SURVEY REPORT

OKLAHOMA DEPARTMENT OF WILDLIFE CONSERVATION

FISH MANAGEMENT SURVEY AND RECOMMENDATIONS

FOR

Crooked Branch LAKE

2024

SURVEY REPORT

State: Oklahoma

Project Title: Crooked Branch Lake Fish Management Survey Report

Period Covered: 2024

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Crooked Branch

ABSTRACT

Crooked Branch provides good bass fishing but should be managed for its pan fish opportunities. This will require the bass to be more or less stunted to allow the panfish to quickly grow to harvestable size. The reservoir seems to do this well naturally and still produces good bass in infrequent numbers.

INTRODUCTION

Crooked Branch Reservoir is a very small reservoir on the Ouachita National Forest owned and operated by the United States Forest Service. The reservoir is full of standing timber and very shallow except at the dam. Max depth may only be 2.5 meters and average depth is likely 1 meter. There is a primitive boat ramp providing access as well as good shoreline access on the North side of the reservoir. The primary fish populations consist of Largemouth Bass, which can get quite large, Bluegill and Redear Sunfish. The Bluegill and Redear are of greater size and are often targeted by the few people who know the water body exists. Care should be taken to conserve this panfish resource as it provides excellent pan fishing but could easily be overfished.

RESULTS

Largemouth Bass

Crooked Branch was sampled for the first time in modern history in 2024 for Largemouth Bass. Catch rates were good in this historic first sample and resulted in a Catch Per Unit Effort (CPUE) of 94 (Table 1). This is considered high for its size. Most bass sampled were between 260 and 280 mm (figure 1). Most of the bass were of sub-stock and stock size which are not pursued by anglers(Table 2). While historically large fish have been observed no fish larger than preferred size were collected. Largemouth Bass PSD was very low at 24 (table 3). This would be considered unsatisfactory for a Largemouth Bass fishery. Similarly, the Relative Weight (wr) of bass was low, likely pointing to a foraging base issue (table 4). The age frequency histogram shows a steep drop in number of fish older than 3 years old (figure 2). Mean length at age was low for fish below 4 years old but improved at age 5, again pointing to a competition issue (table 5). This issues is further illustrated by low average weight at age (table 6). Von Bertalanffy maximum length estimate was 680 mm (table 7). Mortality estimates were on the upper end of normal for most regional water bodies at an annual rate of 33.66% (table 8).

Recommendations

1. Management goals should be established to maintain the current bass population. Based on previous observations, the reservoir produces very nice bass from time to time naturally which can provide a novel catch while still providing great pan fishing.
2. While not sampled the lake should be managed for its great pan fishing. This requires infrequent sampling and high numbers of small bass which the reservoir seems to do naturally.

Table 1: Largemouth Bass Catch Per Unit Effort (CPUE) by year.

Total CPUE	2024
Mean	94
Count	3
SE	34.7
L 95% CI	25.99
U 95% CI	162.01

Table 2: Largemouth Bass CPUE across size classes by year.

CPUE Size	2024	
	Mean	SE
Substock	20	12.17
Stock	56	12.17
Quality	14	8.72
Preferred	4	2
Memorable	.	.
Trophy	.	.

Table 3: Largemouth Bass Proportional Stock Density by year.

PSD	2024
PSD	24
PSD-P	5
PSD-M	.
PSD-T	.
PSD S-Q	76
PSD Q-P	19
PSD P-M	5
PSD M-T	.

Table 4: Largemouth Bass Relative weight with standard errors by year.

Wr	2024	
	Mean	SE
Substock	88.52	1.08
Stock	81.52	1.74
Quality	72.94	2.3
Preferred	82.18	6.44
Memorable	.	.
Trophy	.	.
Total	84.86	1.35

Table 5: Largemouth Bass Mean length at age with standard errors.

Mean Length at Age	2024	
	Mean	SE
1	162.29	4.07
2	244.8	11.59
3	267.8	6.33
4	292.83	21.82
5	364.33	15.45
6	.	.
7	.	.
8	499	.
9	.	.
10	.	.

Table 6: Largemouth Bass Mean weight at age with standard errors.

Mean Weight at Age	2024	
	Mean	SE
1	72.67	24.15
2	175.33	22.21
3	211.6	14.05
4	246.4	54.34
5	613	89
6	.	.
7	.	.
8	1780	.
9	.	.
10	.	.

Table 7: Largemouth Bass Von Bertalanffy growth metrics.

Von Bert	2024
L inf	680.58
K	0.109
t0	-1.84

Table 8: Largemouth Bass mortality estimates.

Mortality Table	2024
Instantaneous	0.41
Annualized	33.66

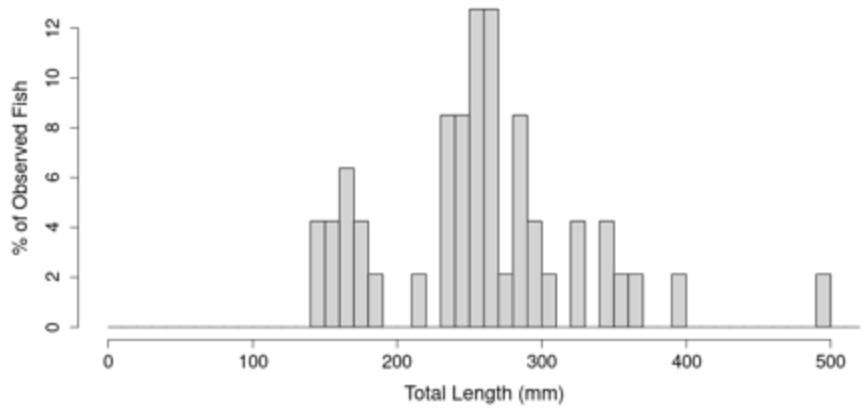

Figure 1: Largemouth Bass length frequency histogram.

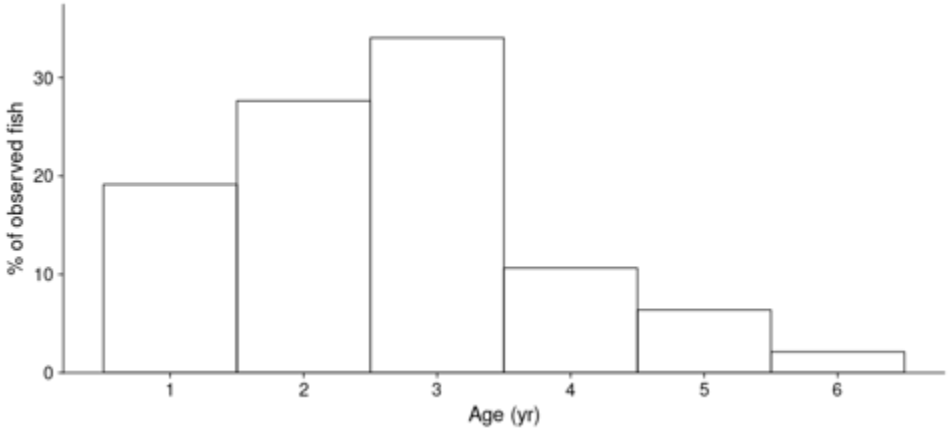

Figure 2: Largemouth Bass age frequency histogram.