A BIOLOGICAL ASSESSMENT OF LARGEMOUTH BASS TOURNAMENTS IN SOUTHERN NEVADA

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Abstract.

An attempt is made to determine the survival of largemouth bass, Micropterus salmoides, that are captured, held, and released during competitive fishing events on Lake Mead and Lake Mohave. Comparisons are made on rate of recapture by anglers on various groups of tagged bass, including tournament releases, electrofishing releases, and transported bass from other sources.

The data shows a pronounced difference of recapture rate between the various groups. Tag returns are generally poorer for all groups of tournament captured bass. Observations on stress of such groups demonstrates an association between tournament bass and severely stressed bass from other sources.

Currently, the impact of competitive fishing on the bass resource of southern Nevada cannot be determined. Although, the impact on bass population is probably small, recommendations are made to minimize waste of the resource.

INTRODUCTION

A controversy of considerable magnitude has erupted within the angling fraternity during the past decade. The heat of discussion has not fostered a neutral or noncommital position for fishery managers. The impact of tournament fishing on largemough bass populations is difficult to assess, and certainly is of minor importance when compared to major influences of ecological conditions.

The professional fishery manager should not be concerned with the emotional questions of ethics or the morality of tournament anglers (Stroud, 1975). As a conservationist, he must be concerned with apparent waste of a resource or reactions of the angling public to possible abuses of recreational values.

The observations that have been made on Lake Mead and Lake Mohave are distinctive for those waters, and they may not relate to other largemouth bass fisheries. Some of the findings presented here are facets of a larger study that were not intended for an investigation of tournament bass fishing. However, the information that has been obtained is correlative to a major degree for the biological evaluation of competitive fishing.

MATERIALS AND METHODS

All bass tagging was accomplished with small, plastic, disc-dangler tags. These were affixed with stainless steel wire near the posterior base of the soft dorsal fin. All tags were green in color, serially numbered and return addressed. Stamped return envelopes were provided for all marinas and local sporting goods dealers. Notices were posted in high angler use areas.

Standard methods were used in holding, handling and transporting of the various bass lots. Deviations of method were noted and accounted in the data. Controllable variables were minimized within the range of field conditions.

Tournament captured bass were held in live cars to determine evident viability prior to the tagging process. Most groups were released immediately after tagging at the tournament site. Bass that showed obvious symptoms of stress were not tagged. One group of tournament bass was divided into increments of 60, transported by stocking barge and released in areas that correlate with groups of electrofished bass.

Several tournaments were monitored for immediate bass mortality and 24 hour mortality in live cars.

The group of bass that is used as a baseline in this study was tagged to determine the rate of harvest for the species in Lake Mead. These fish were methodically captured by electrofishing, tagged and released in assigned sectors of the lake. Various groups of catchable size bass from other sources have been transported, tagged and released in Lake Mead. These groups include fish from federal hatcheries, a private hatchery and fish that were seined from Ruby Marsh, Nevada.

RESULTS

Serious efforts to monitor the biological impacts of bass fishing tournaments on Southern Nevada populations of Micropterus salmoides were commenced during October of 1974. A total of 300 largemouth bass were selected from 356 tournament entries (Table 1 and Figure 1). They were tagged and released at the tournament site. Initial mortality was low, although many of the fish appeared to be stressed. Most of these fish recovered during the holding period in live cars, and appeared viable prior to tagging.

Several bass exhibited pressure problems, and repressurization was attempted by submerging them to a depth of 12.3 metres and retrieving in easy stages. The success of this treatment was not determined.

Nine of the tagged bass were found dead within a few days following the release. One tag was recovered from a nearby hilltop where it had been left by a coyote or a raven. Total angler recaptures of this groups in the first 12 months accounts for only 8.3 percent. Angler recapture rate for 56 electrofished bass that were tagged and released in the same area was 37.5 percent during the first twelve months.

A spring season bass tournament (Tournament II) was sampled during April 1977 (Table 1 and Figure 1). A total of 289 apparently viable bass were selected, tagged and released. Some of these fish were released in lots of 60 from the planting barge to correlate with sectors where tagged bass had been released during electrofishing. Total return during the eight months since the release of the tournament bass is 6.2 percent.

Table 1. Lake Mead Tag returns for various groups of Tagged Large Mouth Bass.

Lot of Bass	Number Tagged	Found Dead	Number of months exposed to angling — Monthly Return 1	2	3	4	5	6	7	8	9	10	11	12	No Data Ret'd	Recaptured first 12 mos. No.	%	Captured to date 1/1/78 No.	%
Electro-fished Lakewide	1,769	0	224	120	51	12	8	7	5	5	6	7	2	17	5	479	27.1	615	34.8
Tournament I	300	10	5	0	1	2	5	1	6	2	1	2	0	0	0	25	8.3	26	8.7
Ruby Marsh I	1,723	2	86	6	9	7	4	1	3	1	0	2	0	0	0	119	6.9	125	7.3
Hatchery I	53	5	2	0	0	0	0	0	0	0	0	0	0	0	0	2	3.8	2	3.8
Hatchery II	493	0	29	13	0	6	0	2	2	0	0	0	0	0	12	64	13.0	64	13.0
Ruby Marsh II	1,582	0	337	46	19	13	17	5	1	3	2	0	9	3	0	455	28.8	477	30.2
Tournament II	289	3	7	7	2	0	0	0	0	0		To date 1/1/78			2	18 8 mos.	6.2	18	6.2
Ruby Marsh III	1,192	0	32	27	26	27	13	6	To date 1/1/78						0	131 6 mos.	11.0	131	11.0
Tournament III	50	0	3	0	0	To date 1/1/78									0	3 3 mos.	6.0	3	6.0

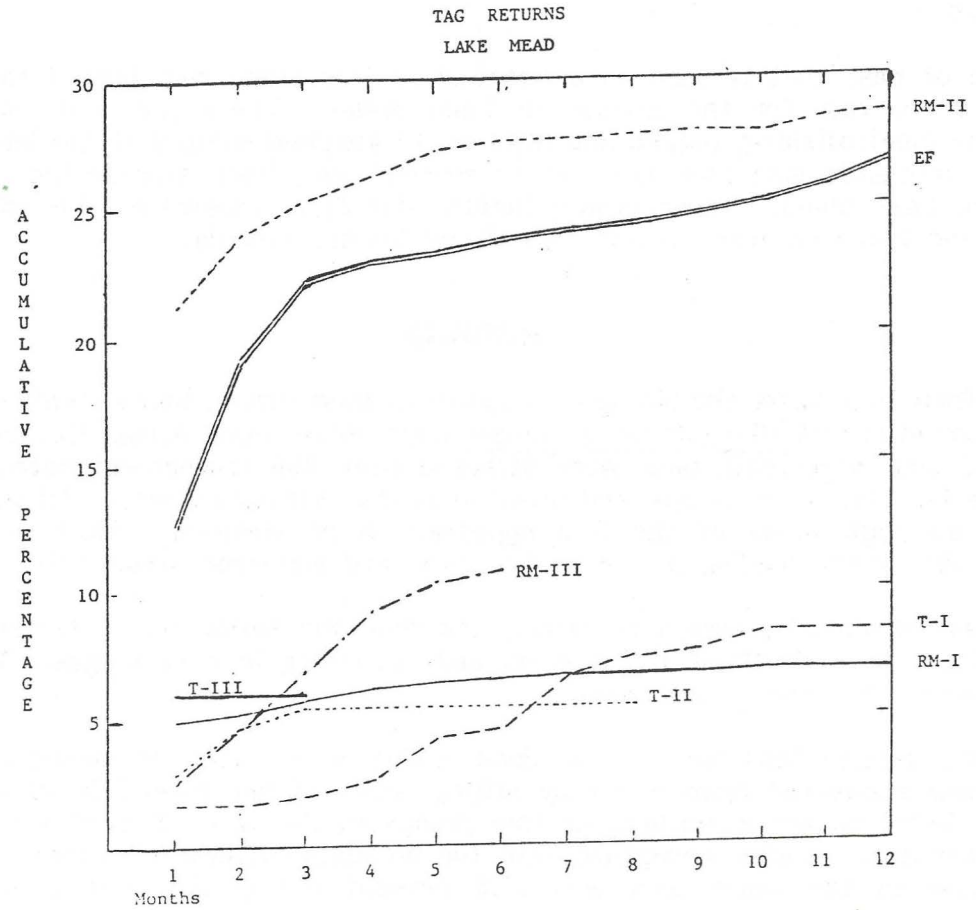

FIGURE 1. Accumulative percentage of tag returns for selected groups of Large Mouth Bass in Lake Mead.

A total of 60 tournament bass were released in Boulder Canyon. This corresponds by season, number and handling with the electrofished bass that were tagged for Boulder Canyon. This area of the lake cannot be effectively electrofished; consequently, the bass were captured in Callville Bay (Tournament II site) and transported by barge to the release site. Comparative returns for this sector showed electrofished bass returned 48 percent during an eight-month period, while tournament bass were captured at a rate of only 6.7 percent.

A fall season tournament (Tournament III) was sampled during October 1977 (Table 1 and Figure 1). A total of 50 apparently viable bass were selected, tagged and released. They have been subject to angling for three months, and only 6 percent have been captured. The percent of recapture on this group may increase during the spring and summer as angler activity increases.

No base work on return of electrofished bass has been accomplished on Lake Mohave. However, a major tournament was sampled during September 1975 at Cottonwood Cove. Approximately 490 bass were captured during the two-day event. Initial mortality was heavy, and it was probably a result of 27°C water temperature. A total of 299 bass were selected for tagging and release, although some of these fish showed moderate stress.

Mortality of tagged fish was heavy, and 20 percent of the tags were returned within a few days from bass that were found dead in the vicinity of Cottonwood Cove. Only 6 percent of the tags were returned from angling during a 12 month period (Nevada Dept. of Fish and Game, 1976).

Productive comparisons can be made on survival of tagged bass from other sources that have been released into Lake Mead. Valid information has been obtained from three lots of wild fish from Ruby Marsh, Nevada (Table 1 and Figure 1). These are included in the study for correlations with stress that is involved in handling bass.

The group, Ruby Marsh I, were severely stressed when they were stocked in Callville Bay during June 1975. They had endured loading, 14 hours of transportation, transfer to a second tank truck, transfer to the stocking barge, and finally stocking. Mortality was heavy. Tag returns from anglers during a 12 month period were 7.3 percent.

Ruby Marsh bass (Ruby Marsh II) were again tagged and released during June 1976. No extraordinary conditions were encountered during transportation, and the fish were not stressed. Tagging mortality was insignificant. These fish were stocked in three sites near Echo Bay, but they were not scattered. Tag returns from angler catches were artifically high during the first months of lake residence. This was a consequence of "spot" stocking and subsequent heavy harvest by informed anglers. Harvest exceeded the rate for many "put-and-take" trout fisheries.

Ruby Marsh bass were again during 1978 (Ruby Marsh III) and released into Lake Mead in the vicinity of Temple Bar. These fish were scattered along shorelines that correspond with two sectors of the electrofished bass study. Tag returns have been relatively constant during the six-month period of lake residence and show a harvest of 11 percent. This group will probably show an increasing rate during the active spring and summer angling period, although a moderate handling mortality was noted and the bass showed color changes that indicated moderate stress prior to release.

Observations of stress have been made on all groups of bass within the parameters of this study. Symptoms of stress include lethargy, buoyancy, loss of equilibrium, erratic movement, color changes of body and fins, and erratic opercular reflexes.

It is postulated that the poor angler recapture rate for bass from live-release tournaments is a result of poor survival and not a function of reduced catchability or resistance to angling methods. Survival of released bass is evidently a reflection of the amount of stress that has been imposed.

The bass that are removed from populations of Lake Mead and Lake Mohave annually during fishing tournaments are presently a minor portion of the total catch. However, the progressive bass population decline that has been documented for 13 years in Lake Mead has focused public concern for the resource (Nevada Dept. of Fish and Game, 1963-76).

An objective observation of live-release bass tournaments indicates a need to reduce the apparent waste (post-tournament mortality). This loss may be minimized by modification of tournament regulations and procedures. Consideration should be given to the following recommendations:

1. Eliminate penalty points for entry of small fish or dead fish.

2. Investigate the feasibility of scoring immediate release procedures.

3. Keep all large fish. It has been observed that large bass are more subject to stress.

4. Keep all fish that are obviously stressed. Each competitive angler should be responsible for legal possession of his catch.

5. Schedule tournaments to avoid extremes of water temperature or rough water.

6. Improve live wells in bass boats and minimize the time that fish are held.

7. Reduce tournament catch limits.

This study is not intended for an indictment of competitive bass anglers. Hopefully, the observations will lead to optimum beneficial use of the largemouth bass resource and minimize the conflicts with other anglers.

LITERATURED CITED

Nevada Department of Fish and Game, 1976. Job Progress Report, FAF-20-13, Lake Mohave.

_____, 1963-1976, Annual Job Progress Reports, FAF-R-6 through FAF-2013.

Stroud, R.H. 1975. Specialized Use of Recreational Fisheries Resources. Western Association of State Game and Fish Commissioners, Seattle, WA.