

Summary of Returned Tagged Fishes
From Recreation Lake, Mohawk Park, Tulsa, Oklahoma,
April 29 to September 5, 1960

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Tagging devices to identify individual fish have been reported by many fisheries workers. (Bonn, 1961; Everhart and Rupp, 1960; Yamashita and Waldron, 1958). Several types of tags have been utilized with varying degrees of success. The problem of relying on fishermen to recognize and return tags is an obstacle confronting fisheries workers who are trying to analyze accurately tag return data. Apparently, there is no one technique or combination of techniques which will assure consistent and complete returns of tags from tagged fish. Paulik (1961) reported on a statistical method of determining incomplete reporting of tags. In the present report, statistical analysis has not been attempted.

This summary of tag returns from fishes tagged and released in Recreation Lake, Mohawk Park, Tulsa, Oklahoma, is presented for the unusually high percentages of returned tags and offers a possible, but expensive, incentive for tag returns. Another purpose of the summary was to determine the utilization of this fishery.

DESCRIPTION

Recreation Lake is a shallow lake (maximum depth of six feet) located in Mohawk Park, approximately five miles Northeast of Tulsa, Oklahoma. This 75-acre lake was constructed during the 30's for the primary purpose of recreation, i.e. boating, fishing, picnicking. It is connected to a continuous lagoon system which extends throughout the park area and is subject to frequent flooding from Bird Creek. It has not produced a prime fishery although utilization has been heavy.

METHODS

One thousand and four fish were obtained by the Department of Wildlife Fisheries Division personnel from hatchery-reared and wild stocks. 135 largemouth bass, 122 white crappie, 347 channel catfish, 144 white bass, and 256 bluegill for a total of 1004 fish were used in this summary. No attempt has been made to differentiate between wild and hatchery fish. The fish were transported to Recreation Lake in regular fish transport trucks and were in good condition upon arrival. Only healthy-appearing fish were used for tagging and any injured or distressed fish were discarded. All fish were of catchable size, listed with total length ranges in inches: Largemouth bass 10 - 20, white crappie 10 - 14, channel catfish 10 - 21.5, white bass 10 - 15, and bluegill over five.

Upon arrival at the lake site, 10-15 fish at a time were placed in a tub, holding 10 gallons of water to which 12.6 grams (1:3000) of M.S. 222 had been added. M.S. 222 was used because of its advantage of rapidly inducing a deep anesthesia from which recovery is extremely fast (McFarland, 1960).

As soon as anesthetized, each fish was tagged with a numbered, barbed, plastic tag (FT-6A Floy Dart type). This type of tag has been used with success by several workers. (Yamashita and Waldron, 1958; and

Everhart and Rupp, 1960). Yamashita and Waldron (1958) cites its advantages as: (1) small size (2) simplicity and rapidity of application (3) low resistance to water flow and (4) negligible effect on natural movements of fishes.

A hypodermic-type applicator was used to place the tag just to the right of the dorsal fin and at an angle (dorsoposteriad) so that the barb was forced between the interneurals for firm anchorage. This is the same method used by Everhart and Rupp (1960).

The fish were then transferred to a solution of acriflavine (16 ml stock solution per gallon) for recovery. As soon as the fish become active (10-15 minutes) they were dipped from the second container and released into the lake. Tag numbers and species were recorded. \$12,000.00 was set up as an inducement for return of tags (Table 1).

TABLE 1. MONETARY TAG VALUES TO FISHERMEN

Tag #	Values
1 & 2 each	\$1000.00
3,4, & 5 each	500.00
6 & 7 each	300.00
8 & 9 each	250.00
10 - 14 each	100.00
15 - 25 each	50.00
26 - 119 each	25.00
120 - 319 each	10.00
320 - 521 each	5.00
522 - 1004 each	2.00

RESULTS

Four release periods were utilized during this study period (Table 2). One hundred sixty-seven fish were released on April 29, 405 on May 14, 57 on June 10, and 375 on July 1. Fish amounting to 53.3 percent of the first, 36.3 percent of the second, 28.1 percent of the third, and 28.5 percent of the fourth release period were recaptured. Length of time from release appeared to influence the number of recaptures during the study period. It was noted no fish of any of the species studied were recaptured until the second day after release.

Fifty percent of all species of recaptured fish were taken by the twelfth day after release and 75 percent were recaptured by the end of the twenty-fifth day (Table 3).

For the entire period, (Table 2), 51.1 percent largemouth bass, 45.9 percent white crappie, 28.8 percent channel catfish, 24.3 percent white bass, and 37.9 percent bluegill, were recaptured. Of all tagged fish, 35.5 percent were recaptured during the 128-day study period.

DISCUSSION

The small area, heavy fishing pressure and the inducement of valuable cash awards for return of tags, undoubtedly accounted for the high return of tags.

Although no attempt was made to record fishing pressure during this period, personal observation and correspondence with the City of Tulsa officials indicate high utilization. Fishing license sales increased in the Tulsa area during this period. Of the \$12,000.00 originally set up as inducement for returning tags, \$5,184.00 was paid out for the 35.5 percent returned tags.

The fish which were examined during the course of the study reflected varying degrees of infection in the area of tag injection. Some of the fish captured and examined 30 days after release still had open sores, while others appeared to have "healed" around the tag. One largemouth bass observed 41 days after release had completely healed around the imbedded tag.

Bonn (1961) reported 10.7 percent of 3254 tagged white bass returned in Lake Texoma over a 5-year period. The returns reported here appear to be higher than generally might be expected. The cash incentive is thought to have reduced the non-response error (Paulik, 1961) in this project.

ACKNOWLEDGEMENT

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TABLE 3. TIME, IN DAYS, TO RECAPTURE A GIVEN PERCENT OF RECAPTURED FISHES.

Species	Number Tagged	Number Recaptured	Days required to capture a percent of recaptured fishes.			
			25%	50%	75%	100%
Largemouth	135	69	4	12	25	126
White Crappie	122	56	2	3	6	52
Channel Catfish	347	100	4	6	12	93
White Bass	144	35	3	6	11	108
Bluegill	256	97	4	9	22	124
All Species	1004	357	—	12	25	—

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