DISPERSAL OF TOURNAMENT CAUGHT BASS FROM A CENTRAL RELEASE POINT

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ABSTRACT

Largemouth bass caught by fishermen during the March, 1975 B.A.S.S. fishing tournament on Toledo Bend Reservoir were tagged and released from a central site to measure dispersal and recapture rate. Dispersal of bass during the four months following the tournament ranged between 0 and 5 miles. The majority of the recaptured fish (93.6 percent) were caught within 2 miles of the release site. A total of 16.7 percent of the released fish was caught by fishermen during the study period. Suggestions are given concerning utilization of tournament caught bass in fish tagging programs in large impoundments.

INTRODUCTION

Utilization of the availability of large numbers of adult bass collected in organized fishing tournaments has been promoted in recent years as a good source for gathering basic fisheries research data (Holbrook, 1975). The March 5-7, 1975 Bass Anglers Sportsmen's Society (B.A.S.S.) fishing tournament on Toledo Bend Reservoir, Louisiana-Texas provided an opportunity to gather a large amount of biological information concerning largemouth bass, *Micropterus salmoides*, in this 181,600 acre impoundment. One of the objectives of the Louisiana Wildlife and Fisheries Commission's participation in this tournament was to collect base data for the initiation of detailed studies of this fish.

Another objective in monitoring the B.A.S.S. event was to utilize tournament caught bass to study the dispersal of tagged fish from a central release site in a large impoundment. This paper presents findings concerning tagged bass movements and rate of recapture during four months following the tournament.

MATERIALS AND METHODS

The B.A.S.S. sponsored bass fishing tournament was held March 5-7, 1975 at Toledo Bend Reservoir, Louisiana-Texas. The fishermen were paired each day and fished competitively for three days to determine which contestant could catch the highest poundage and the largest bass during the event (based on 10 bass per day limit and 12 inches minimum size tournament regulations).

Emphasis was placed on live release of bass into the impoundment following each daily weigh-in period. A bonus of 1 ounce was added to each contestant's daily catch per live fish brought to the tournament headquarters. Aerated live wells were required in each boat to promote bass survival. Fishermen moved the fish from the live wells to the weigh-in area in water filled plastic bags. Tournament officials removed the fish from the bags to determine the total number caught, number of live fish, total poundage and if all fish met the 12 inches minimum length required by tournament rules.

The fish were then transferred to fisheries personnel of the Louisiana Wildlife and Fisheries Commission and placed in a waiting hatchery truck equipped with agitators and bottled oxygen. All fish that were dead or judged unable to right themselves in the hauling tanks were recorded as initial mortality and set aside for reproductive studies.

The live fish were trucked five miles from the tournament area to a central release site in the LaNana cove of the impoundment. Each bass was tagged with a Floy FD-68B anchor tag colored international orange. The tag contained lettering indicating an identification number and the address of the Louisiana Wildlife and Fisheries Commission. Each tag was embedded in the muscle below the dorsal fin. The tag was slightly turned before removal from the tagging gun in an attempt to lock the tag anchor behind the pterygiophores (Wilbur and Duchrow, 1972). Length measurements were recorded for each tagged fish and scale samples were removed from a portion of the bass prior to being released.

Fishermen were advised through the news media of tagged largemouth bass in the impoundment. They were requested to return the tag and note the date and catch location and general physical condition of the fish.

RESULTS

A total of 5,166 angler hours was expended by 200 participants during the three days yielding a harvest of 2,955 largemouth bass weighing 5,523.1 pounds (Table 1). Angler catch averaged 0.57 fish and 1.07 pounds of bass per hour of fishing. A total of 724 of the tournament caught bass was tagged and released back into the impoundment.

Fishermen recaptured 121 tagged bass during the four months following the tournament for a 16.7 percent return (Table 2). The rapid rate in which tagged fish showed up in the creel indicates the bass fed almost immediately after being released. Tagged fish were recaptured the day following the first day of release. During the first month 67.8 percent of the recaptured fish were taken. Tag returns by inch size indicated a good distribution of fish in the 12 to 18 inch size range (Table 3).

Dispersal of tagged bass during the four months following the tournament ranged between 0 and 5 miles from the release site. (Table 4). The majority of the recaptured fish (93.6 percent) were caught within 2 miles of the central release site.

DISCUSSION

The 16.7 percent return of tagged bass is similar to 14.4 to 27.9 percent recoveries reported by other investigators in large impoundments (Schumacher and Eschmeyer, 1942; Dequine and Hall, 1949; Huish and Copeland, 1962; Kirkland, 1963; and Wegner and Clugston, 1964). Greater returns of tagged bass from Toledo Bend Reservoir probably would have occurred if better publicity and a creel census had been conducted during the four months period.

Tag return data from this study supports the suggestion of Holbrook, Johnson and Strzemienski (1972) of utilizing tournament caught fish in bass population estimates in large impoundments. High tag returns of tournament caught fish along with creel information and standing crop data could serve as a valuable tool in measuring changes in adult largemouth bass populations in impoundments.

Caution should be used though in utilizing tournament caught fish in bass population estimations. Low tag returns may be related to poor survival of released bass. The physical condition of fish prior to being tagged and released can definitely affect survival and recapture information. Delayed mortality studies by Barkley (1972), Wellborn and Barkley (1973), and Seidensticker (1974) emphasize increased survival of released bass from winter and spring month fishing tournaments over the survival rates of fish released during summer tournaments. Survival rates during cooler months ranged between 68 and 84 percent while warm month survival values were as low as 24 percent of the total number of released bass.

Good retention ability of the Floy FD-68B fish tag reported by Wilbur and Duchrow (1972) is supported by tag returns from this study. Most fishermen reported tags were intact and fish were in good physical condition.

The distribution of tag returns by length groups indicates similar percentages of returns in the 12 to 18 inch groups (Table 3). These results do not agree with the findings of Kirkland (1963) who reported small size bass retained tags better than large size fish. Moody (1974) reported tag returns of bass similar to this study for inch groups between 8 and 16 inches. The importance of tag returns in the 12 to 18 inch size ranges for the Toledo Bend Reservoir study is that this group of fish made up 92 percent of the tag returns. Examination of tag data from these size groups would be valuable when utilizing this data in estimating bass populations in the impoundment.

The majority of the recaptured bass (93.6 percent) were caught within 2 miles of the central release site (Table 4). This limited movement is similar to data reported from tagged bass released in large impoundments by Schumacher and Eschmeyer (1942) and Dequine and Hall (1949).

Slow dispersal of released bass and rapid recapture from spring fishing events should be considered when planning bass population estimations utilizing tournament caught fish. Consideration should be given to having several release sites. Length of study should not exceed 6 months as the majority of the recaptures will occur within the first three months following release of fish. Utilization of spring months to conduct tagging studies of largemouth bass is desirable due to good survival rate of tournament caught fish, concentration of all age groups of bass feeding in shoreline areas and Spring is the season of greatest fishing pressure on most impoundments.

The merits of the "bass live release program" is just beginning to receive study as a possible tool of largemouth bass management by fisheries scientists. Additional studies are needed relative to handling mortality and other factors that influence the survival and recapture of fish released under such programs. Presently most Louisiana bass fishermen have not reached the point that they think it is necessary to release their catch "to survive and grow to furnish better sport on another day." This is directly related to the productivity of Lousiana's abundant waterways, moderate fishing pressure and enjoyment still received in catching and eating one's catch of largemouth bass.

Table 1. Catch data of B.A.S.S. fishing tournament, Toledo Bend Reservoir, March 5-7, 1975.

Date	*Number fishermen*	*Angler-hours fished*	*Fish caught*	*Pounds caught*
March 5	200	1,800	800	1,528.1
March 6	198	1,782	1,093	2,020.0
March 7	198	1,584	1,062	1,975.0
Total	596	5,166	2,955	5,523.1

Table 2. Monthly returns of tagged bass from Toledo Bend Reservoir, March-June, 1975.

	March	*April*	*May*	*June*	*Total*
Number tag returns	82	14	18	7	121
Percent return	67.8	11.6	14.9	5.7	100.00

Table 3. Length distribution, number tagged and tag return of bass released in B.A.S.S. tournament, Toledo Bend Reservoir, March-June 1975.

Total length (inches)	*Number Tagged*	*Number tag returns*	*Percent tag returns (inch group)*
11	2	0	0.0
12	104	24	23.1
13	184	36	19.6
14	116	18	15.5
15	105	18	17.1
16	79	12	15.2
17	48	7	14.6
18	34	4	11.8
19	24	1	4.2
20	18	1	5.5
21	6	0	0.0
22	2	0	0.0
23	2	0	0.0
Total	724	121	—*

*As of June 30, 1975, 16.7% total tag returns.

Table 4. Dispersal of tagged bass from central release site, Toledo Bend Reservoir, March-June, 1975.

Miles from release site	*Number tag returns*	*Percent tag returns*
0.0-0.5	68	56.2
1.0	33	27.3
1.5	4	3.3
2.0	8	6.6
2.5	0	0.0
3.0	0	0.0
3.5	0	0.0
4.0	3	2.4
4.5	2	1.6
5.0	3	2.4
Total	121	100.00

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