

# **CLAIBORNE RESERVOIR SPOTTED BASS MANAGEMENT REPORT**

**Fall 2008**

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February 1, 2009

## **Introduction**

Claiborne Reservoir is a 5,930-acre reservoir on the Alabama River, impounded by the U.S. Army Corps of Engineers in 1970 (Table 1). Management objectives for the fisheries resources of Claiborne Reservoir are centered on maintaining and enhancing the sport fishery and restoring an alligator gar population in the lake. Claiborne Reservoir has been sampled according to the reservoir management program protocol since 1987 (Cook 1999). Results of previous efforts, including a detailed description of the physical and biological characteristics, are summarized by Ricks et. al. (2008). The most recent management activities described herein include standardized sampling with electrofishing gear as well as stocking of striped bass and alligator gar (Table 2).

## **Methods**

On October 28, 29, and November 11, 2008, sampling was conducted to collect spotted bass. Thirteen 30-minute transects (10 nighttime transects and 3 daytime transects) were conducted for a total effort of 6.5 hours. Transects were selected based on the most suitable habitat for spotted bass. All sites selected were on the mainstem river and are indicated by river mile in Table 8. Total length (mm) and weight (g) were recorded for all spotted bass collected. For age determination, otoliths were removed and preserved. All otoliths were read independently by two readers using a dissecting microscope. Any discrepancies in age of the otoliths were reconciled during a third read in concert between the two readers.

## **Results**

Electrofishing produced a sample of 328 spotted bass, 296 of which were stock-length or longer (Table 3). Four age classes from age-0 to age-3 were collected (Tables 4 and 5; Figure 2).

Mean relative weights of spotted bass ranged from 93 to 114 (Table 3). Relative stock density analysis of the sample indicated that stock- and quality-length spotted bass were the most abundant size groups, representing 87% of the sample, while preferred- and memorable-length fish comprised 13% and 1% (Figure 1). The substock ratio was 11% (Table 3). Spotted bass catch rates were highest at stock- (31.0 fish/hour) and quality-length (19.9 fish/hour) and lowest at memorable-length (0.4 fish/hour). Spotted bass catch rates of preferred- and substock-length were similar at 7.6 fish/hour and 6.4 fish/hour (Table 3). Spotted bass catch rates overall were highest immediately below Millers Ferry Dam (280.0 fish/hour) and similar among the upper and lower reservoir regions (39.8 fish/hour and 42.8 fish/hour; Tables 6 and 7). Age analyses indicated that fish age-0 to age-3 were present in the sample; however, no older fish were collected (Tables 4 and 5; Figure 2). Catch curve regression analysis was not performed to determine mortality and survival since there were insufficient age classes present in the sample.

## **Discussion**

Relatively high catch rates, especially in the Millers Ferry Reservoir tailrace, and good condition of spotted bass indicate that the population is healthy and productive. With high numbers of stock- and quality-length fish in the population, fishing should remain consistent or improve in the coming years. It appears that larger (older) spotted bass were not collected in proportion to their abundance in our sample. In the spring 2008 creel survey, the range of angler-caught spotted bass was 75 mm longer than in our sample in the fall of 2008 (Figure 2 and 3). This suggests that larger spotted bass are in the population in relatively high abundances. However; many of the large spotted bass are not vulnerable to electrofishing gear because they

are found at greater depths than electrofishing can typically sample. This is a typical problem for spotted bass populations.

### **Management Recommendations**

There are no recommended changes in management of spotted bass at this time. We recommend that spotted bass data be collected in future samples to expand on the baseline data in this report.

Spring sampling may allow the collection of older aged fish.

### **Literature Cited**

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- Ricks, B. R., D. L. Armstrong, and J. Thomas. 2008. Claiborne Reservoir Management Report 2008. Alabama Department of Conservation and Natural Resources, Montgomery.
- Welch, P. S. 1948. Limnological Methods. McGraw-Hill. pp. 93-94.

**APPENDIX A**

**TABLES AND FIGURES**

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

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Surface area	5,930	acres
Drainage area	21,473	sq. mi. (Psinakis et al. 2005)
Full pool elevation	35	feet-msl
Mean annual fluctuation	3	feet
Shoreline distance	204	miles
Shoreline development index	18.9	(Welch 1948)
Mean depth	16.25	feet
Maximum depth	40	feet
Outlet depth	20	feet
Annual mean discharge	32,280	cfs (Psinakis et al. 2005)
Total suspended solids	16.9-17.9	mg/L (ADEM, 2003)
Chlorophyll a	5.85-7.99	ug/L (ADEM, 2003)
Growing season	230 - 245	frost free days (Jenkins 1967)
Year of impoundment	1970	

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TABLE 2. FISH STOCKING IN CALIBORNE RESERVOIR 2000-2008.

Species	Year	No/Ac	Size (in)	Total
Alligator Gar	2008	0.007	6 - 12	158
Hybrid striped bass	2000	2	1 - 3	12,062
	2001	2	1 - 3	12,000
	2002	2	1 - 3	14,560
	2003	2	1 - 3	12,000
	2004	2	1 - 2	12,096
	2006	1	1 - 3	6,000
Striped bass (Atlantic)	2001	2	1 - 3	12,000
Striped bass (Gulf)	2003	2	1 - 3	12,000
	2004	2	1 - 3	12,000
	2005	2	1 - 3	12,000
	2006	2	1 - 3	12,000
	2007	3	1 - 3	18,240
	2008	3	1 - 3	18,000

TABLE 3. RELATIVE STOCK DENSITY, CATCH-PER-UNIT EFFORT, AND RELATIVE WEIGHT OF SPOTTED BASS IN CLAIBORNE RESERVOIR COLLECTED DURING FALL, 2008. LARGEMOUTH BASS COLLECTED DURING SPRING 1987 - 2008 ARE SHOWN FOR COMPARISON. TROPHY RSD SIZE CLASS IS NOT SHOWN AS FISH WITHIN THIS GROUP HAVE NOT BEEN COLLECTED.

Species	Year	Season	Gear	Effort (hrs)	TOTAL NUMBER, CPE, PERCENT OF SAMPLE AND Wr												TOTAL								
					SUBSTOCK		RSD-S		RSD-Q		RSD-P		RSD-M		SUB - M										
	no.	cpe	ssr**	no.	cpe	pct.	Wr	no.	cpe	pct.	Wr	no.	cpe	pct.	Wr	no.	cpe								
Spotted bass	2008	Fall	Elec	5.03**	32	6.4	11	156	31.0	53	93	100	19.9	34	100	38	7.6	13	103	2	0.4	1	114	328	65
Largemouth bass	1987	Spring	Elec	6.49	14	2.2	14	20	3.1	20	.	42	6.5	42	.	31	4.8	31	.	6	0.9	6	.	113	18
Largemouth bass	1992	Spring	Elec	.	14	.	14	36	.	35	88	37	.	36	89	24	.	24	87	5	.	5	84	116	.
Largemouth bass	2005	Spring	Elec	2.58	40	15.5	35	58	22.5	50	88	35	13.6	30	87	19	7.4	17	88	3	1.2	3	86	155	60.1
Largemouth bass	2008	Spring	Elec	5.01	39	7.8	13	132	26.3	44	96	129	25.7	43	96	36	7.2	12	95	4	0.8	1	90	340	67.9
<b>AVG</b>		<b>Spring</b>	<b>Elec</b>	.	.	<b>8.5</b>	<b>19</b>	.	<b>17.3</b>	<b>37</b>	<b>91</b>	.	<b>15.3</b>	<b>38</b>	<b>91</b>	.	<b>6.5</b>	<b>21</b>	<b>90</b>	.	<b>1.0</b>	<b>4</b>	<b>87</b>	.	<b>48.5</b>

\* ssr is Substock Ratio, the number of substock fish per 100 fish stock size and larger.

\*\* Only night samples were used for RDS and cpe analysis

TABLE 4. AGE COMPOSITION AND MEAN LENGTH OF SPOTTED BASS FROM  
CLAIBORNE RESERVOIR, FALL, 2008

Age	Year Class	Number	Percent	CPE	Mean TL	SE	TL range
0	2008	27	8.2	5.4	131.1	4.3	104 - 186
1	2007	258	78.7	51.3	259.8	2.6	167 - 342
2	2006	37	11.3	7.4	384.2	4.3	325 - 439
3	2005	6	1.8	1.2	417.0	10.3	371 - 445
Total		328	100.0	65.2			

TABLE 5. LENGTH-AT-AGE FREQUENCY OF SPOTTED BASS FROM  
 CLAIBORNE RESERVOIR, FALL, 2008.

Length (mm)	Age - 0	Age - 1	Age - 2	Age - 3	Total
100	4.3				4.3
125	2.4				2.4
150	0.9	0.9			1.8
175	0.6	7.0			7.6
200		11.3			11.3
225		10.4			10.4
250		15.9			15.9
275		18.9			18.9
300		11.9			11.9
325		2.4	0.9		3.4
350			2.7	0.3	3.0
375			4.0		4.0
400			3.4	0.6	4.0
425			0.3	0.9	1.2
Total	8.2	78.7	11.3	1.8	100.0

TABLE 6. SAMPLE AREA STATISTICS FOR SPOTTED BASS COLLECTED  
FROM CLAIBORNE LAKE, FALL, 2008.

Reservoir Area	River mile range	N, Sites	N, Fish	Percent of sample	Effort x Area	CPE x Area
Tailwater	132	1	140	43.0	0.50	280.0
Upper	114 - 127.5	4	80	24.0	2.01	39.8
Lower	76 - 103	5	108	33.0	2.52	42.8
Total	76 - 132		328	100.0	5.03	

Table 7. Age composition and mean length of spotted bass from upper and lower areas of Claiborne Lake, Fall, 2008. Effort was 2.51 and 2.52 hours in the upper and lower areas, respectively.

Area	Annulus	Year		Number	Percent	CPE	Mean Length (mm)	Standard Error	Length Range (mm)
		Class	Year						
Upper (including tailwater)	0	2008	2008	15	7	6.0	138.0	6.3	106 - 186
	1	2007	2007	173	79	68.9	263.8	3.0	170 - 342
	2	2006	2006	27	12	10.8	389.6	3.7	350 - 420
	3	2005	2005	5	2	2.0	411.4	10.6	371 - 429
subtotal				220	100	87.7			
Lower	0	2008	2008	12	11	4.8	122.2	4.5	104 - 161
	1	2007	2007	85	79	33.7	251.6	4.9	167 - 330
	2	2006	2006	10	9	4.0	369.7	11.3	325 - 439
	3	2005	2005	1	1	0.4	445.0		445
subtotal				108	100	42.9			

TABLE 8. CLAIBORNE RESERVOIR SAMPLING SITE DESCRIPTIONS FOR FALL, 2008.\*

Site #	Site Area	Description	River Mile	Bank side	catch	effort (sec)	effort (hrs)	CPH	date	Day/Night
1	Upper	Mainstem River	127.5	E	25	1803	0.501	49.9	10/28/2008	Night
2	Upper	Millers Ferry Dam "tailwater"	132.0	E	140	1806	0.502	279.1	10/28/2008	Night
3	Upper	Mainstem River	122.0	W	15	1815	0.504	29.8	10/28/2008	Night
4	Upper	Mainstem River	116.5	W	19	1805	0.501	37.9	10/28/2008	Night
5	Upper	Mainstem River	114.0	W	21	1807	0.502	41.8	10/28/2008	Night
6	Lower	Bluff South of Silver Creek	76.0	W	41	1805	0.501	81.8	11/11/2008	Night
7	Lower	Mainstem River	103.0	W	18	1816	0.504	35.7	11/11/2008	Night
8	Lower	Mainstem River	97.5	W	14	1814	0.504	27.8	11/11/2008	Night
9	Lower	Mainstem River	94.5	W	23	1805	0.501	45.9	11/11/2008	Night
10	Lower	Bluff South of Tallatchee Creek	90.5	E	12	1817	0.505	23.8	11/11/2008	Night
11	Lower	Claiborne Dam Forbay	72.5	E	0	1802	0.501	0.0	10/29/2008	Day
6	Lower	Bluff South of Silver Creek	76.0	W	12	1802	0.501	24.0	10/29/2008	Day
10	Lower	Bluff South of Tallatchee Creek	90.5	E	3	1839	0.511	5.9	10/29/2008	Day

\*The table above is included in lieu of a site map because of the lack of resolution due to sampling such a long stretch of the Alabama River.

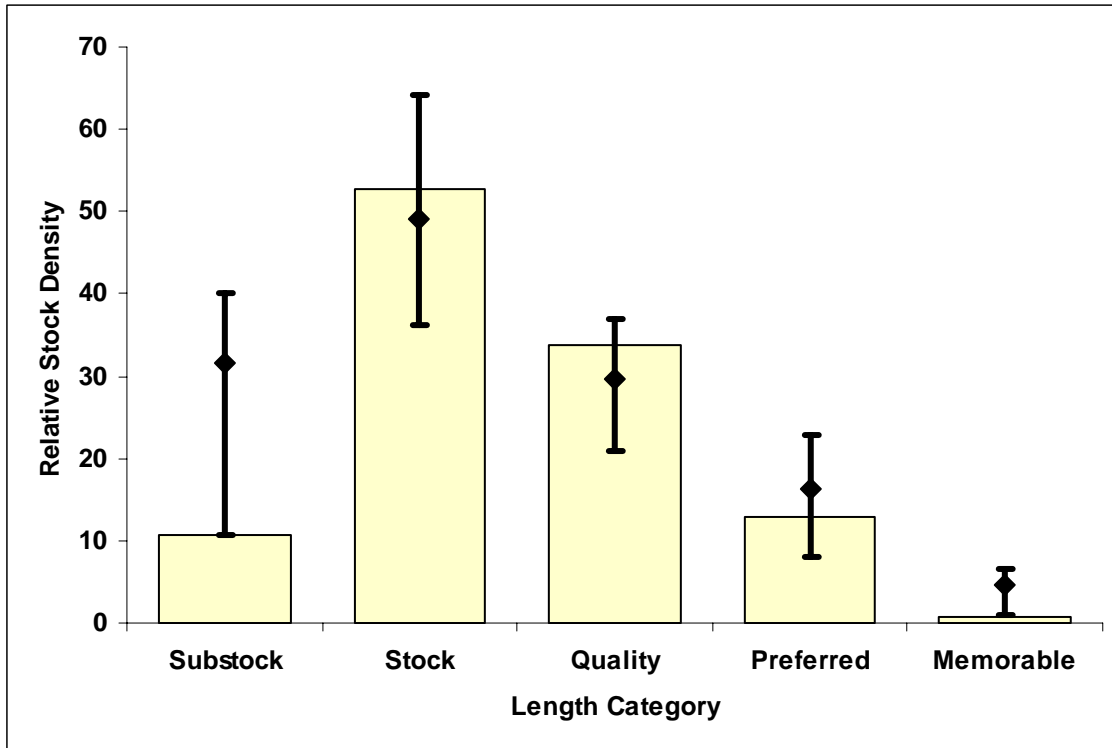


FIGURE 1. RELATIVE STOCK DENSITY (RSD) OF SPOTTED BASS COLLECTED FROM CLAIBORNE LAKE DURING FALL, 2008. ERROR BARS REPRESENT 25<sup>TH</sup> AND 75<sup>TH</sup> PERCENTILE RANGES DEVELOPED FOR RSD GROUPS ON SPOTTED BASS, STATEWIDE.

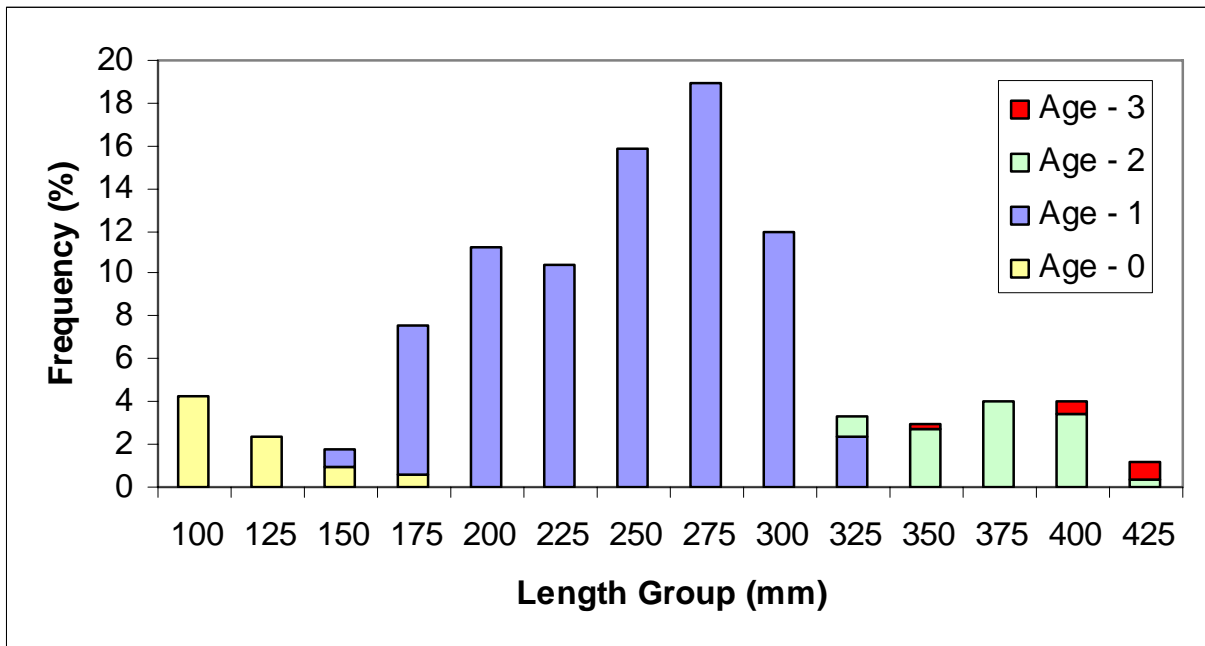


FIGURE 2. LENGTH-AT-AGE FREQUENCY OF SPOTTED BASS FROM CLAIBORNE RESERVOIR, FALL, 2008.

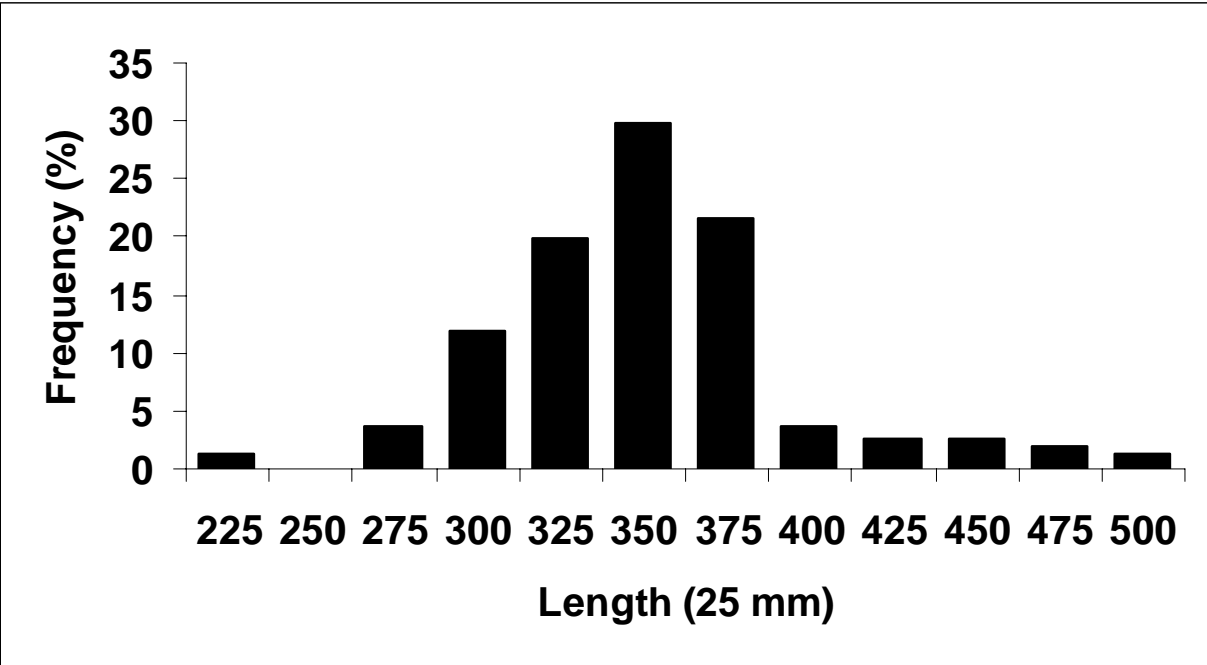


FIGURE 3. LENGTH FREQUENCY OF SPOTTED BASS FROM CLAIBORNE RESERVOIR ACCESS CREEL SURVEY, MARCH THROUGH MAY, 2008 (N = 161; MEAN TL = 362; 95% OF SAMPLE > 300 mm).