COMPARISON OF BASS CLUB RECORDS WITH CREEL CENSUSES

C. MICHAEL ALEXANDER, Division of Forestry, Fisheries, and Wildlife Development, Tennessee Valley Authority, Norris, TN 37828

JOHN A. HOLBROOK, II, Division of Forestry, Fisheries, and Wildlife Development, Tennessee Valley Authority, Norris, TN 37828

Abstract: Bass club catch records from tournaments held on Norris, Douglas, and Cherokee Reservoirs during 1976 were compared with creel censuses. While not statistically significant, both numbers and weights per hour of bass caught by tournament anglers were less than catch rates by nontournament fishermen. Average weight of bass caught in tournaments was higher than that found in creel censuses. Some advantages of using tournament catch records in evaluating bass fisheries are discussed.

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At present information on fishing conditions in most waters is provided by creel censuses. Most bass fishing clubs periodically (typically monthly) hold tournaments, and for competitive reasons (e.g., monthly prizes or "best" angler-of-the-year awards) keep detailed catch records. Such records could provide useful information on bass (*Micropterus* spp.) stocks and more cost-effective measures of fishing conditions. Therefore, we recently have begun to analyze the existing data from a large number of club tournaments that were held on Tennessee Valley Authority impoundments.

In this paper we present data on catch rates (number and weight of bass caught per hour) and average weight of fish caught in tournaments held on 3 reservoirs in eastern Tennessee during 1976 and compare these results with creel data collected during 1976 on these same impoundments. We also discuss advantages of using bass club tournament records instead of creel census data where only bass fishing information is sought.

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MATERIALS AND METHODS

During 1977 we collected information from bass clubs that fished eastern Tennessee impoundments. Bass clubs were located through large national bass organizations, Tennessee Wildlife Resources Agency (TWRA) personnel, and the Tennessee Bass Federation. A survey form was designed to obtain records from each club for each tournament fished. From these we obtained data on 28, 34, and 24 tournaments held in 1976 on Norris, Douglas, and Cherokee Reservoirs, respectively. TWRA provided 1976 creel data for the 3 reservoirs. From this, we compiled only those interview data obtained from anglers who stated they were fishing for bass.-

Recognizing that fishing success changes during the year, we calculated catch rates and average weights of bass caught in both club tournaments and by persons interviewed in creel censuses by month. We then tested the null hypothesis of no difference (confidence level, 95%), using paired t-tests and the nonparametric Wilcoxon "signed rank test." Tournaments were not held in all months of the year, and clubs varied in adequacy of records, i.e., some did not record the number of fish caught by each angler in the tournament. Further, bass fishermen were not interviewed by creel clerks during all months. Despite the constraints, records were available to compare 9 months of weight-per-hour data on Cherokee and Douglas and 10 months on Norris Reservoirs. In terms of numbers per hour and average weight of bass caught, 9, 6, and 9 months of data were available for Douglas, Norris, and Cherokee Reservoirs, respectively.

RESULTS AND DISCUSSION

Bass club tournament catches in numbers or weight per hour or average weight of bass caught were not significantly different from creel results in any of the 3 reservoirs (Table 1), despite large differences in fishing habits between tournament and nontournament fishermen. On all reservoirs, however, both numbers and weight caught per hour of club tournament fishing was less than that shown by creel censuses. This may be a result of the club-imposed 304 mm minimum size on bass creeled in tournaments and its effect on tournament records, whereas the nontournament bass angler can keep smaller fish. This hypothesis is supported by the slightly larger size of the tournament-caught bass, particularly the Norris fish (Table 1). We also note that adoption of the 356 mm minimum size limit by the Bass Anglers Sportsmen Society and various bass clubs will result in the further lowering of catch rates below those of the nontournament bass fishermen.

Table 1. Comparison of 1976 bass fishing club tournament catches with harvests by anglers fishing for bass and interviewed during creel censuses.

	Douglas Reservoir		*Cherokee Reservoir*		*Norris Reservoir*	
	Club	*Creel*	*Club*	*Creel*	*Club*	*Creel*
Anglers interviewed, numbers	702	232	621	195	592	246
Fishing by interviewed anglers, hours	8,141	862	7,299	847	6,241	1,083
Catch per hour, fish	0.23	0.27	0.14	0.16	0.14	0.23
Catch per hour, kilograms	0.165	0.170	0.110	0.135	0.110	0.155
Average weight of fish caught, kilograms	0.665	0.650	0.830	0.815	0.785	0.715
1976 fishing pressure, hours	500,805		572,422		451,012	
1976 fishing pressure by anglers intending to catch bass, hours	110,195		119,297		94,138	

Lower club catch rates could also be because of the longer trip per tournament angler—11.3 hours— as compared to 4.1 hours per trip for creeled anglers (Table 1). Tournament anglers typically fish all day, not just in the early or late hours of the day when catch rates are expected to be higher. Another factor that could produce the higher catch rate for the nontournament angler is that when interviewed during a creel census, an angler having no fish may state he is fishing for any species. This would delete him from the "bass fishermen" category in the creel census.

In reservoirs like Cherokee, Norris, and Douglas, roughly 20% of the anglers intend to catch bass (Table 1). It seems likely that as fishing pressure on bass increases, more evaluations of the condition of fisheries and of management practices designed to enhance them will be needed. If bass are the target species, the results of this study indicate that club tournament records could be substituted for creel data on number and weight of bass caught per hour without significant loss of accuracy. Clubs also can provide night fishing data which is not available from most creel censuses.

It is also clear that increased precision of numbers and weights per hour and average weight estimates would result because of the larger sample size available in the tournament data. Of the estimated number of hours fished annually by anglers intending to catch bass (Table 1), we obtained catch data on 7.4%, 6.2%, and 6.6% of these from Douglas, Cherokee, and Norris, respectively. By contacting additional clubs we could probably account for up to 10% of the bass fishing in these lakes. In contrast, catches for about 1% of the hours were obtained during creel interviews (Table 1). Also, only one-third as many fishermen were interviewed, as the table also shows. We also point out that

much of the time spent by a creel clerk is directed toward collecting harvest data. If club data could be used to estimate bass harvest, the clerk could sample more anglers fishing for other species and/or spend more time doing pressure counts (and thereby increasing precision of pressure estimates).

The greatest advantage to using tournament data is economy. Many established clubs presently have data going back a number of years. Clubs collect and maintain data for their own purposes. Only transcription costs are associated with collection. By providing a common data collection form, we reduce costs to only those needed for keypunching and analyses. We estimate that to obtain information from the 15 clubs fishing Norris, Cherokee, and Douglas (plus numerous other impoundments in the area) in 1976 we have spent about $3,000 (including data analyses for this survey). By comparison a one-year creel census on one of these lakes would cost about $15,000. Club data would also be extremely cost-effective in situations where fisheries managers need data on bass fishing over a number of years, e.g., fishing trends with increasing yearly pressure or evaluations of population manipulations. Here too, the increased precision of estimates would improve comparisons. To date only 1 year's data have been examined. The possibility exists that differences in success rates could change with changes in population structure.