

MANAGEMENT IMPLICATIONS OF BASS FISHING TOURNAMENTS

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ABSTRACT

This study was designed to assess the harvest of a bass fishing tournament and its effect on the bass population of a lake. The data evaluated here are taken from a total of 2254 largemouth bass weighing an estimated 4419.5 pounds harvested during a three day (29-31 March, 1972) bass fishing tournament held at Lake Lanier, Georgia, a 38,000 acre reservoir. Of the 794 bass sexed by excising gonads, 504 (63.5%) were females. The largest male measured 19.1 inches (3 lb., 11 oz.) while the longest female was 23.8 inches (7 lb., 4 oz.). Catch rates for the tournament were 0.25 fish per hour and 0.49 pounds per hour. Average bass weight was 1.9 pounds.

Total harvest per acre during the tournament was estimated at 0.12 pounds. Cove rotenone samples from 1961-67 indicate bass standing crops from 4.22-11.25 pounds per acre in Lake Lanier. Estimated yearly bass harvest (numbers) from four years of creel censusing (1962, 1965-67) ranges from 17,834 to 30,778. Catch rates computed from creel censuses indicated a range of 0.060-0.220 bass per hour. Ideas on the use of fishing tournament data in fisheries management are also presented.

INTRODUCTION

Fishing "tournaments" have become increasingly popular in recent years, particularly in the southeastern U. S. Private individuals, in conjunction with civic organizations and local angling groups, usually promote the tournaments. In the larger tournaments entry fees are charged and cash prizes are awarded. The largest prizes usually are given for the greatest total weight of fish caught in a certain time period. Prizes may also be given for the largest individual fish caught. Usually the "target" species is the largemouth bass, although other species sometimes qualify.

Because the contest winners are usually those fishermen who catch largest total poundage of fish, a number of sportsmen, popular fishing writers (e.g. Holder, 1972) and fishery scientists have expressed concern over the possible damage to populations of bass in the lakes where tournaments are held. The critics of fishing contests argue that tournament fishermen may be able to catch bass at rates which could amount to "overfishing."

Assessing the effects of the tournament harvest is difficult since fishing contests are usually held on large reservoirs and because largemouth bass population size in a lake is difficult to estimate. In this paper we have presented the results of a fishing tournament held at Lake Lanier, Georgia, on 29-31 March, 1972. We have also compiled some background data on cove rotenone samples and creel censuses. These data are used for comparisons with the tournament harvest results. We have also presented a number of ideas on the use of data collected during the tournaments and, in general, the use of fishing

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tournaments as management "tools." In this study we received excellent cooperation from Joe Kennedy and Project Sports Inc., the tournament sponsors.

MATERIALS AND METHODS

A three-day fishing tournament was held at Lake Lanier from March 29-31, 1972. This 38,000-acre reservoir is located approximately 50 miles northeast of Atlanta, Georgia. Rules and regulations governing the tournament included the following: a twelve-inch minimum size limit, a fifteen-fish creel limit, and artificial baits and lures only. Tournament rules also dictate a starting and finishing time for each day of fishing. The fishing pressure for the first two days (March 29-31) amounted to 10 hours each day. On the last day of the contest a number of contestants quit fishing during the day. Therefore, the March 31 fishing pressure was estimated as 230 fishermen fishing for nine hours each.

Most of the fish caught during the tournament were available for analysis. We were unable to examine a small number of the largest fish. Live fish were placed in hatchery trucks, counted, and returned to the reservoir. No evidence of mortality following return to the lake was seen. All dead fish were weighed and measured. A large number were sexed by inspection of excised gonads.

The Georgia Game and Fish Commission conducted periodic cove rotenone samples and creel censuses on Lake Lanier during the years 1961-67. These data were compiled and tabulated to give estimates of bass standing crops and harvest.

RESULTS

The total harvest of 2,254 bass was estimated to weigh 4,419.6 pounds (Table 1). Nearly 44 percent of these bass (980) weighing approximately 1,951 pounds were returned live to the reservoir. The total fishing pressure was estimated as 8,950 hours. The harvest for the entire contest was 0.12 pounds per acre. The average weight of bass was 1.9 pounds.

The number of contestants decreased each day (Table 1). The catch rate, however, in terms of numbers and weight per hour, increased. This is probably due to unsuccessful fishermen dropping out of the tournament. The average catch rate for the entire tournament was 0.49 pounds of bass per hour of fishing. The contest winner caught 61.25 pounds of fish in 3 days (29 hours). The largest bass caught during the tournament was 10.0 pounds.

A summary of cove rotenone samples and creel census results from the years 1961-1967 is shown in Table 2. The 1963 creel data indicate a higher catch rate than the 1965-67 data and may represent the "good" fishing associated with a new reservoir, since Lake Lanier was impounded in 1959. The tournament catch rate (numbers/hour) was higher than the catch rates found during the creel censuses. The tournament fish were probably larger since the State of Georgia had no minimum size limit on bass during the creel census period. Excluding the 1963 data, the tournament harvest represents 10.8-13.8 percent of the yearly harvest of bass from Lake Lanier as estimated by creel censuses.

A total of 794 bass were sexed by excising gonads. Of this total 290 (36.5%) were males. A chi-square test indicated that the sex ratio was significantly different from 1:1. This may indicate that the true population sex ratio is not 1:1 or that the sexes were segregated in the lake and differentially caught. The size range of the males was 11.6-19.1 inches and 0.9-3.7 pounds. Size range of the female was 11.5-23.8 inches and 0.8-8.1 pounds.

Table 1. Bass fishing tournament results from Lake Lanier, Georgia, March 29-31, 1972

	Date			
	3-29	3-30	3-31	Total
Number of fisherman	366	322	230	--
Total hours fished	3660	3220	2070*	8950
Average hours/fisherman	10	10	9*	--
Total number of fish caught	838	838	578	2254
1. Number returned	222	431	327	980
Percent returned	26.5%	51.4%	56.7%	43.4%
2. Number removed	616	407	251	1274
Estimated total weight of fish	1608.6	1635.7	1175.3	4419.6
1. Estimated weight returned	417.1	832.2	653.3	1951.1
2. Weight removed	991.5	803.5	522.0	2468.4
Average weight of each bass	1.9	1.9	2.0	1.9
Numbers caught/hour	0.23	0.26	0.27*	0.25
Pounds caught/hour	0.43	0.50	0.56*	0.49

*Estimated from incomplete census.

DISCUSSION

Two lines of evidence suggest that bass fishing tournament harvest does not affect bass populations, at least in Lake Lanier. The cove rotenone samples indicate a minimum (1962) standing crop of 4.42 pounds of bass per acre. Furthermore, Hayne, Hall, and Nichols, (1967) indicate that "harvestable" (10") bass population size is consistently underestimated by cove rotenone samples. Therefore, the tournament harvest per acre of 0.12 pounds, is probably a small part of the total bass standing crop in Lake Lanier.

Comparisons of the tournament catch to the creel census estimates of bass harvest show that the tournament accounts for 10.8-13.8% of the projected bass catch in a given year. Therefore, this tournament probably did not contribute significantly to the total fishing harvest of bass from Lake Lanier in 1972.

Bass fishing tournaments could also affect the bass population structure by differential catchability of one size class or sex. However, since the average weight of the fish was less than two pounds, we have no evidence that the tournament anglers are exerting unequal fishing pressure against larger fish. Opinions expressed by tournament officials and anglers indicate that the successful contest fishermen try to "catch a limit" and do not selectively fish for larger bass. As noted previously, the sex ratio of bass caught during the

Table 2. Lake Lanier Cove Rotenone and Creel Census Results.

	1961	1962	1963	1964	1965	1966	1967	Tournament Results
<i>Cove Rotenone Samples</i>								
Number of samples	3	2	3	2	3	3	3	--
Average total weight of fish/acre	73.82	88.60	87.98	72.69	71.15	104.86	68.85	--
Average weight of bass/acre	8.66	4.42	10.01	5.22	6.03	11.25	8.35	0.12
<i>Creel Census Data</i>								
Estimated Total fishermen	--	--	37777	--	80992	72432	53242	--
Estimated total pressure (hours)	--	--	138640	--	297240	307840	226280	8950
Estimated bass catch/(numbers)	--	--	30778	--	17834	20933	17649	2254
Estimated bass catch/hour	--	--	0.220	--	.060	.068	.078	0.252

tournament was not 1:1. Since the tournament was held approximately 2-4 weeks prior to spawning, sexual differences in pre-reproductive feeding behavior could have accounted for unequal catch rates and the sex ratio observed.

It is also apparent from this study that tournament anglers are proficient bass fishermen. Comparisons of the tournament data to the 1965-67 creel censuses indicate that the tournament anglers, on the average, catch bass at rates 3-4 times those of fishermen censused during the creel surveys. In addition, few anglers exert 29 hours of fishing pressure in three days time.

This study has shown the feasibility of returning a high percentage of the fish to the lake alive (Table 1). We were able to return 43.4% of the fish caught. With improvements in our handling techniques we could approach 60%, as we did on the last day of the tournament. As an added bonus these live fish would be available for brood stock, restocking in other lakes, and research purposes. During the tournament, we encountered only one fisherman who wanted to keep any fish for other than mounting purposes.

From these initial observations on bass fishing tournaments, it is evident that data regarding bass biology, population dynamics, and bass fishing, in general, are readily available from tournament results. Data regarding such parameters as food habits, growth rates, and gonadal development could be collected from bass caught in fishing tournaments. Some fishing contests have already been held in which fishes other than largemouth bass have been the "target" species. Data could also be collected from these tournaments.

One of the most difficult jobs for the reservoir manager is that of assessing population size. The size of bass populations is difficult to estimate in small ponds, let alone, in large reservoirs. Using bass fishing tournaments as a "recapture" technique, it should be possible to estimate the size of a bass population, even on a 38,000 acre reservoir. According to Bennett (1962) angling is one of the best methods for capturing largemouth bass. During three days at Lake Lanier we received 8950 hours of the most competent field assistance available. This effort is more than a single biologist could exert in five years.

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