MORTALITY OF LARGEMOUTH BASS FOR TWO TOURNAMENTS UTILIZING A "DON'T KILL YOUR CATCH" PROGRAM

by

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ABSTRACT

A study of two bass tournaments was undertaken on Lakes Sam Rayburn and Toledo Bend in March, 1974 to evaluate a "Don't Kill Your Catch" program initiated by the Bass Anglers Sportsmen's Society. Mortality of fish held in live-wells or water tanks up to the point and just after "weigh-in" was determined. Delayed mortality was measured by taking a sample from the tournament-caught bass and stocking them in hatchery ponds for 28 days. A treatment of Terramycin was given to a portion of these hatchery-held fish to evaluate its use for improving survival of the fish. Total mortality of fish taken in both tournaments was considered low (32 per cent of the harvested fish). Tournament fish stocked in hatchery ponds and treated with Terramycin had similar survival rates to those of stocked untreated fishes.

INTRODUCTION

Due to poor public sentiment toward bass tournaments, the Bass Anglers Sportsmen's Society (B.A.S.S.) has instituted a "Don't Kill Your Catch" program. The program requires contestants to handle tournament-caught fish in a manner to enhance their survival chances. Live fish are returned to the tournament lake after "weigh-in" activities. This study was designed to evaluate the release program by measuring mortality of bass caught in two B.A.S.S. tournaments held in Texas.

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METHODS AND MATERIALS

B.A.S.S. held a tournament at Sam Rayburn Lake on March 6, 7 and 8, 1974. All entrants were required to have an aerated live-well with smooth sides; however, no live-well capacity requirements was made. At the conclusion of each fishing day the contestants reported to the "weigh-in" area in three shifts that were spaced thirty minutes apart. Each fisherman took his catch from the live-well and put it in a wet perforated plastic bag furnished by tournament officials. While fishermen waited to weigh their catch, the bags containing fish were held in cans filled with water treated with approximately 20 ppm acriflavin. The fish were weighed in the perforated plastic bags after the water had been drained. After weighing, the fish were released for approximately 30 minutes in a 500-gallon aerated water tank also containing 20 ppm acriflavin. All bass alive at the end of this period were returned to the lake.

Texas B.A.S.S. Federation (T.B.F.) held a tournament on March 30 and 31, 1974 at Toledo Bend Reservoir. Tournament procedures for handling fish were similar to those used in the Sam Rayburn Lake tournament, but acriflavin was not used in tanks at the "weigh-in" station.

To determine delayed tournament mortality and to evaluate Terramycin treatments as a means for increasing survival of tournament-caught fish, a sample of 200 bass was taken at each tournament and transported to the Jasper State Fish Hatchery. One hundred fish from each sample were injected interperitoneally with 25 mg of Terramycin per pound of body weight; and 100, acting as the control group, were marked by clipping the fourth dorsal spine. Marking was for identification purposes and to equalize handling between injected and control fish. An equal number (50) of treated and con-

trol fish were placed in each of two 0.7-acre ponds (100 fish per pond). After 28 days the ponds were drained to determine mortality suffered by the two groups of fish.

RESULTS

Sam Rayburn Tournament

The B.A.S.S. tournament on Sam Rayburn Lake attracted 193 "professional" anglers. During the 3-day event 4,397 angler-hours were expended by the contestants. The total harvest was 3,772 bass (5,789 lbs.). Their catch was 0.86 bass and/or 1.32 lbs. per angler-hour. Average total length of tournament bass was 14.3 inches (ranged from 11.8 to 22.5 inches), and the average weight was 1.5 lbs. (ranged from 0.8 to 7.4 lbs.).

Initial mortality of tournament bass following "weigh-in" was 24 per cent (891 fish). After a sample of fish was taken for the delayed mortality and Terramycin injection study, 2,681 fish were returned to the reservoir.

At the end of 28 days of hatchery pond observation, an average of 10 per cent (ranged from 8 to 12 per cent) mortality occurred for specimens injected with Terramycin; and an average of 12 per cent (ranged from 2 to 22 per cent) mortality was found for untreated or fin-clipped fish (Table 1). This difference was not statistically significant (t=-0.196; 0.05 level). Of the 2,681 bass returned to Sam Rayburn Lake, 295 were estimated to have died because of tournament activities (estimate based on average mortality suffered by hatchery-held fish). The total mortality of largemouth bass for the Sam Rayburn tournament was estimated to be 1,208 fish, or 32 per cent of the total catch.

Table 1. Comparison of mortality of treated[1] and untreated[2] largemouth bass held in hatchery ponds for 28 days after tournament harvest (March-April, 1974). Fish were obtained from Lakes Sam Rayburn and Toledo Bend during tournaments utilizing "Don't Kill Your Catch" practices.

Tournament	Pond Number	Treatment	Number of Fish Stocked	Number Died	Per Cent Mortality
Sam Rayburn	1	Terramycin	50	6	12
		No Treatment	50	1	2
	2	Terramycin	50	4	8
		No Treatment	50	11	22
Toledo Bend	1	Terramycin	50	6	12
		No Treatment	50	8	16
	2	Terramycin	50	3	6
		No Treatment	50	8	16

[1]Interperitoneal injection with 25 mg Terramycin per pound of body weight.

[2]No injection, however, the fourth dorsal spine was clipped to equalize the amount of handling between injected and non-injected fish and for identification purposes.

Toledo Bend Tournament

The T.B.F. tournament on Toledo Bend Reservoir was fished by 86 entrants. During the 2-day contest 1,496 angler-hours were expended, and contestants brought to the weigh station 448 bass (695 lbs.). The catch/effort was 0.30 bass and/or 0.46 lbs. per angler-hour. Average total length of the bass was 14.3 inches (ranged from 11.8 to 21.0 inches), and they had an average weight of 1.6 lbs. (ranged from 0.8 to 6.0 lbs.).

Initial bass mortality for this tournament was 23 per cent (102 fish). After fish samples were taken for hatchery observation, 146 bass were returned to the tournament lake.

Following the 28-day holding period at the Jasper Fish Hatchery, fish injected with Terramycin had suffered an average mortality of 9 per cent (ranged from 6 to 12 per cent); and fin-clipped fish had shown a 16 per cent loss (Table 1). This difference in mortality was not statistically significant ($t=-2.333$; 0.05 level). The average mortality for both Terramycin-injected and fin-clipped fish combined indicated an additional 18 individuals may have been lost from the 146 bass released into the lake after tournament "weigh-in" activities. The total mortality estimate of bass for this tournament was 145, or 32 per cent of the total catch.

DISCUSSION

The B.A.S.S. tournament had more entries than the T.B.F. contest, and it also attracted primarily "bass professionals." These experienced fishermen are probably the main reason for the greater catch per unit of effort and the larger total catch of the B.A.S.S. tournament. The professional's fishing techniques and his knowledge of bass habits allowed him to locate fish rapidly and spend more time fishing. All Toledo Bend entrants were from small clubs in Texas, and only a few were familiar with the lake's bass fishery.

Largemouth bass mortality for the two tournaments was considered light. The cool water temperatures of the tournament lakes, efforts of contestants to keep their catch alive and aerated holding tanks at "weigh-in" stations were probably the main reasons heavy losses of tournament-caught fish were not experienced.

An increase in mortality of tournament fish apparently occurs with an increase in water temperature. Water temperature for the Sam Rayburn tournament was 68 F and 70 F for the Toledo Bend contest. Initial mortalities of bass for these tournaments were around 25 per cent of the total harvest. These losses were substantially lower than an initial 94 per cent loss of bass harvested during a "catch and release" tournament held on Toledo Bend Reservoir in May, 1972 when the water temperature was above 80 F (Seidensticker, 1973).

Efforts on the part of contestants to keep their catch alive (use of live-wells and wet perforated bags) were rewarded with a bonus ounce for every bass brought in live. But, the reward may have defeated its purpose to save fish and introduced error in mortality determinations of this study since fish culling was permissible. Most likely, dead fish were disposed of if live ones of about the same size were caught to replace them. In addition, mortality estimates probably were biased when contestants caught their limit of 10 fish and began to cull smaller fish. Approximately one-third of the contestants caught their daily limit in the two tournaments.

Aerated water tanks at "weigh-in" stations probably improve survival of bass when there are large numbers of harvested fish to be processed. Even though weighing times were staggered, a considerable accumulation of fish occurred at the weigh station in the Sam Rayburn tournament. The aerated water tanks at the site helped maintain fish until they were returned to the lake. Tanks at the Toledo Bend tournament were not utilized because of the small fish harvest. Fish were handled quickly at the weigh station and returned immediately to the reservoir.

Shorter tournament fishing days appear to improve survival chances of harvested bass. In the Toledo Bend tournament, 31 per cent initial mortality occurred for the first day's catch (10-hr fishing day) and 11 per cent the second day (7-hr fishing day). The

better survival on the second day was attributed to reduced handling and hauling stresses of fish in boat live-wells since handling of catches at the "weigh-in" station was essentially the same on both tournament days. Similar results were found for the Sam Rayburn tournament where initial mortality for the first two days of the contest (8-hr fishing days) was 27.5 and 30.5 per cent respectively. The final day (7-hr fishing day) mortality was 12.2 per cent.

In general, it was felt Terramycin injections improved survival of bass (no statistical test support). But, this improvement was not sufficient enough to warrant the time, effort and cost of treating fish in future tournaments held under cool-water conditions. Such treatments may be worthwhile during the hot summer months.

The B.A.S.S. "weigh-in" guidelines are good and should be followed. They provide for adequate fish-holding facilities at "weigh-in" sites and minimize handling of fish.

I feel this study particularly emphasizes three important points that should be considered in future conduct of "catch and release" bass tournaments. First, this type of contest should be held during times when water temperature is cool. Cool water and weather appear to enhance survival conditions of tournament-caught fish. Results of this study indicate that 70 F or cooler water temperatures would be desirable conditions for conducting "catch and release" tournaments. Second, tournament days should be short to minimize holding and handling stress of fish. A 6to 7-hr fishing day is the maximum recommended. Finally, tournaments should have bonus awards for fishermen having live bass at the "weigh-in" station. Awards, especially when no fish culling is allowed, will furnish an incentive for contestants to keep fish alive by handling their catch carefully.

Organizations holding tournaments for profit, such as the ones monitored in this study, can make a significant contribution to largemouth bass management efforts of state conservation agencies through "tournament permit" purchases. In my opinion, states should require such charges for these tournaments; and the monies should be earmarked for largemouth bass research and management programs. Based on the Texas Parks and Wildlife Department pollution mitigation policy which charges $2.25 for a 12-inch largemouth bass, $2,000 would be a reasonable, recommended permit charge for profit-type tournaments. This amount would pay for the loss of approximately 900 fish.

LITERATURE CITED

Seidensticker, Edgar P. 1973. Competitive Bass Fishing Study. Texas Parks and Wildlife Department, Dingell-Johnson Job Completion Report, Project F-26-R, 19 p.