	
1999	4	1.01	0.0	0	2	2.0	2			103	102.0	98										105	104.0	
2002	3	1.52	0.0	0	3	2.0	3			97	63.8	97										100	65.8	
2006	5	2.56	0.0	0	1	0.4	1			99	38.7	99										100	39.1	
LAKE AVERAGE			0.0	0		3.6	12			52.0	88												55.7	

TABLE 5. RELATIVE STOCK DENSITY (RSD), CATCH PER HOUR (CPH), AND RELATIVE WEIGHT (Wr) OF GIZZARD SHAD DURING SPRING ELECTROFISHING SURVEYS AT ALICEVILLE RESERVOIR.

YEAR	NO. OF SAMPLES	TOTAL EFFORT	SUBSTOCK			RSD-S				RSD-Q				RSD-P				RSD-M				TOTAL		
			NO.	CPE	SSR	NO.	CPE	PCT.	Wr	NO.	CPE	PCT.	Wr	NO.	CPE	PCT.	Wr	NO.	CPE	PCT.	Wr	NO.	CPE	
1988	5	2.36	0	0.0	0	22	9.3	22		77	32.6	78										99	41.9	
1990	4	1.17	2	1.7	2	87	74.4	88		12	10.3	12										101	86.3	
1994	3	1.08	43	39.8	38	110	101.9	98	97	2	1.9	2	96									155	143.5	
1999	4	1.69	9	5.3	9	94	55.6	99	78	1	0.6	1	78									104	61.5	
2002	4	1.64	57	34.8	114	49	29.9	98	77	1	0.6	2	73									107	65.2	
2006	5	2.42	60	24.8	107	55	22.7	98	80	1	0.4	2	75									116	47.9	
LAKE AVERAGE			17.7	45		49.0	84	83		7.7	16	81											74.4	

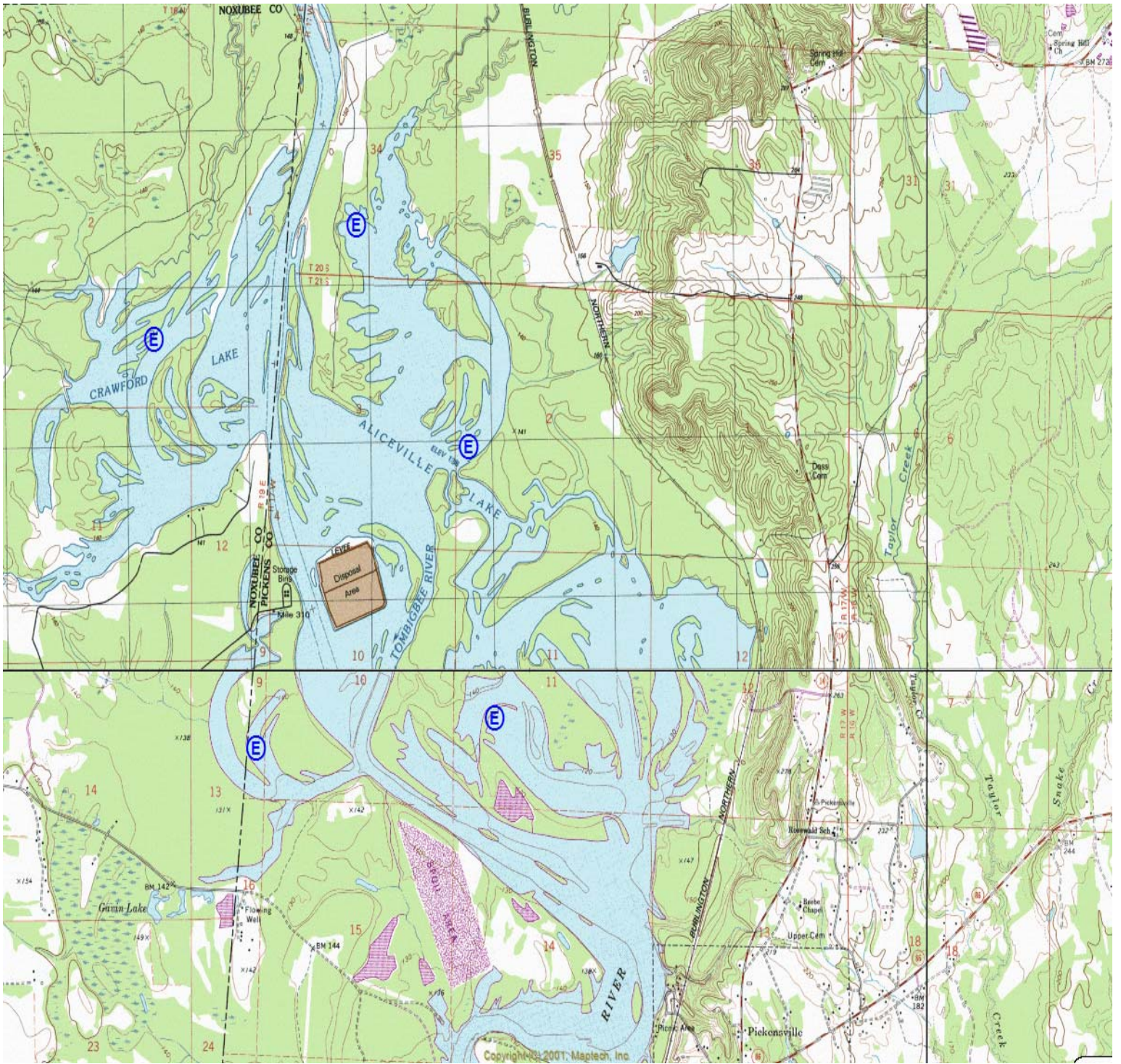
TABLE 6. AGE COMPOSITION AND MEAN TOTAL LENGTH (mm) OF LARGEMOUTH BASS AT ALICEVILLE RESERVOIR, APRIL 2006.

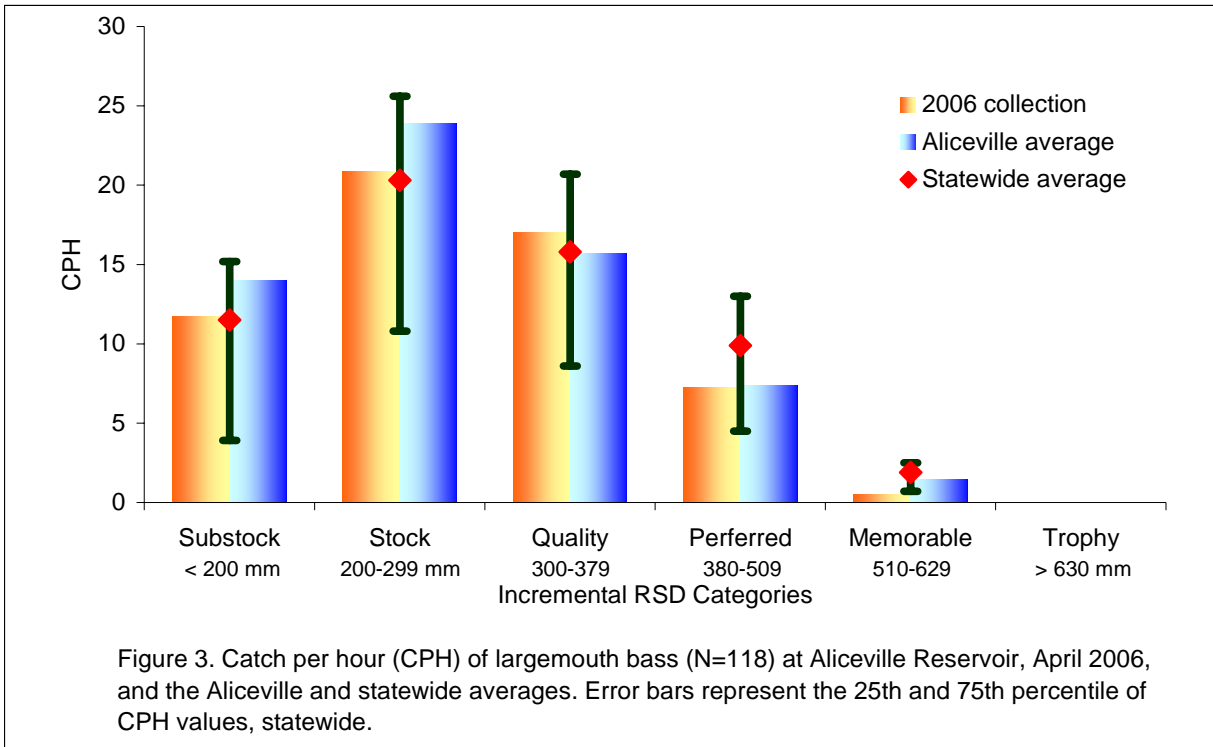
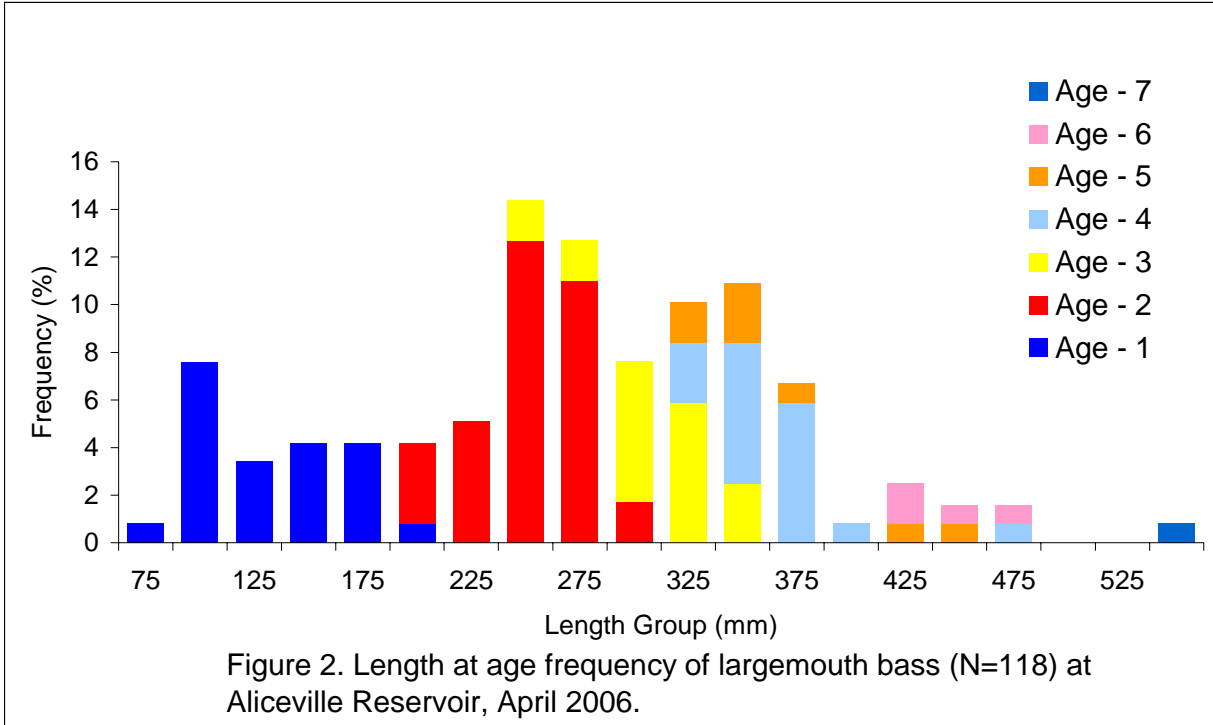
Age	Year Class	Number	Percent	CPE	Mean TL	SE	Length Range
1	2005	25	21.2	12.1	146	6	99 - 201
2	2004	40	33.9	19.4	264	4	212 - 311
3	2003	21	17.8	10.2	318	6	251 - 360
4	2002	19	16.1	9.2	377	8	340 - 486
5	2001	8	6.8	3.9	379	15	330 - 456
6	2000	4	3.4	1.9	459	9	440 - 480
7	1999	1	0.8	0.5	562		
Total		118	100.0	57.3			

TABLE 7. CREEL SURVEY STASTICS OF ALICEVILLE RESERVOIR ANGLERS, SPRING 2006.

Type	No. of Parties	Pct. of Parties	No. of Anglers	Pct. of Anglers	Fishing effort	
					Hrs.	Pct.
Fished for bass	100	62.9	168	57.5	1,047.76	61.2
Fished for crappie	49	30.8	95	32.5	571.75	33.4
Fished for anything that bites	1	0.6	3	1.0	18.75	1.1
Fished for other species	9	5.7	26	8.9	74.00	4.3
Total	159	100.0	292	100.0	1,712.26	100.0
Non-tournament bass anglers	45	28.3	82	28.1	335.51	19.6
Tournament bass anglers	55	34.6	86	29.5	712.25	41.6
Totals for bass anglers	100	62.9	168	57.5	1,047.76	61.2
Bass anglers pre-fishing for a tournament	4	2.5	7	2.4	30.00	1.8

Figure 1. April 2006 electrofishing sites (E) at Aliceville Reservoir.





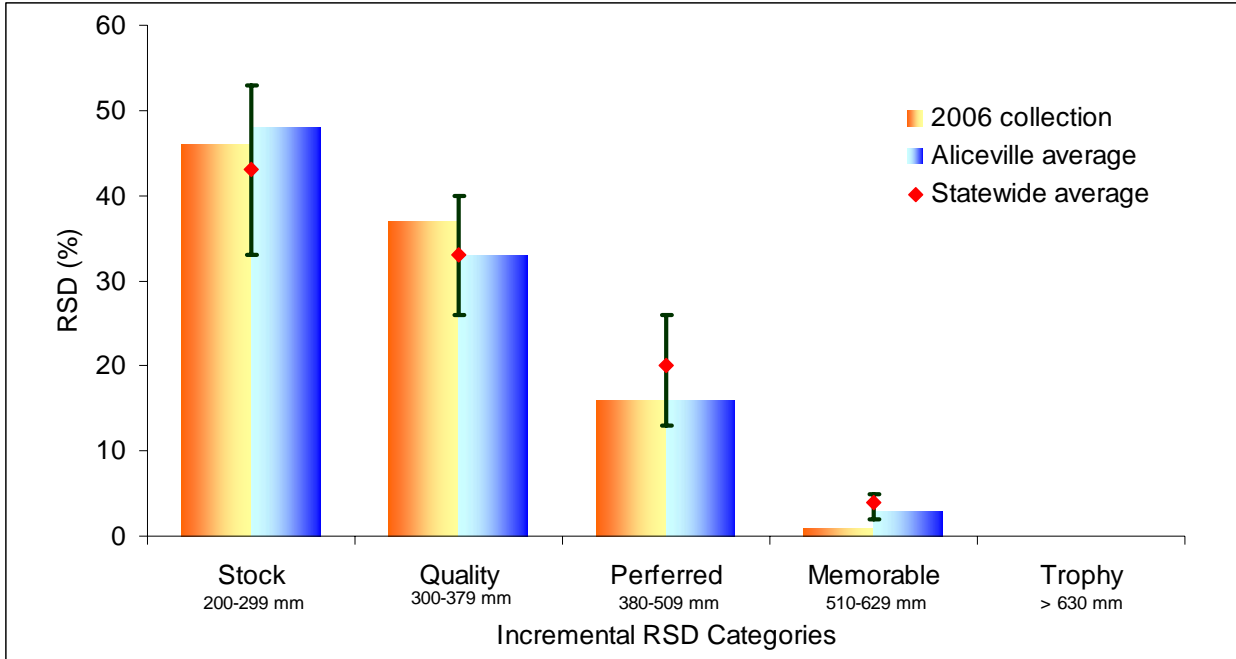


Figure 4. Relative stock density (RSD) of largemouth bass (N=118) at Aliceville Reservoir, April 2006, and the Aliceville and statewide averages. Error bars represent the 25th and 75th percentile of RSD values, statewide.

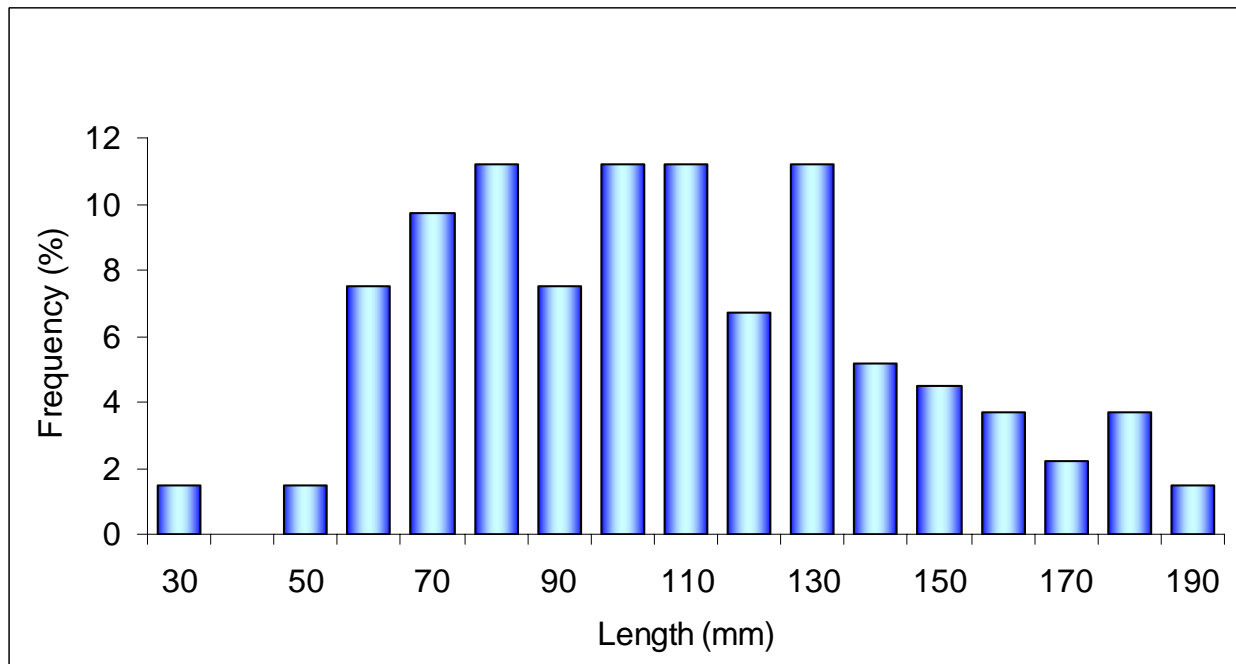


Figure 5. Length-frequency distribution of bluegill (N=134) at Aliceville Reservoir, April 2006.

