MARTIN RESERVOIR

MANAGEMENT REPORT

2003-2004

Prepared by

J. Chris Greene
District Fisheries Supervisor

Damon Abernethy
District Fisheries Biologist

Travis Powell
District Fisheries Aide

and

Rodney McVay
District Fisheries Aide

Department of Conservation and Natural Resources
Wildlife and Freshwater Fisheries Division
Fisheries Section

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Introduction

The Alabama Reservoir Management Plan (Alabama Department of Conservation and Natural Resources 1999) was established with the objective of collecting baseline information on the major sport fish species in the state's reservoirs. Each reservoir is sampled periodically to identify any problems with the fishery and to follow trends in growth, recruitment, and mortality.

Martin Reservoir was previously sampled in 2001, 1998, 1995, 1992, 1991, 1990, 1989, and 1988 according to management program guidelines (McHugh et al. 2001). The black bass population is dominated by spotted bass, but also contains a modest abundance of largemouth bass. Crappie numbers are reasonable with moderate year-classes produced almost every year. Striped bass are stocked in amounts adequate to provide an additional fishery.

Methods

Spring electrofishing, fall trap netting and fall gill netting were the methods used to collect target species by Alabama Wildlife and Freshwater Fisheries personnel. All collections followed management program guidelines.

Fall trap netting targeted black crappie and consisted of twenty net-nites between November 3 and 4, 2003. Nets were set perpendicular to the shoreline at variable depths and consisted of 13 mm mesh and 15 m leads.

Fall gillnetting gear consisted of 66m x 2m experimental nets composed of five separate mesh sizes. Mesh sizes included 2.54cm, 3.81cm, 5.08cm, 6.35cm, and 7.62cm panels. Five nets were set on November 10, 2003 and were checked for the next two days. Target species included striped bass and white bass.

Electrofishing gear consisted of an aluminum boat with bow-mounted electrodes, a Smith-Root model 5.0 GPP electrofisher, and a 5,000 watt generator which were used to deliver up to 1,008 volts of pulsed direct current. Eleven randomly selected sites were chosen to be sampled. Each site was sampled for thirty minutes of pedal down time for target species, which included largemouth bass, spotted bass, bluegill, gizzard shad, and threadfin shad. Sampling for all target species, except largemouth and spotted bass, continued until a minimum of 100 stock-size and larger fish were collected from at least three sample sites or until a minimum of ten sites were sampled, which ever occurred first. No more than 1/3 of the fish were taken from any one area. Largemouth and spotted bass were collected from all sampling sites without regard to a minimum collection number.

Total length in millimeters and weight in grams were recorded for all target fish collected by electrofishing, trap netting, and gill netting. Largemouth bass, spotted bass, black crappie, striped bass, and white bass otoliths were extracted and placed in vials with a 2:3 glycerine/alcohol solution for later viewing. Otoliths were aged by District-IV personnel. All otoliths containing five or more annuli were sectioned to increase aging accuracy.

The Bass Anglers Information Team (B.A.I.T.) program provides tournament catch information on all participating reservoirs and these data are used to compliment the Alabama Reservoir Management Program. The 2003 data (Nichols et al. 2003) are included in this report in addition to historical data.

In addition to text sections, this report also includes other pertinent divisions. Appendix A includes all the tables and figures and Appendix B contains a general reconnaissance survey and fact sheet. Each table and figure may not be referenced in the text.

Results and Discussion

According to the 2004 spring electrofishing sample, the largemouth bass population is dominated by small fish. Only 97 total fish were collected and 73% of these fish fell in the substock and stock size categories (Table 5). Relative stock density (RSD) calculations revealed that the substock and stock size categories were above the statewide 75th percentile, while the quality and memorable size groups fell below the statewide 25th percentile. Only the preferred size group fell within the recommended ranges (25th to 75th percentiles). The catch per unit of effort (CPUE) values were below the statewide recommended ranges for all size categories except substock. The combined CPUE for largemouth bass was 17.6 per hour in 2004, which is similar to the 1998 sample (McHugh and Jernigan 1999), but well below the statewide 25th percentile.

The 2004 largemouth bass proportional stock density (PSD) calculation was 41. This value is below the recommended range of 47-68 suggested by previous Alabama reservoir data and the range suggested by Anderson and Weithman (1978) of 50-70 for reservoirs where shad are the dominant prey species. The average relative weight of fish in all size categories was below the statewide 25th percentile, but similar to past samples. This is presumably due to the low fertility level typical of Martin Reservoir; however, largemouth bass growth remained high and exceeded the rates of recent samples. Mean total lengths at ages 1-4 surpassed statewide 75th percentiles. A valid total annual mortality estimate for largemouth bass could not be computed, but judging from the absence of age-3 and older fish in the spring sample, mortality is assumed to be high. Largemouth bass mortality of age-3 and older fish from the 2001 sample was estimated to be 41 percent (McHugh et al. 2001).

The spotted bass sample consisted of 143 total fish, most of which (76%) fell into the substock and stock size categories. All RSD calculations fell between the 25th and 75th percentiles of

statewide reservoir data. CPUE values were also within the recommended ranges for every size category. The combined CPUE value for spotted bass was 26.0, which is within recommended ranges and almost identical to the 2001 sample (McHugh et al. 2001).

The 2004 spotted bass PSD estimate of 35 is within the suggested range (32-61) defined by previous Alabama reservoir data. The relative weights for all size categories of spotted bass fell below the statewide 25th percentile, which is somewhat typical for nutrient poor reservoirs such as Martin. Similar to largemouth bass, the growth rates of spotted bass remained high and exceeded the rates of recent samples. A total annual mortality estimate for spotted bass could not be accurately computed.

The ratio of largemouth bass to spotted bass has changed little over time according to our electrofishing samples. In the 2004 sample, the CPUE ratio was 2:3 of largemouth bass to spotted bass. This ratio has fluctuated somewhat from year to year; however, both species have been the dominant black bass species in past electrofishing samples (Figure 17). Redeye bass, another black bass species present in the Tallapoosa River watershed, are not normally encountered during routine sampling since they typically inhabit upland streams. Since reservoir electrofishing samples have been shown to underestimate the true abundance of spotted bass larger than 12 inches (McHugh et al. 1993), an abundance comparison was performed using only fish smaller than this crucial size; however, results of this evaluation revealed little change in the overall species breakdown. Spotted bass typically have a competitive advantage over largemouth bass in nutrient poor systems (Greene and Maceina 2000) and thus become more numerous over time. In a current study being performed by the Auburn University Fisheries Department, tournament anglers catch spotted bass at a much higher rate than largemouth bass (Ben Ricks, Auburn University, personal communication).

The 2001 creel survey conducted at various access areas revealed that of the 1,449 total bass that were caught, only 17% of these fish were harvested. The species breakdown of harvested bass was 226 spotted bass to only 24 largemouth bass (McHugh et al. 2001). This suggests that spotted bass were caught at a higher rate than largemouth bass, but may also imply that they are more likely to be kept.

Bluegill collected during the spring of 2004 were captured at the rate of 105.7 per hour. The majority (93%) of the total sample fell within the stock size category. No fish were collected larger than quality size. The PSD of 7, which falls below the 25th percentile of statewide reservoir averages, is also indicative of a sample dominated by small fish. Bluegill relative weights resembled past samples and were also below the statewide 25th percentile.

Gizzard and threadfin shad, both important forage species for black bass, were also targeted during the 2004 spring electrofishing sample. Gizzard shad were collected at the rate of 8.4 per hour, which is better than the CPUE values of 1995, 1998, and 2001. Threadfin shad were collected at a slightly higher rate of 13.7 per hour. Both shad species typically have highly variable electrofishing catch rates from year to year. The abundance of forage species such as shad can account for fluctuations in year class strength of black bass (Aggus and Elliott 1975; Michaletz 1998).

Black crappie were collected at an excellent rate during the fall of 2003 compared to past Martin samples. The CPUE of 7.5 was the second highest rate of all trap netting samples conducted at Martin and the substock ratio was the highest on record. As these abundant smaller fish grow into the larger size ranges, the crappie fishery should escalate. Catch rates of individual size classes increased for the substock and stock categories, but remained somewhat constant for quality, preferred, and memorable sized fish. The annual mortality estimate for ages 2-4 was 86%

with extremely tight 95% confidence intervals (Figure 18). This is much higher than the last valid mortality estimate of 63% listed in the 1998 report (McHugh and Jernigan 1999). High mortality rates are typical in crappie populations since they are heavily exploited and have a short life span. Growth rates of crappie continued to be good with age-2 fish averaging 250 mm (Table 11).

Morone species were collected through the use of gill nets during the fall of 2003. Striped bass were captured at the rate of 3.6 per net night, which is somewhat low compared to past samples. Substock striped bass dominated the sample with 83% of the fish falling into this category. Five age classes were represented in the sample with an age-8 and an age-9 fish (Table 13). Growth of young-of-the-year fish was excellent, but no inferences could be made about the growth rates of other size classes due to poor representation. Likewise, no conclusions could be drawn about relative weights or mortality, since very few fish were captured in the stock through memorable size ranges. The stocking rates of striped bass were reduced from three per acre to two per acre in 1999 due to the poor condition of collected fish. Increased growth rates in latter samples suggested that this rate was reduced too drastically; therefore, in 2001 the rate was increased to 2.5 per acre and eventually back to the original rate of 3 per acre.

A total of 107 white bass were collected in gill nets at the rate 10.7 per net night. This CPUE is the second largest ever recorded (16.8 per net night in 1988) from Martin Reservoir. Average relative weights of stock size fish were excellent with the condition of fish in the other size categories remaining fairly stable. Mean total length at age data indicated that growth rates were slightly slower than in past samples (Figure 12).

Temperature and dissolved oxygen profiles from the forebay area in both July and August 2004 were obtained from Alabama Power Company (Figures 19 and 20). Cool water with a dissolved oxygen content of at least 2 ppm was observed during these critical time periods. The

availability of cool water with adequate dissolved oxygen is pertinent during the hot summer months for striped bass to survive. Striped bass summer fish kills apparently resulting from lack of suitable water quality occurred in 1991, 1994, and 2001; however, no fish kills were observed from 2002-2004.

Recommendations

- Martin Reservoir should be resampled in three to four years according to the reservoir management program guidelines.
- Since recruitment of black bass is high and relative weights are somewhat low, a minimum length limit cannot be justified. A slot limit would protect quality sized fish which were under-represented in the 2004 sample; however, preferred size fish, especially largemouth bass, are seemingly abundant. Moreover, slot limits do not work without angler harvest, which has been problematic in other Alabama reservoirs.
- Although crappie mortaility is high, this species is currently protected by a nine inch statwide minimum length limit which should continue.
- Striped bass stockings should continue at the rate of three per acre annually.

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TABLE 1.—MARTIN RESERVOIR MORPHOMETRIC, PHYSICAL AND CHEMICAL CHARACTERISTICS.

Surface area		39,180	surface acres
Drainage area		3,000	square miles
Full pool elevation		490	feet-msl
Mean annual fluxuation		12	feet
Shoreline distance		700	miles
Shoreline development index		25.2	
Mean depth		42	feet
Maximum depth		155	feet
Outlet depth	(upper)	66	feet
	(lower)	90	feet
Total dissolved solids		40.6	mg/l
Morphoedaphic index		0.96	TDS/mean depth (Ryder 1965)
Growing season		220	frost free days (Jenkins 1967)
Reservoir age (1926)		78	years

TABLE 2. —FISH STOCKED IN MARTIN RESERVOIR, 1980-2004.

Species	Year	No/Acre	Size (in)	Total
Largemouth Bass	1983	0.37	1-2	14,630
	1984	0.92	1-2	36,123
	1985	0.64	1-2	24,957
	1986	1.02	1-2	40,000
	1988	1.53	1-2	60,008
	1990	0.98	1-2	38,299
	1992	1.02	1-2	40,000
	1993	1.02	1-2	40,020
	1994	1.02	1-2	40,000
	2004	0.09	8-11	3,525
Striped Bass	1980	3.67	1-2	143,750
	1981	5.88	1-2	230,300
	1982	2.57	1-2	100,800
	1984	0.46	1-2	17,990
	1985	2.55	1-2	100,000
	1987	0.20	1-2	8,000
	1988	1.00	1-2	39,000
	1989	1.00	1-2	39,100
	1990	1.99	1-2	78,000
	1991	3.06	1-2	120,012
	1992	3.05	1-2	119,672
	1993	3.07	1-2	120,220
	1994	3.06	1-2	120,014
	1995	3.06	1-2	120,070
	1996	4.08	1-2	160,000
	1997	3.10	1-2	121,536
	1998	3.07	1-2	120,436
	1999	2.00	1-2	78,499
	2000	2.07	1-2	80,984
	2001	2.53	1-2	99,228
	2002	1.14	1-2	44,830
	2003	2.47	1-2	96,750
	2004	3.06	1-2	120,050
Hybrid Striped Bass	1982	2.68	1-2	104,883
	1983	2.56	1-2	100,460
	1984	2.55	1-2	100,000
	1985	2.55	1-2	99,800
	1986	2.53	1-2	99,138
	1987	1.00	1-2	39,100
	1988	1.00	1-2	39,200

TABLE 3.—NUMBER OF TARGET SPECIES COLLECTED BY GEAR TYPE FROM MARTIN RESERVOIR, 2003-2004.

	Gear Type								
	Electrofishing				Gill Net			Trap Net		
Species	No.	CPE	Total Effort hours	Total Effort (secs.)	No.	CPE	Total Effort (net nights)	No.	CPE	Total Effort (net nights)
Largemouth Bass	97	17.6	5.5	19,800						
Spotted Bass	143	26.0	5.5	19,800						
Bluegill	108	105.7	1.0	3,677						
Black Crappie								150	7.5	20
Striped Bass					36	3.6	10			
White Bass					107	10.7	10			
Gizzard Shad	46	8.4	5.5	19,800						
Threadfin Shad	73	13.7	5.3	19,220						

TABLE 4.—NON-TARGET SPECIES OBSERVED DURING ROUTINE SAMPLING OF MARTIN RESERVOIR, 2003-2004.

Species
Blacktail Redhorse
Blacktail Shiner
Blue Catfish
Channel Catfish
Common Carp
Flathead Catfish
Golden Shiner
Green Sunfish
Mobile Logperch
Longear Sunfish
Orangespotted Sufish
Redear Sunfish
River Redhorse
Spotted Sucker
Warmouth Sunfish
Yellow Perch

TABLE 5.—RELATIVE STOCK DENSITY, CATCH PER EFFORT, AND RELATIVE WEIGHT OF TARGET SPECIES IN MARTIN RESERVOIR, 1991-2004.

Species	Gear	Year	No. of Samples	SUBSTOCK NO.	SUBSTOCK CPE	SUBSTOCK PCT.[1]	RSD-S NO.	RSD-S CPE	RSD-S PCT	RSD-S Wr	RSD-Q NO.	RSD-Q CPE	RSD-Q PCT	RSD-Q Wr	RSD-P NO.	RSD-P CPE	RSD-P PCT	RSD-P Wr	RSD-M NO.	RSD-M CPE	RSD-M PCT	RSD-M Wr	RSD-T NO.	RSD-T CPE	RSD-T PCT	RSD-T Wr	TOTAL NO.	TOTAL CPE
Largemouth bass	Electro	1992	5	49	3.9	16	101	8.1	33	82	135	10.8	44	81	59	4.7	19	84	11	0.8	4	86					355	28.6
Largemouth bass	Electro	1995	9	35	7.7	38	38	8.4	41	81	34	7.5	37	78	18	4.0	20	81	2	0.4	2	81					127	28.2
Largemouth bass	Electro	1998	15	22	2.9	20	51	6.8	46	83	41	5.4	37	80	16	2.1	14	78	3	0.4	3	82					133	17.7
Largemouth bass	Electro	2001	14	8	1.1	11	19	2.8	25	75	33	4.8	43	76	22	3.2	29	83	2	0.2	3	88					84	12.4
Largemouth bass	**Electro**	**2004**	**11**	**33**	**6.0**	**52**	**38**	**6.9**	**59**	**79**	**12**	**2.2**	**19**	**79**	**14**	**2.5**	**22**	**82**									**97**	**17.6**
Spotted bass	Electro	1992	7	64	4.2	22	220	14.5	74	85	36	2.3	12	93	37	2.4	12	88	4	0.2	1	91					361	23.9
Spotted bass	Electro	1995	9	68	15.1	51	104	23.1	78	86	15	3.3	11	85	9	2.0	7	83	5	1.1	4	80					201	44.7
Spotted bass	Electro	1998	15	50	6.6	75	41	5.4	61	84	20	2.6	30	82	5	0.6	7	85	1	0.1	1	76					117	15.6
Spotted bass	Electro	2001	12	42	7.2	39	63	10.8	59	83	31	5.3	29	81	11	1.9	10	83	2	0.3	2	82					149	25.8
Spotted bass	**Electro**	**2004**	**11**	**42**	**7.6**	**42**	**66**	**12.0**	**65**	**84**	**21**	**3.8**	**21**	**84**	**10**	**1.8**	**10**	**82**	**4**	**0.7**	**4**	**86**					**143**	**26.0**
Bluegill Sunfish	Electro	1991	3				94	91.3	94	84	6	5.8	6	76													100	97.1
Bluegill Sunfish	Electro	1995	5				83	37.3	81	78	16	7.2	16	77	3	1.3	3	85									102	45.9
Bluegill Sunfish	Electro	1998	6				84	28.0	74	73	28	9.3	25	71	2	0.6	2	83									114	38.0
Bluegill Sunfish	Electro	2000	9				77	17.9	77	81	18	4.2	18	79	5	1.1	5	82									100	23.3
Bluegill Sunfish	**Electro**	**2004**	**6**				**100**	**97.9**	**93**	**75**	**8**	**7.8**	**7**	**77**													**108**	**105.7**
Gizzard shad	Electro	1991	10	2	0.4	3	9	1.8	12	87	68	13.6	88	75													79	15.8
Gizzard shad	Electro	1995	9				1	0.2	11	77	8	1.8	89	78													9	2.0
Gizzard shad	Electro	1998	15				5	0.7	29	79	12	1.6	71	75													17	2.3
Gizzard shad	Electro	2001	14				3	0.4	8	85	36	5.3	92	78													39	5.7
Gizzard shad	**Electro**	**2004**	**11**				**4**	**0.7**	**9**	**83**	**42**	**7.6**	**91**	**82**													**46**	**8.4**
Threadfin shad	Electro	1991	10				10	2.0	71		4	0.8	29														14	2.8
Threadfin shad	Electro	1995	5				96	76.8	95		5	4.0	5														101	80.8
Threadfin shad	Electro	1998	12				82	14.1	78		23	3.9	22														105	18.0
Threadfin shad	Electro	2001	14																								0	0.0
Threadfin shad	**Electro**	**2004**	**11**				**26**	**4.9**	**36**		**47**	**8.8**	**64**														**73**	**13.7**
Black crappie	Trapnet	1992	32	6	0.2	6	37	1.2	37	75	43	1.3	42.0	79	16	0.5	16.0	84	5	0.2	5	81					107	3.3
Black crappie	Trapnet	1995	40	6	0.2	4	26	0.6	19	75	41	1.0	29.0	75	69	1.7	50.0	78	3	0.1	2	84					145	3.6
Black crappie	Trapnet	1998	20	7	0.4	5	40	2.0	28	73	64	3.2	44.0	80	36	1.8	25.0	81	4	0.2	3	80					151	7.6
Black crappie	Trapnet	2000	50				7	0.1	5	76	55	1.1	43	81	64	1.3	50	81	3	0.1	2	87					129	2.6
Black crappie	**Trapnet**	**2003**	**20**	**26**	**1.3**	**21**	**46**	**2.3**	**37**	**78**	**46**	**2.3**	**37**	**81**	**31**	**1.6**	**25**	**84**	**1**	**0.1**	**1**	**86**					**150**	**7.5**
Striped Bass	Gill Net	1991	15	1	< 0.1	100	1	< 0.1	100	90																	2	0.1
Striped Bass	Gill Net	1995	18	16	0.9	25	13	0.7	20	85	49	2.7	77	75	2	0.1	3	73									80	4.4
Striped Bass	Gill Net	1998	15	2	0.1	3	41	2.7	63	92	23	1.5	35	83	1	0.1	2	76									67	4.5
Striped Bass	Gill Net	2000	10	1	0.1	1	29	2.9	31	99	64	6.4	68	91	1	0.1	1	76									95	9.5
Striped Bass	**GillNet**	**2003**	**10**	**30**	**3.0**	**500**	**3**	**0.3**	**50**	**87**	**1**	**0.1**	**17**	**75**	**1**	**0.1**	**17**	**60**	**1**	**0.1**	**17**	**84**					**36**	**3.6**
White Bass	Gill Net	1991	15				8	0.5	12	90	3	0.2	5	87	51	3.4	78	91	3	0.2	5	80					65	4.3
White Bass	Gill Net	1995	18				2	0.1	3	88	28	1.6	41	87	28	1.6	41	88	10	0.5	15	83					68	3.8
White Bass	Gill Net	1998	15				3	0.2	2	85	39	2.6	30	99	70	4.7	55	94	16	1.1	13	88					128	8.5
White Bass	Gill Net	2000	10				2	0.2	3	74	26	2.6	43	91	28	2.8	46	91	5	0.5	8	88					61	6.1
White Bass	**GillNet**	**2003**	**10**				**7**	**0.7**	**7**	**97**	**11**	**1.1**	**10**	**90**	**89**	**8.9**	**83**	**90**									**107**	**10.7**

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

TABLE 6.—LENGTH AT AGE OF LARGEMOUTH BASS FROM MARTIN RESERVOIR, SPRING 2004.

Length (mm)	I	II	III	IV	V	VI	VII	TOTAL
100	1							1
125	3							3
150	10							10
175	19							19
200	19							19
225	12							12
250	4							4
275		3						3
300		3	1	1				5
325		7						7
350								0
375			3					3
400			2	2		1		5
425						1		1
450				2				2
475					1	1	1	3
Total	68	13	6	5	1	3	1	97

TABLE 7. —AGE COMPOSITION AND MEAN LENGTH OF LARGEMOUTH BASS FROM MARTIN RESERVOIR, SPRING 2004.

Annulus	Year Class	Number	Percent	CPE	Mean Length	Standard Error
1	2003	68	70.1	12.4	199.9	3.8
2	2002	13	13.4	2.4	321.6	5.5
3	2001	6	6.2	1.1	382.8	14.3
4	2000	5	5.2	0.9	411.0	26.4
5	1999	1	1.0	0.2	479.0	
6	1998	3	3.1	0.5	445.0	24.3
7	1997	1	1.0	0.2	494.0	
Total		97	100.0	17.6		

TABLE 8. —LENGTH AT AGE OF SPOTTED BASS FROM MARTIN RESERVOIR, SPRING 2004.

Length (mm)	I	II	III	IV	V	Total
75	3					3
100	1					1
125	7					7
150	25					25
175	25					25
200	3	6				9
225		21				21
250		13				13
275		11	2			13
300		3	2			5
325		6	1			7
350			4	1		5
375			2	1		3
400				2		2
425				2	1	3
450				1		1
Total	64	60	11	7	1	143

TABLE 9. —AGE COMPOSITION AND MEAN LENGTH OF SPOTTED BASS FROM MARTIN RESERVOIR, SPRING 2004.

Annulus	Year Class	Number	Percent	CPE	Mean Length	Standard Error
1	2003	64	44.8	11.6	168.2	3.5
2	2002	60	42.0	10.9	263.1	4.5
3	2001	11	7.7	2.0	340.2	12.0
4	2000	7	4.9	1.3	415.4	13.1
5	1999	1	0.7	0.2	430.0	
Total		143	100.0	26.0		

TABLE 10. —LENGTH AT AGE OF BLACK CRAPPIE FROM MARTIN RESERVOIR, FALL 2003.

Length (mm)	0	I	II	III	IV	V	Total
70	4						4
80	13						13
90	3						3
100	3						3
110	1						1
120		2					2
130							0
140							0
150		1					1
160		2					2
170	2	12					14
180	1	12	1				14
190		15					15
200		8	1				9
210		10	2				12
220		4	4				8
230			8				8
240			9				9
250			5				5
260			7	1			8
270			8				8
280			5	1			6
290				4			4
300						1	1
Total	27	66	50	6	0	1	150

TABLE 11. —AGE COMPOSITION AND MEAN LENGTH OF BLACK CRAPPIE FROM MARTIN RESERVOIR, FALL 2003.

Annulus	Year Class	Number	Percent	CPE	Mean Length	Standard Error
0	2003	27	18.0	1.4	97.2	5.9
1	2002	66	44.0	3.3	191.8	2.5
2	2001	50	33.3	2.5	250.0	3.2
3	2000	6	4.0	0.3	287.3	5.2
4	1999	0	0.0	0.0		
5	1998	1	0.7	0.1	308.0	
Total		150	100.0	7.5		

TABLE 12. —LENGTH AT AGE OF STRIPED BASS
FROM MARTIN RESERVOIR, FALL 2003.

Length (mm)	0	I	II	III	IV	V	VI	VII	VIII	IX	Total
200	3										3
225	7	1									8
250	12	1									13
275	6										6
300											0
325											0
350											0
375											0
400											0
425		1									1
450			2								2
475											0
500			1								1
525											0
550											0
575											0
600											0
625											0
650											0
675											0
700											0
725											0
750									1		1
775											0
800											0
825											0
850											0
875											0
900										1	1
Total	28	3	3	0	0	0	0	0	1	1	36

TABLE 13. —AGE COMPOSITION AND MEAN LENGTH OF STRIPED BASS FROM MARTIN RESERVOIR, FALL 2003.

Annulus	Year Class	Number	Percent	CPE	Mean Length	Standard Error
0	2003	28	77.8	2.8	255.0	3.9
1	2002	3	8.3	0.3	307.0	67.2
2	2001	3	8.3	0.3	488.3	15.9
3	2000	0	0.0	0.0		
4	1999	0	0.0	0.0		
5	1998	0	0.0	0.0		
6	1997	0	0.0	0.0		
7	1996	0	0.0	0.0		
8	1995	1	2.8	0.1	767.0	
9	1994	1	2.8	0.1	923.0	
Total		36	100.0	3.6		

TABLE 14. —LENGTH AT AGE OF WHITE BASS FROM MARTIN RESERVOIR, FALL 2003.

Length (mm)	0	I	II	III	IV	Total
175	2					2
200	5					5
225	2					2
250	1					1
275		8				8
300	1	20	9			30
325		12	19		1	32
350		1	24	1		26
375			1			1
Total	11	41	53	1	1	107

TABLE 15. —AGE COMPOSITION AND MEAN LENGTH OF WHITE BASS FROM MARTIN RESERVOIR, FALL 2003.

Annulus	Year Class	Number	Percent	CPE	Mean Length	Standard Error
0	2003	11	10.3	1.1	225.8	10.1
1	2002	41	38.3	4.1	316.0	2.6
2	2001	53	49.5	5.3	342.7	2.4
3	2000	1	0.9	0.1	373.0	
4	1999	1	0.9	0.1	341.0	
Total		107	100.0	10.7		

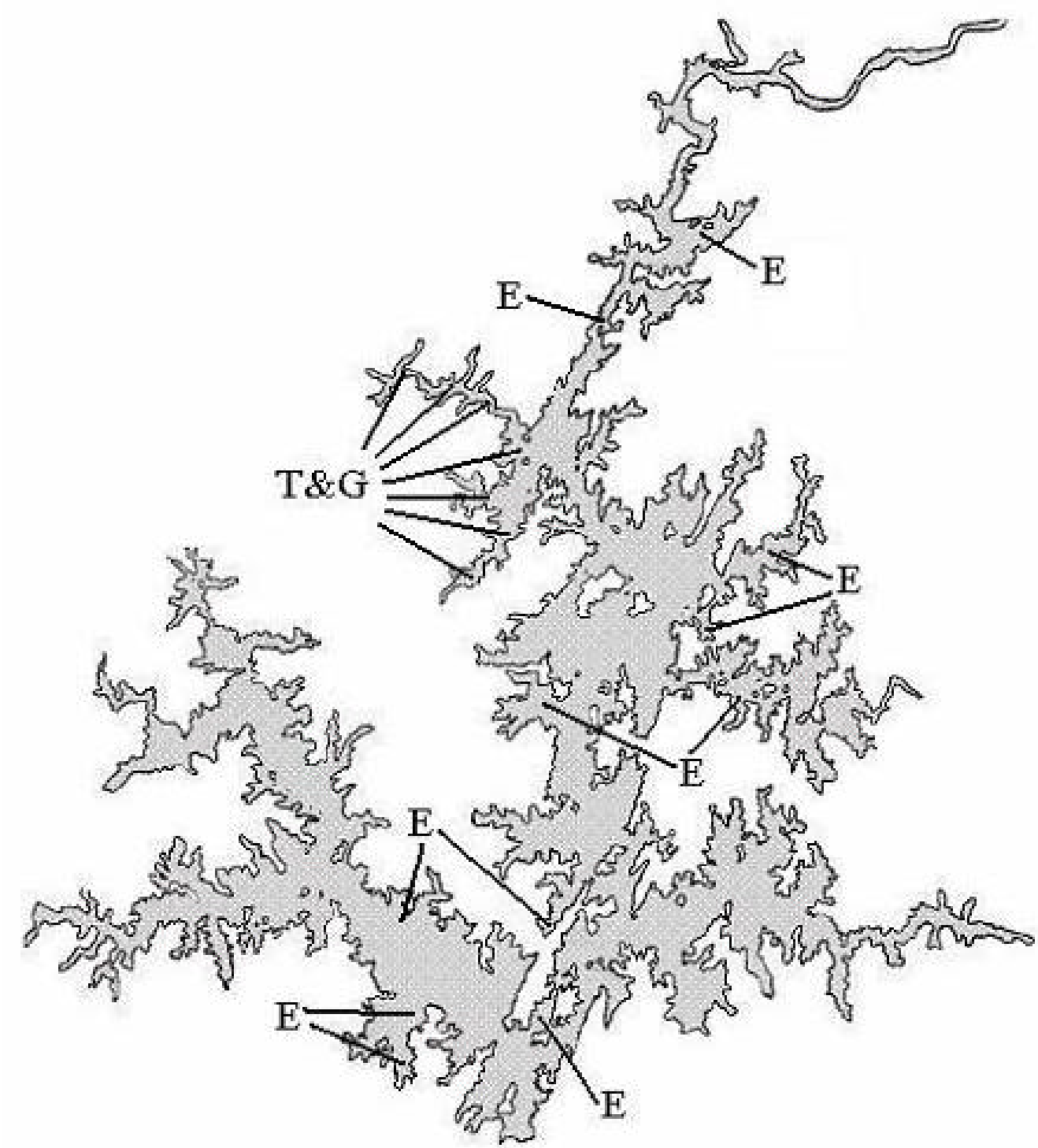

Figure 1. Martin Reservoir fall 2003 trap netting (T), fall 2003 gill netting (G), and spring 2004 electrofishing (E) locations. All trap nets and gill nets were set in Wind Creek and Elkahatchee Creek.

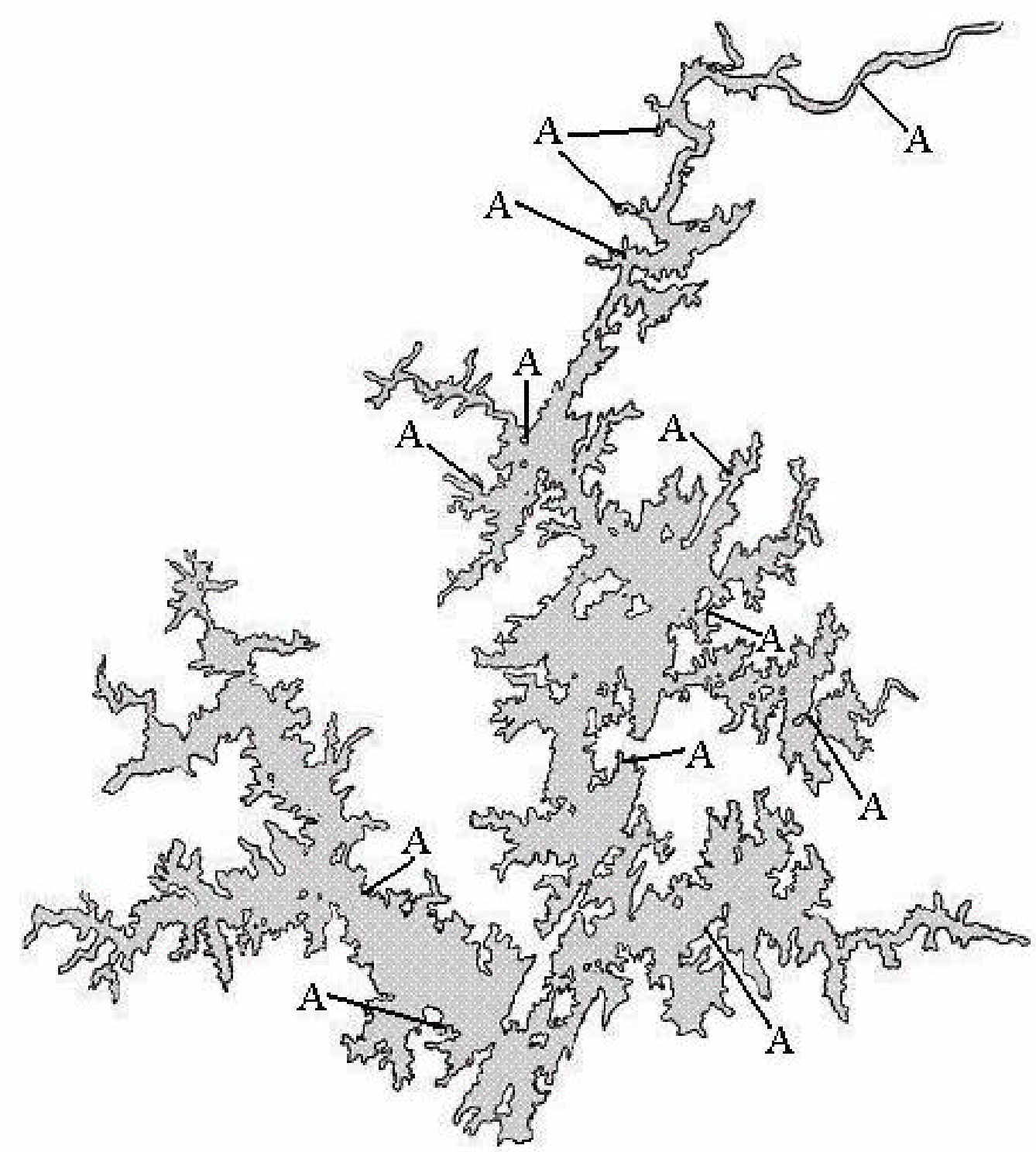

Figure 2. Martin Reservoir public access areas (A).

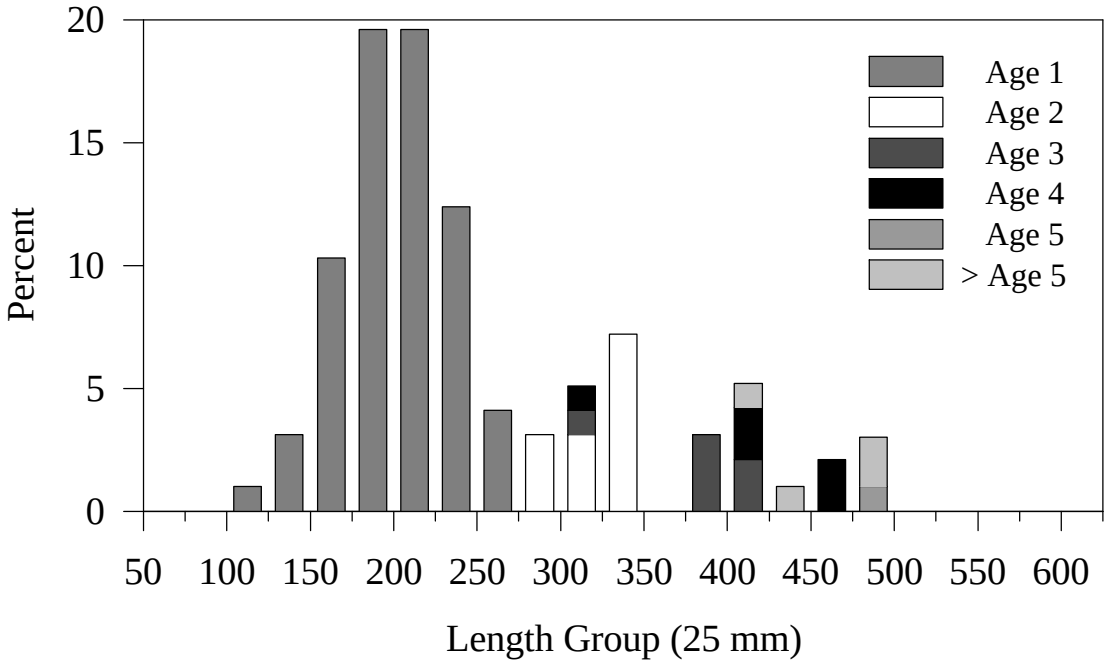

Figure 3. Length at age frequency of largemouth bass (N=97) taken from Martin Reservoir, spring 2004.

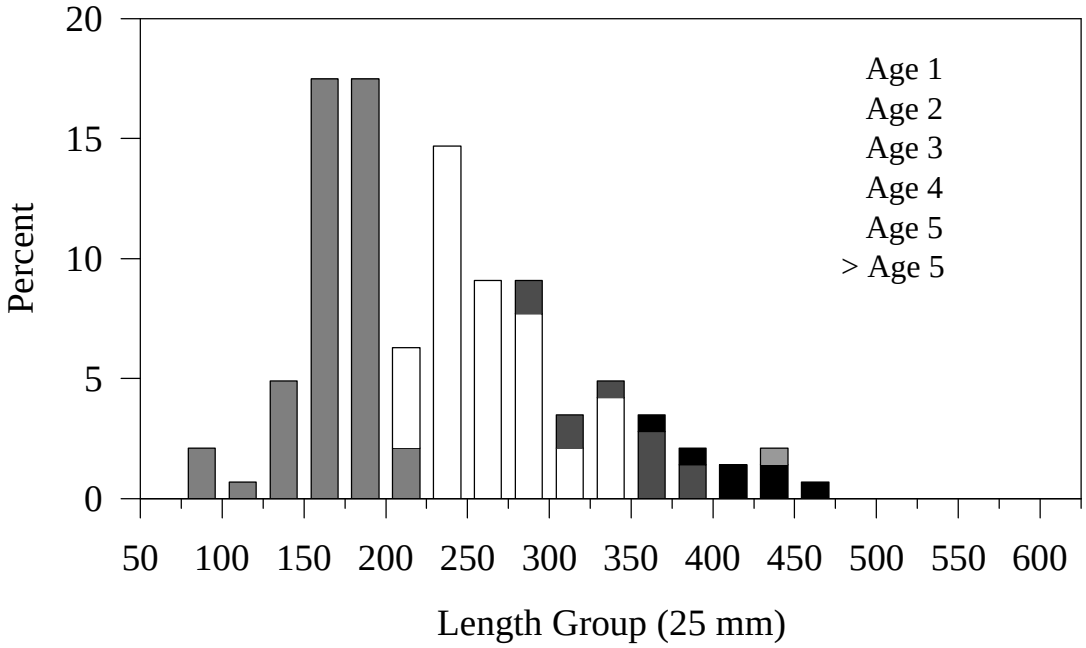

Figure 4. Length at age frequency of spotted bass (N=143) taken from Martin Reservoir, spring 2004.

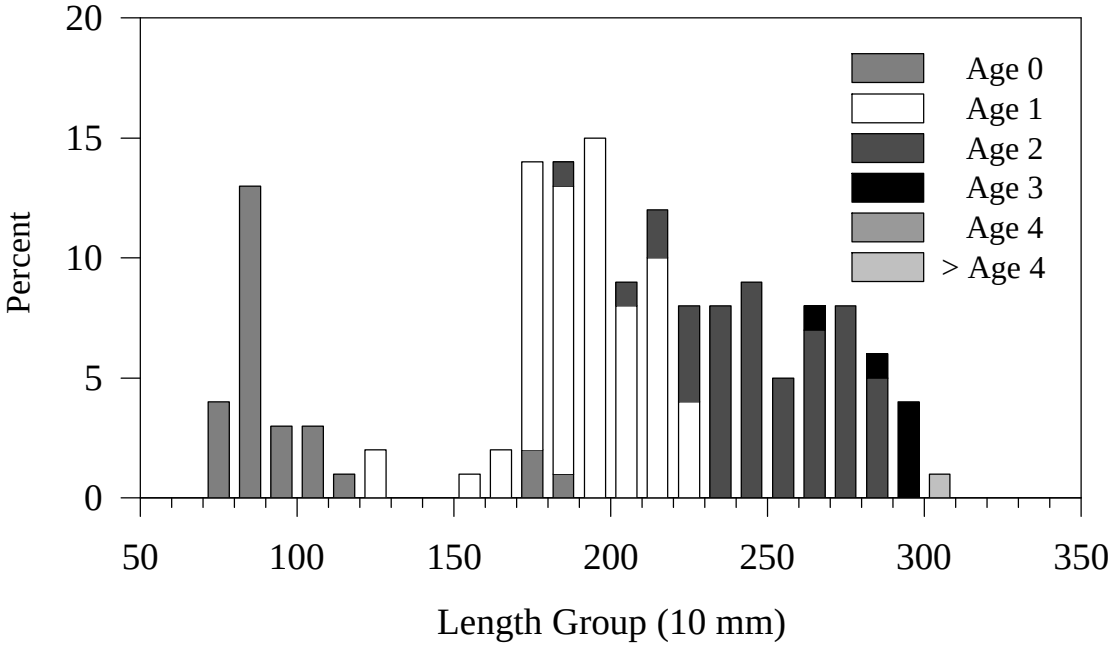

Figure 5. Length at age frequency of black crappie (N=150) taken from Martin Reservoir, fall 2003.

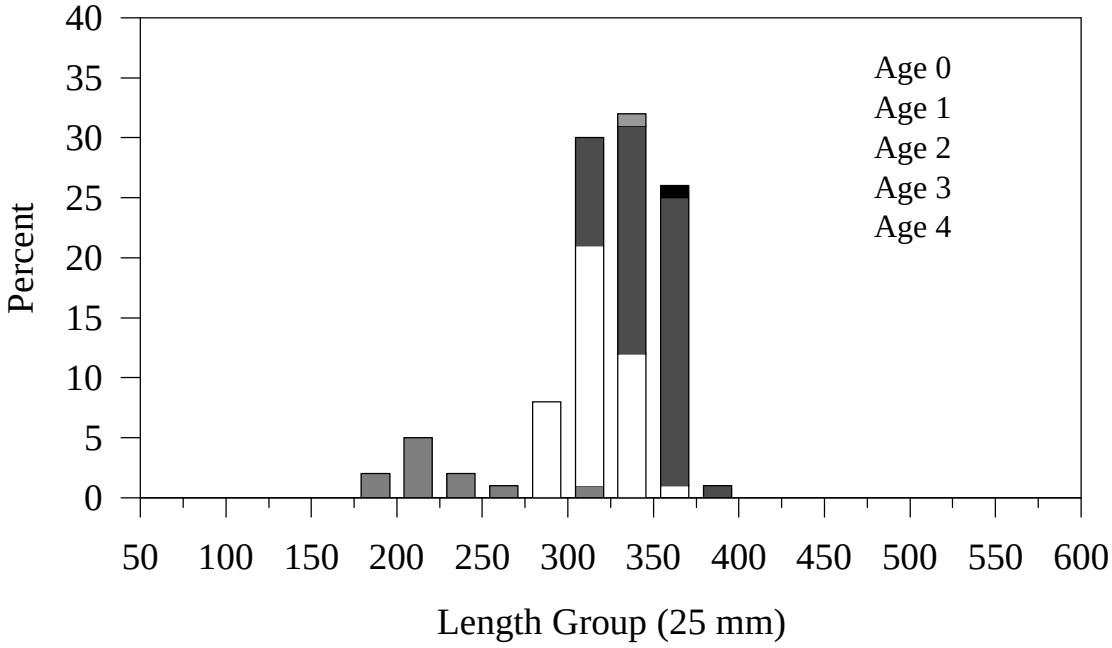

Figure 6. Length at age frequency of white bass (N=107) taken from Martin Reservoir, fall 2003.

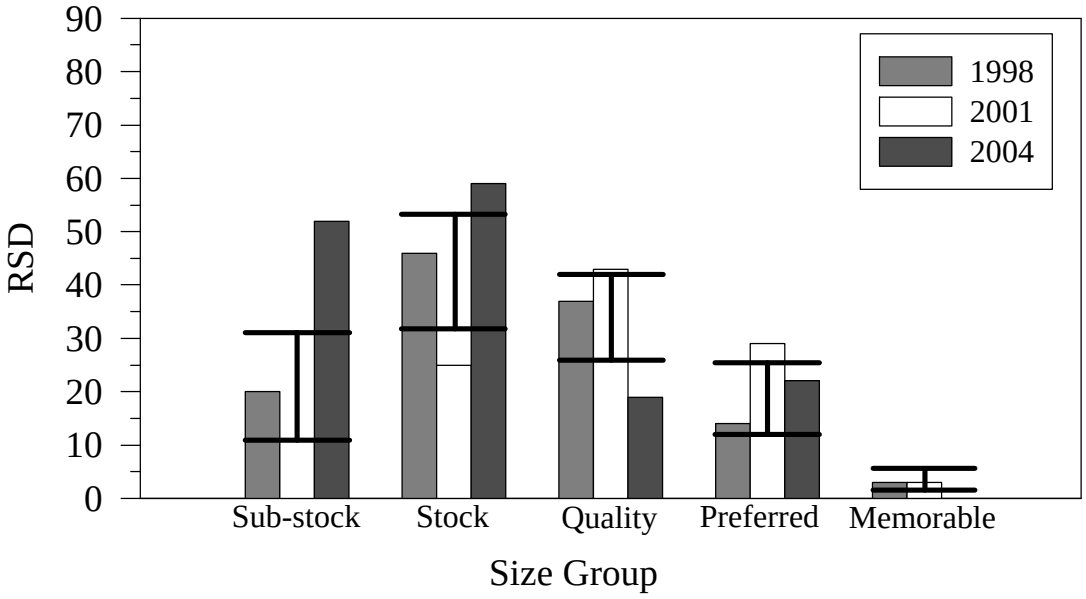

Figure 7. Relative Stock Density (RSD) for individual size groups of largemouth bass collected from Martin Reservoir. The I-beams represent the twenty-fifth and seventy-fifth percentiles from Alabama reservoir data (Reeves and McHugh 1993).

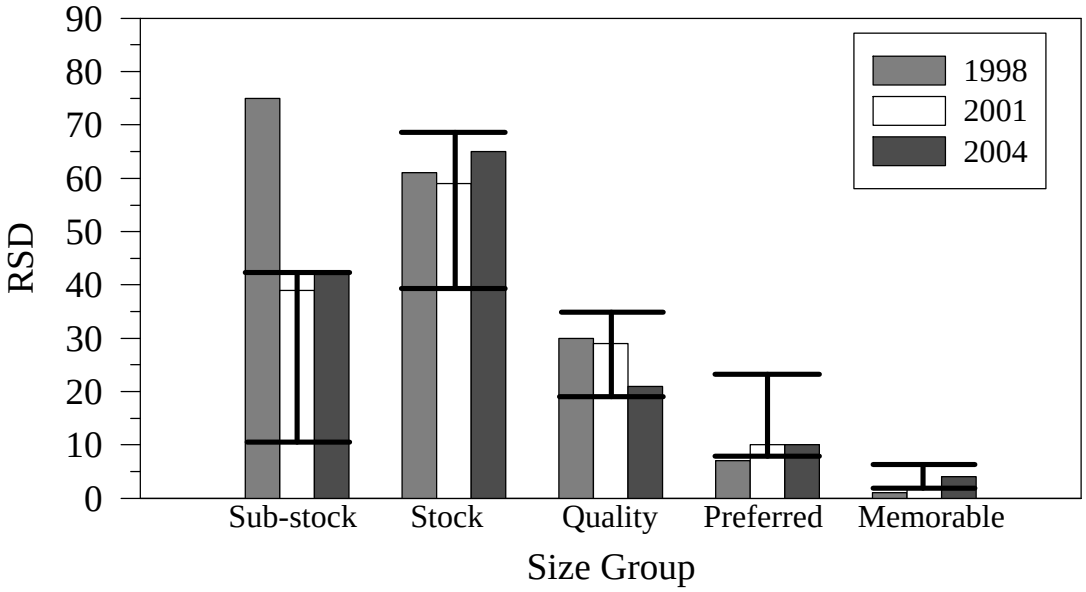

Figure 8. Relative Stock Density (RSD) for individual size groups of spotted bass collected from Martin Reservoir. The I-beams represent the twenty-fifth and seventy-fifth percentiles from Alabama reservoir data (Reeves and McHugh 1993).

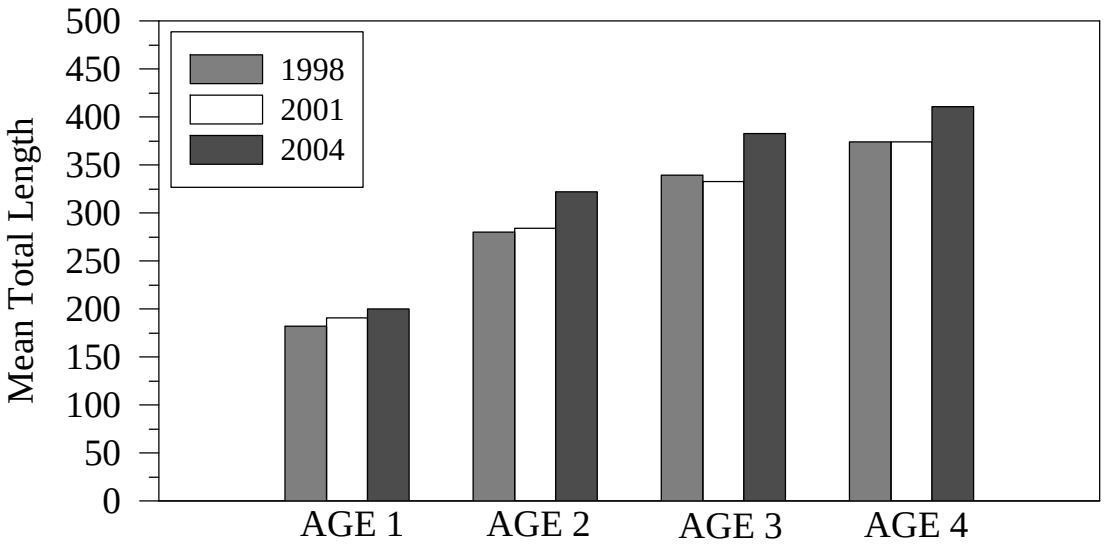

Figure 9. Mean Total Length at age for largemouth bass collected by spring electrofishing from Martin Reservoir, 1998-2004.

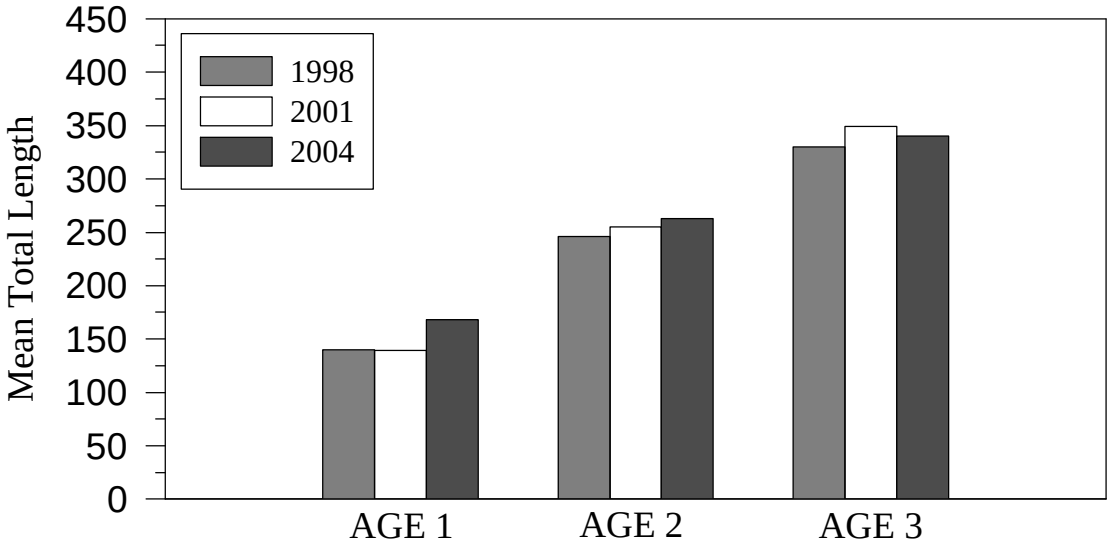

Figure 10. Mean Total Length at age for spotted bass collected by spring electrofishing from Martin Reservoir, 1998-2004.

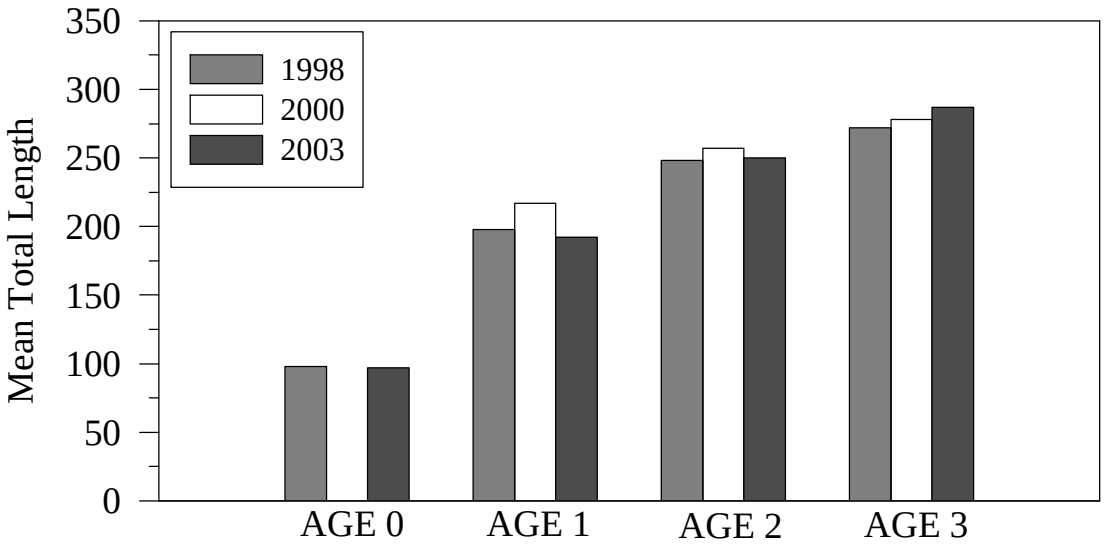

Figure 11. Mean Total Length at age for black crappie collected by fall trap netting from Martin Reservoir, 1998-2003.

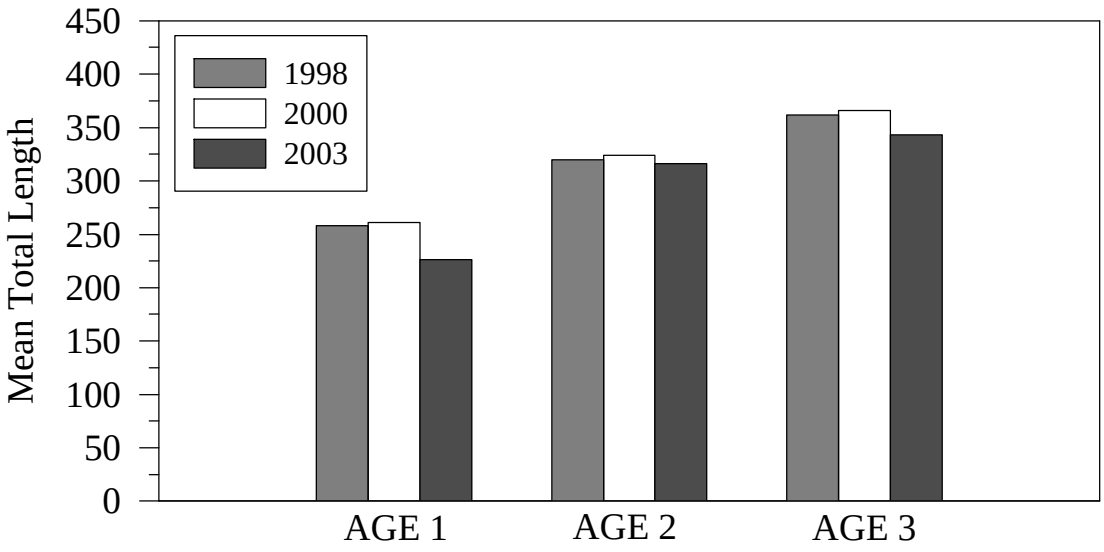

Figure 12. Mean Total Length at age for white bass collected by fall trap netting from Martin Reservoir, 1998-2003.

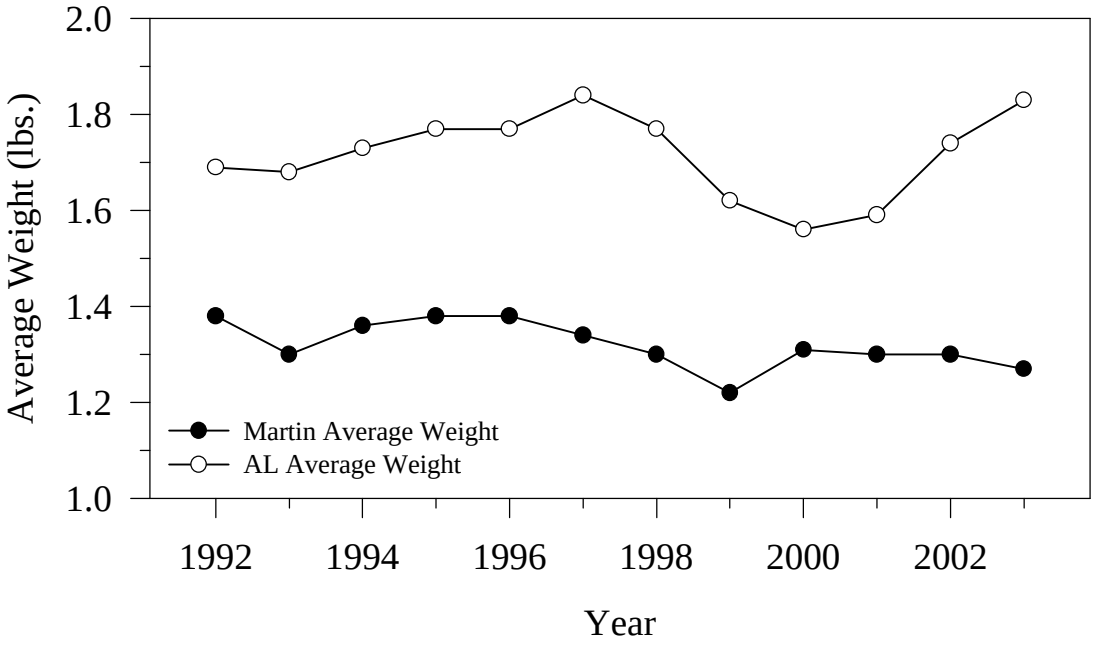

Figure 13. Average weight (lbs.) of bass from Martin Reservoir compared to Alabama reservoir averages caught during B.A.I.T. reporting tournaments since 1992.

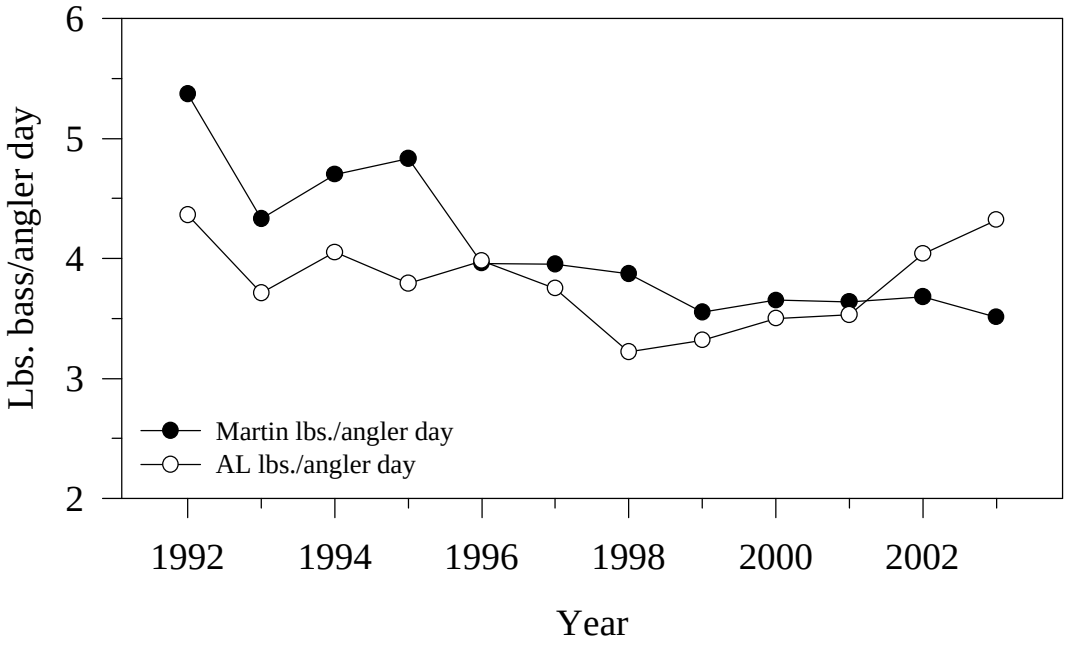

Figure 14. Total weight (lbs.) of bass caught per angler day from Martin Reservoir compared to Alabama reservoir averages during B.A.I.T. reporting tournaments since 1992.

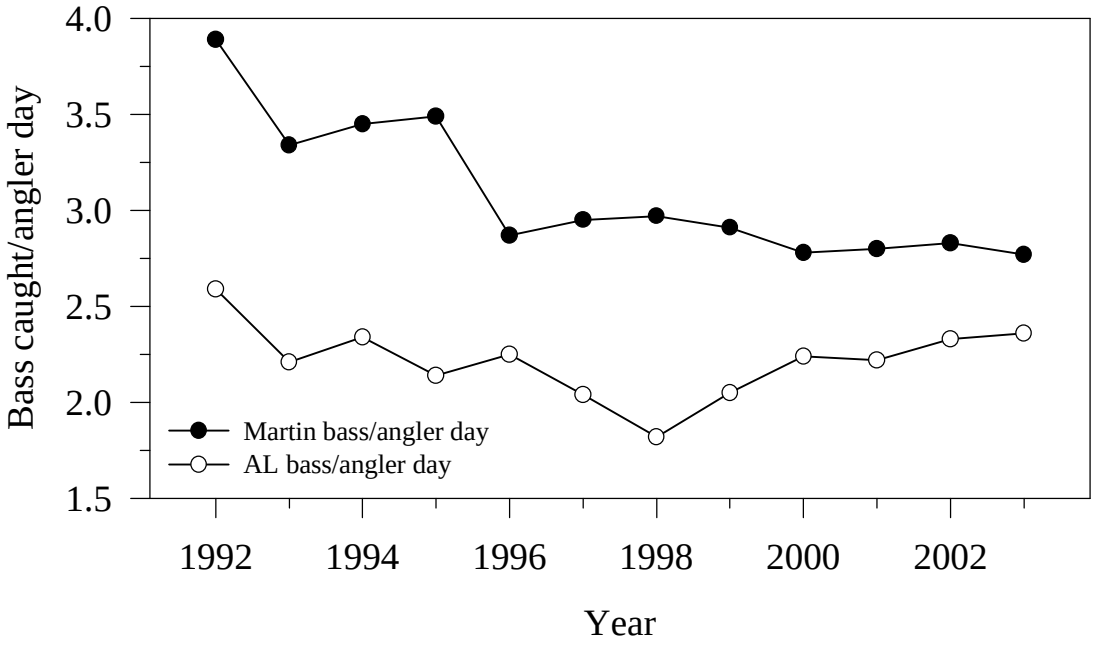

Figure 15. Number of bass caught per angler day from Martin Reservoir compared to Alabama reservoir averages during B.A.I.T. reporting tournaments since 1992.

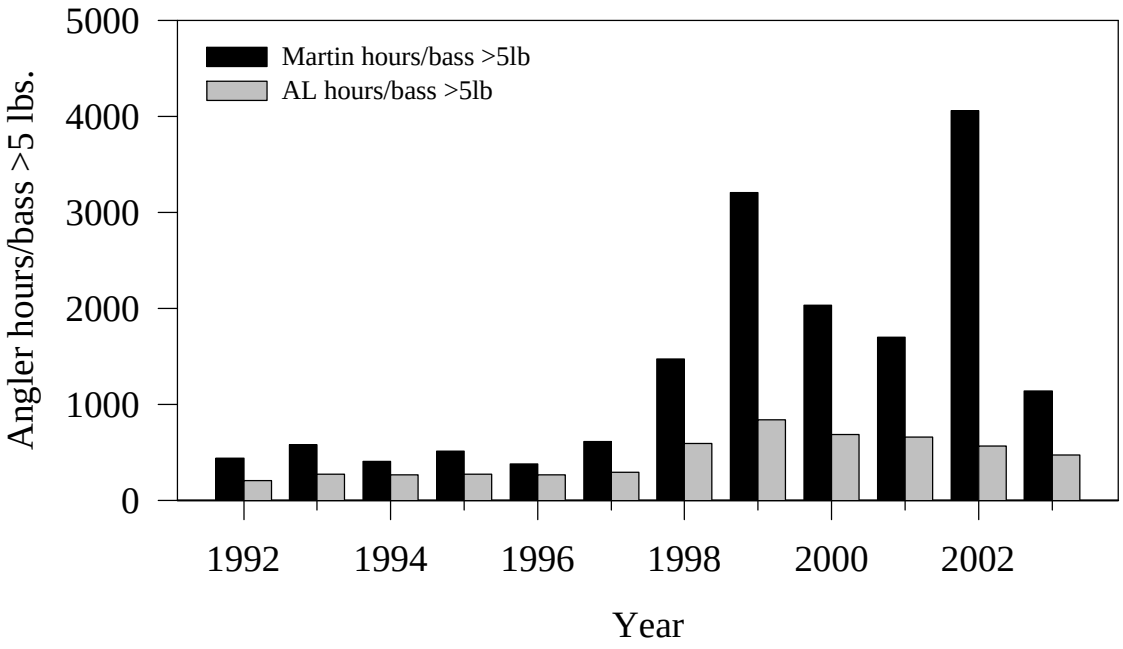

Figure 16. Number of angler hours spent to catch a bass > 5lbs. from Martin Reservoir compared to Alabama reservoir averages during B.A.I.T. reporting tournaments since 1992.

Figure 17. Individual CPUE for largemouth bass and spotted bass expressed as a percentage of the total black bass CPUE for Martin Reservoir, 1990-2004.

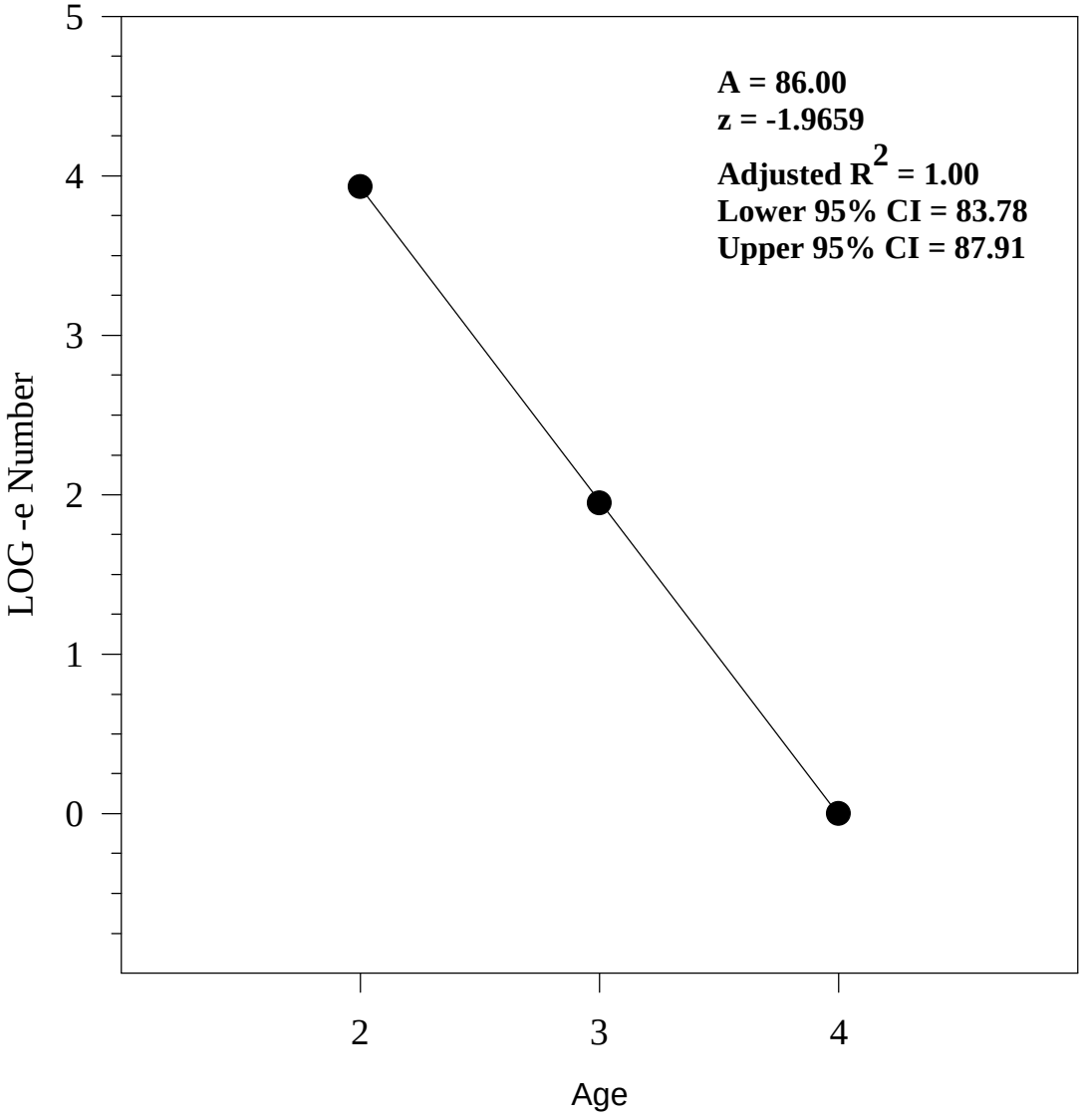

Figure 18. Total annual mortality regression for black crappie (ages 2-4) collected from Martin Reservoir, fall 2003.

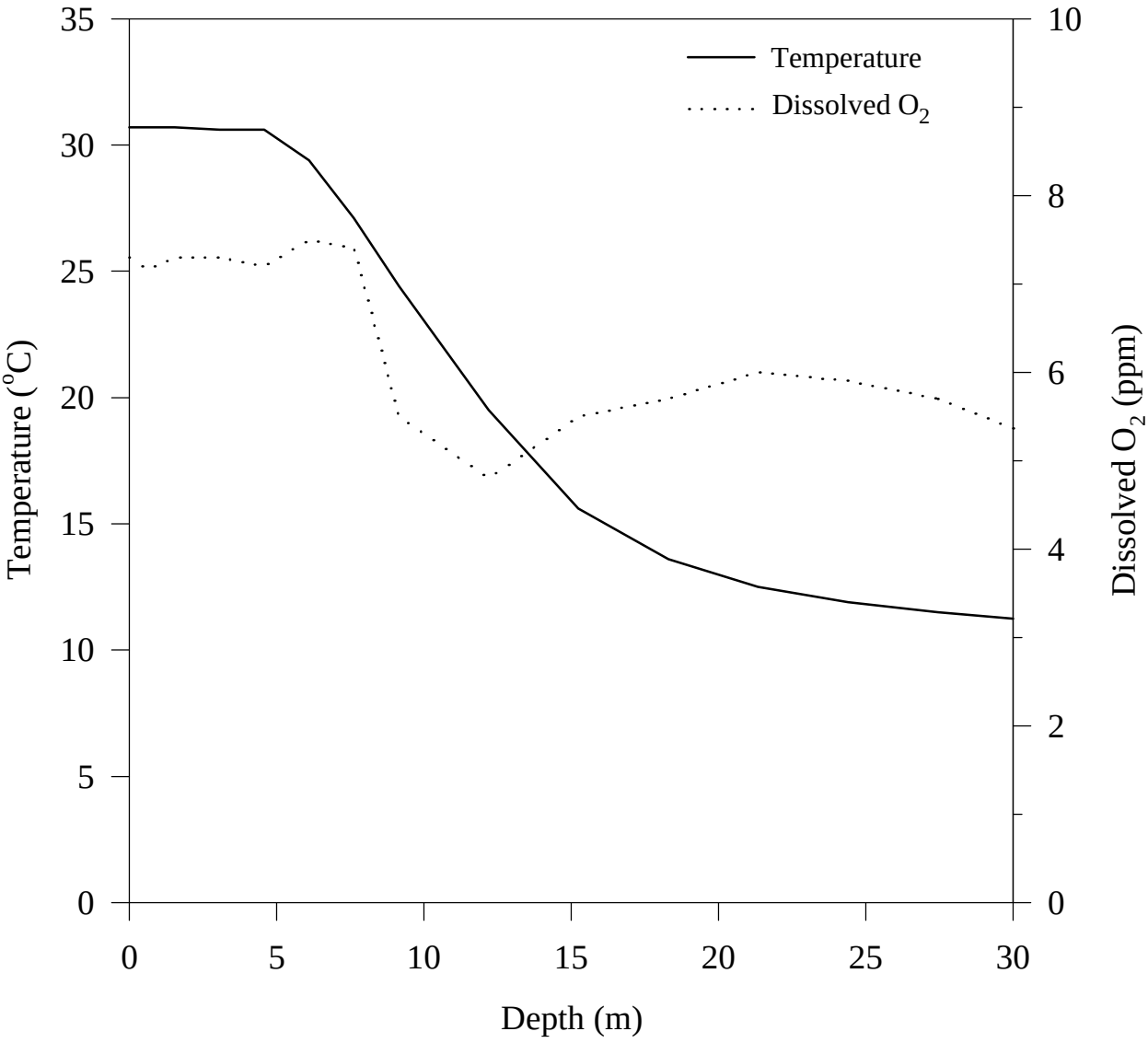

Figure 19. Temperature and dissolved oxygen profiles in Martin Reservoir forebay, July 14, 2004. Profiles taken by Alabama Power Company personnel.

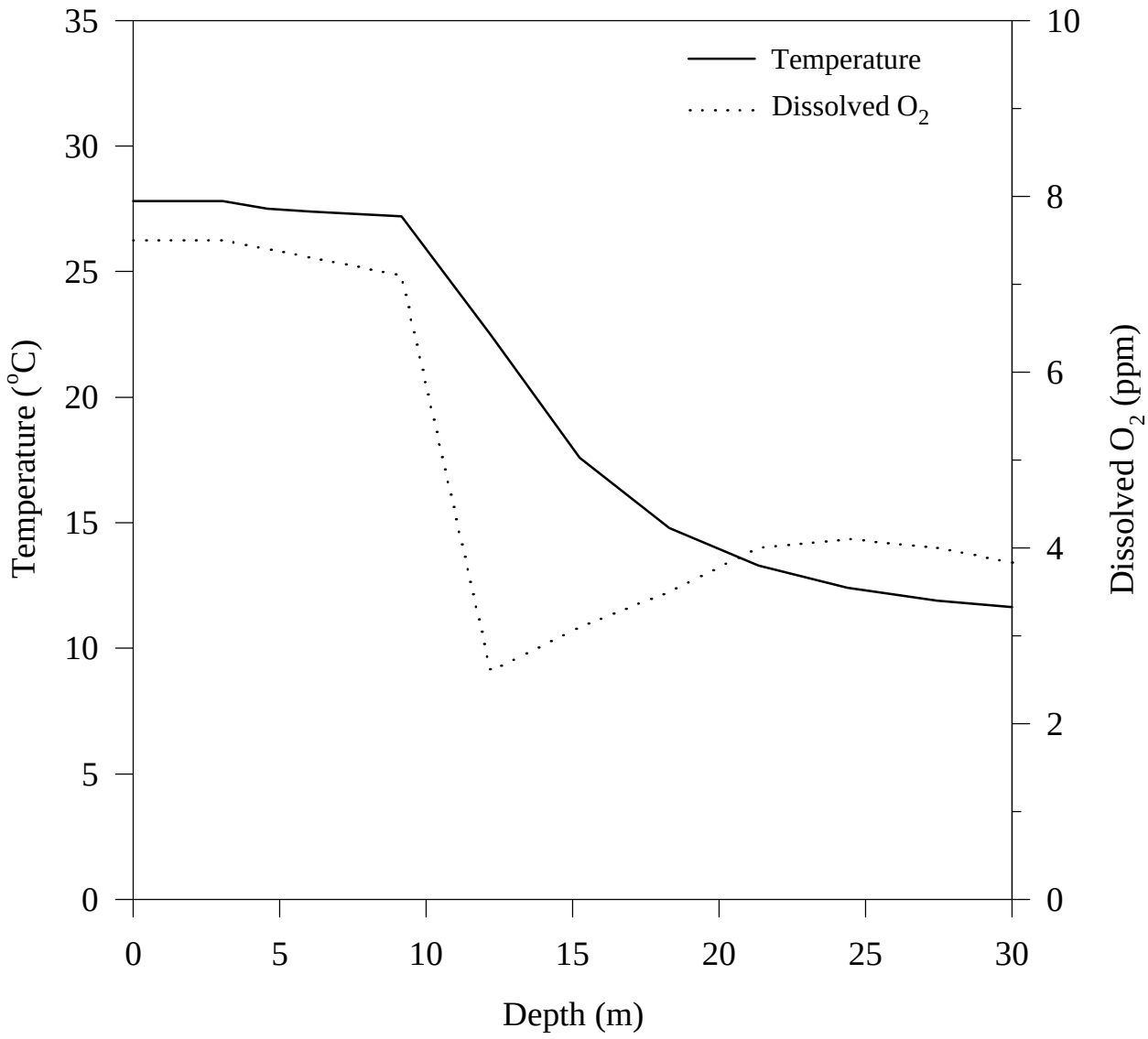

Figure 20. Temperature and dissolved oxygen profiles in Martin Reservoir forebay, August 16, 2004. Profiles taken by Alabama Power Company personnel.

General Reconnaissance Survey Form

1. Reservoir: Martin

2. Number of free public access areas: 13

3. Number of user fee access areas: 17

4. Free public access areas not shown on Division of Wildlife and Freshwater Fisheries Public Access Areas Map. None

5. Wildlife and Freshwater Fisheries Access Areas needing repair. None

6. List possible locations of additional access areas. None

7. Tailwater access.
   (a) Is there suitable access for bank and boat anglers? Yes

   (b) Are parking facilities adequate? Yes

   (c) Fishing pier present? No

   (d) Is there a need for a tailwater fishing pier? Yes

8. Summarize your observations of the tailwater fishery to include species caught, angler success, and attitudes. The area is popular with local anglers during the spring striped bass and white bass runs. Other species are caught in lesser numbers.

9. Are fish shelters needed? Yes
   Alabama Power Company, with the assistance of Wildlife and Freshwater Fisheries personnel, typically place fish reefs in Lake Martin each year.

10. Identify Public Relations problems or desires concerning the fishery that needs attention. Many black bass and crappie anglers are convinced that striped bass consume game fish and thus are opposed to continued stockings.

11. Identify areas of nuisance aquatic weeds and new exotic weeds that were observed during sampling operations. Water hyacinths were observed in the Wind Creek area of the lake. Alabama Power Company was notified and later treated this area with herbicide. A few plants were found after the treatment and were manually removed.

12. Is shoreline access development (non-tailwater) needed on this reservoir? No

13. Describe the presence of any commercial fisheries. Slat box and trotline fishery for catfish

Alabama Reservoir Fact Sheet

Date: November 1, 2004

Reservoir: Martin Area (Acres): 39,180

Location: Coosa, Tallapoosa, and Elmore Counties, south of Alexander City

Year Impounded: 1926 Operator: Alabama Power Company

Primary Uses: Power generation and recreation

Notable Characteristics of Fishery: Known for its large striped bass fishery; however, largemouth bass, spotted bass, and crappie are also targeted.

Other Recreational Opportunities: Camping, sightseeing, and pleasure boating

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Major Sport Fisheries

Species	Status
1. Spotted Bass	Excellent abundance of all sizes with good growth; however, condition is average to poor.
2. Largemouth Bass	Excellent abundance of smaller fish and good growth rates of all sizes.
3. Striped Bass	Excellent abundance of fish up to 5 pounds with moderate amounts of larger specimens.
4. Crappie	Good abundance of fish up to 10 inches. Larger individuals somewhat scarce due to high mortality.

Comments: Sportfish are abundant at smaller sizes exhibiting excellent growth however, average weight is low due to infertility.

Habitat Status and Improvements: Fish habitat in the form of Christmas trees are added to the lake each year in a program sponsored by Alabama Power Company.

Predictions for Fishery: A continued high abundance of sport fish with low average weights. Striped bass abundance should remain stable due to continued annual stockings.

For More Information Contact: Alabama Power Company (205) 250-2419 or Alabama Wildlife and Freshwater Fisheries (334) 358-0035.