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A. S. HAZZARD
DIRECTOR

ADDRESS
UNIVERSITY MUSEUMS
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Report 153

TROUT-TAGGING EXPERIMENT AT THE HARRIETTA HATCHERY

During the week of September 11, 1931 an experiment to test the relative value of two sizes of trout tags and the relative desirability of placing the tags on various body regions of trout was begun at the Harrietta Hatchery. The planning of the experiment was done by the writer of this report. Tagging of the fish was done by Mr. G. L. McCrimmon, of the Institute. On September 1, the writer conferred with Mr. A. J. Walcott, superintendent of the hatchery, regarding holding of these fish and inspection of any dead fish for tags. All were brook trout.

The tags were the standard type manufactured by Salt Lake Stamp Co. The "small tag" referred to through the report is the new "fingerling tag". The "large tag" is the No. 3 size, the smallest of the three sizes formerly made.

The experiments were designated as follows:

Experiment A-1. Yearling trout. Small tag on left gill cover and large tag on right. 100 fish. Small tags numbered 15101-15204 (excluding several numbers). Large tags number 12804-12913 (excluding several numbers).

Experiment A-2. Yearling trout. Large tag on left gill cover. 100 fish. Tags numbered 12914-13017 (excluding several numbers).

Experiment A-3. Yearling trout. Small tag on left gill cover. 100 fish. Tags number 15205-15307 (excluding several numbers).

Experiment A-4. Yearling trout. Small tag on left subopercle. 100 fish. Tags numbered 15308-15411 (excluding several numbers).

Experiment A-5. Yearling trout. Large tag between subopercle and preopercle. 100 fish. Tags numbered 13018-13822 (excluding several numbers.)

Experiment A-6. Yearling trout. Small tag on base of tail, on top. 50 fish. Tags numbered 15412-15469 (excluding several numbers).

Experiment A-7. Yearling trout. Small tag on base of tail, on bottom. 50 fish. Tags numbered 15471-15523 (excluding several numbers).

Experiment A-8. Yearling trout. Small tag on dorsal fin. 50 fish. Tags numbered 15524-15579 (excluding several numbers).

Experiment B-1. On fingerling trout (3 1/2 to 4 1/2 inches). Small tag on right gill cover. 500 fish. Tags numbered 15580-16563 (excluding several numbers).

Experiment B-2. On small fingerlings (2 1/2 to 3 1/8 inches). Small tag on right gill cover. 98 fish. Tags numbered 16664-16763 (excluding several numbers).

Experiment B-3. On very large fingerlings (3 3/4 to 5 inches). Small tag on right gill cover. 100 fish. Tags numbered 16564-16663 (excluding several numbers).

A single trout 1 3/4 inches was tagged but it could not swim, the tag holding it to the bottom.

If accurate check of theseexperiments could have been obtained, it would have been possible to determine: (1) on which of the body regions the tags hold to best advantage. (2) Which of the two sizes are more satisfactory for yearling trout. (3) How small a fingerling trout can be expected to carry a tag of the small size. Holding of some of the trout for two or more years was planned, in order to show the percentage of tags which are lost with time and growth and to find what changes occur with growth of the bones.

An attempt to check the experiment was made May 11 and 12, 1932 (by Greeley and McCrimmon). It was discovered that the trout had been moved, during the fall of 1931, all fish having been placed in one large pond, along with about 5,000 other trout.

This was a disappointment, for the tagged fingerlings were reported to have been placed in with trout so much larger (some of the yearlings being 10 to 12 inches long) that cannibalism must be expected. No records of dead trout with tags were kept by the hatchery, contrary to agreement. Mr. Walcott turned over 5 large tags and 65 small tags which were reported to have been picked up from the bottom of cans used in moving the fish. According to the writer's understanding of his conference with Mr. Walcott on September 1, the tagged lots of fish were to be held in the ponds in which they had been put after tagging, and record of dead trout having tags was to be kept.

None of the fingerlings were found when the pond was drained and the fish were examined. Examinations of yearlings to disclose scars of lost tags showed that a rather large number had lost tags. Records of tagged fish and of fish with tag scars were kept.

The number of fish from experiment A which still had tags was 59. Of these three lost their tags during handling (considerable handling being necessary to read the numbers.) Two were killed, probably by excessive handling in attempts to read the tag numbers. Three others were found dead, stranded when the pond was drained. The other 51 trout were transferred to another pond where it was promised they would be held until the end of summer.

Of the total number of tags recovered 20 were of the large size and 39 were of the small size. Considering tags on opercular bones (opercle, subopercle, etc.) only, 300 large tags and 300 small tags were used on yearling trout. The conclusion that the small size is more satisfactory for yearlings (6-9 inch fish) seems justified.

None of the small tags placed through the tail or dorsal fin were recovered. A few fish with slit dorsal fins were noted but no tail scars were observed.

Since the fish were transferred, being seined and handled, there is an unknown and evidently large factor of handling which contributed toward loss of tags. Many of the tags which were found on the fish at the check-over were quite loose. There is a decided tendency for the tags, of both sizes, to cause a large hole in the bone to

develop. Whether this is true of larger trout or of large fish, with firm bones, is not known.

The number of identifiable slits on gill covers which were certainly or probably made by tags was 56. There was a source of error in finding such scars of tags although it is believed that few were missed. The number of tags and scars together was 115 out of a possible 600. Either a large number of tagged trout died or otherwise disappeared or else a large number of lost tags were missed, due to healing of the scars.

Although attempts were made to read all tag numbers, it was not possible to do so in all cases, without serious injury to the trout. The tags were not corroded but were often quite dirty so that numbers were illegible until the metal was cleaned by scrathbing away the dirt.

Of the recovered tags, 16 were identifiable as of experiment A-1, 10 as of experiment A-4, and 14 as of experiment A-5. Experiments A-6, A-7, and A-8 gave no returns, indicating that tagging through the tail or dorsal fin is not a satisfactory method.

Tag No. 15843 has been reported returned from Bear Creek, May 11, 1932. This fish was one of experiment B-1. It was tagged when 5 7/8 inches long and the length at recovery was reported as 7 inches. Evidently some, or all, of the fingerling experiment were planted rather than being turned into the large pond as reported.

The experiment was unsatisfactory, due especially to the incompleteness of the check on the A series (yearlings). Trace of only 115 of the 600 tags put on the gill covers could be found. The B series (fingerlings) was never checked.

The conclusion which the experiment justifies is that:

(1) The tags cannot be expected to hold when clamped through the dorsal fin or base of tail.

(2) Tagging through the opercular bones (opercle or subopercle) gave the most satisfactory results.

(3) Not over 51.3% of the gill cover tags remained on the fish over the eight months period of the experiment (59 fish bore tags, out of the total of 115 which

showed any evidence of being tagged.

(4) The small size tag holds better than the large on yearlings (out of 300 of each put on gill covers, there were 39 recoveries of small tags and 20 or large.

Report prepared by John R. Greeley, Assistant to Director.

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