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INSTITUTE FOR FISHERIES RESEARCH

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REVIEW OF "COMMENTS AND NOTES IN CONJUNCTION WITH 1946
TROUT RECORDS KEPT ON RIFLE RIVER" BY B. L. FORESMAN.

By David S. Shetter and K. G. Fukano

During the 1946 trout season, an interested guide and resort owner, Bob Foresman of Alger, kept a record of the trout taken from the Rifle River by anglers using his facilities or contacted by him while on the stream. In the course of the same season the Rifle River drainage was censused by a random party of Fish Division and Field Administration representatives each Sunday during the trout season. Numerous marked hatchery trout of legal size (see Table 1) were available for the anglers, and it might have been expected that the composition of the total catch recorded by either census would be somewhat similar. The rather divergent results which were recorded in the two censuses call for some explanation.

In recording his data, Mr. Foresman included only successful anglers, while the Conservation Department representatives listed results of all fishermen, successful or not. Also, Mr. Foresman's data, as stated by him (page 4), were for angling between the M-55 bridge and Moffett Bridge in Arenac County, while the records obtained on the Sunday check were from random sites throughout the entire drainage. This fact alone could

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Table 1

Marked trout planted in Rifle River drainage
available in the 1946 trout season.

(All marked trout would have reached legal size
or were of legal size at time of planting in 1946)

Year planted	Mark used	Species of trout	Number planted	Size at planting
1942	dorsal-adipose	rainbow	10,000	fingerling
1943	right pectoral clip	rainbow	10,000	fingerling
1944	left pectoral clip	rainbow	5,066	fingerling
1945	right pelvic clip	brook	2,013	legal
		brown	2,515	legal
		rainbow	2,526	legal
1946	left pelvic clip	brook	8,000	legal
		brown	7,150	legal
		rainbow	6,700	legal

alter the species composition of the two totals to a marked degree. Previous stream survey data obtained by the Institute for Fisheries Research (unpublished) indicate that most of the area covered by Foresman's report is marginal trout water after June 1.

The pertinent catch data are presented in Table 2 for both Rifle River censuses. The number of marked fish recovered from the various markings are given and the percentage of each in the total catch also are listed.

Comparison of the brook trout catches listed by the two censuses indicate that approximately 6.5 per cent of both totals is made up of brook trout. Of 55 brook trout noted by Mr. Foresman, none were marked; while of 27 brook trout checked by the Sunday operators, 11 were of the 1946 planting and 16 were unmarked. Foresman's contention that the brook trout in his records were survivors of the 1945 Federal planting cannot be proven, since the latter were not marked, although it is possible, but very unlikely, that some may have survived the winter from that particular release.

For brown and rainbow trout, the two censuses showed very different results. Mr. Foresman's data indicated that brown trout comprised only approximately 44 per cent of his total catch, while the Sunday census found brown trout to make up about 65 per cent of the total catch. Rainbow trout in Foresman's records made up about 49 per cent of the total catch, but in the Sunday records only about 28 per cent of the total catch consisted of rainbow trout.

This difference in numbers of brown and rainbow trout in the two censuses can be attributed partially to the fact that more marginal trout water was censused by Foresman than by the Sunday check, and the rainbow trout is more able to survive in the higher water temperatures

Table 2

Comparison of Mr. Foresman's census totals for the 1946 trout season with totals obtained in the 1946 random Sunday census.

(Percentages of total catch are given in parentheses)

1945 mark - right pelvic clip
1946 mark - left pelvic clip

Item	Foresman's records	Sunday random census
Total successful anglers	175	127
1946 - marked brook trout	...	11 (2.67)
Unmarked brook trout	55 (6.41)	16 (3.88)
1945 - marked brown trout	52 (6.06)	...
1946 - marked brown trout	243 (28.32)	68 (16.50)
Unmarked brown trout	86 (10.02)	202 (49.03)
1945 - marked rainbow trout	47 (5.48)	...
1946 - marked rainbow trout	343 (39.98)	61 (14.81)
Unmarked rainbow trout	32 (3.73)	54 (13.11)
Total 1945 - marked trout	99 (11.54)	...
Total 1946 - marked trout	586 (68.30)	140 (31.31)
Total unmarked trout	173 (20.16)	272 (68.69)
Total catch - 1946	858	412
Total brook trout	55 (6.41)	27 (6.55)
Total brown trout	381 (44.40)	270 (65.53)
Total rainbow trout	422 (49.19)	115 (27.92)

found there. Also this ecological difference in the portions of the drainage censused may explain why such a high percentage of the total catch recorded by the Sunday check (68.69 per cent) was composed of wild trout, as compared with 20.19 per cent wild trout in Mr. Foresman's census.

The composition of the brown and rainbow trout catches varied in the two censuses, i.e., rather different proportions of hatchery-reared and wild fish can be noted. In Foresman's records it will be seen that survivors from the 1945 plantings of legal trout (right pelvic mark) made up 11.52 per cent of the total catch, while none were found in anglers' creels by the Sunday check; nor were any 1945 right pelvic-marked trout of any species observed in the intensive creel census on the Rifle River Area (located at the headwaters of the drainage) during 1946.

Just why the 1945-marked hatchery brown and rainbow trout survived in appreciable numbers in the waters between M-55 and Moffett Bridge cannot be satisfactorily explained unless it is assumed that this stretch of heavy water with large, deep pools provides a better wintering habitat than do the areas upstream. In the light of verbal and written reports from Roxey Roach and Scott Schumann, a similar carry over of 1946-marked fish into the 1947 season, amounting to about 10 per cent of the catch, is currently noted for the Main Au Sable between the Mio and Banfield Dams. Further explanatory data on this better survival in ponded and deeper trout water in streams should be available after the next season of marking our entire planting of legal trout.

On Foresman's data, the 1946 left pelvic-marked hatchery brown trout were, proportionably, about $1\frac{1}{2}$ times as numerous as they were in the Sunday check, while 1946-marked hatchery rainbow trout were almost three times more numerous than in the Sunday census. Here again the character-

istics of the portion of the drainage studied probably influenced the statistics (that portion reported on by Foresman being more favorable for rainbow trout). It also should be pointed out that Mr. Foresman assisted in many of the plantings and made several of the releases from his canoe. Knowing where the fish were released should have been of some assistance to his angling clients, and might partially explain why such a high percentage of 1946-marked fish entered his records.

Certain of the conclusions advanced by Mr. Foresman appear to be untenable in the light of the data presented by him, or are not supported by other data in Department files.

It will be granted that fishing pressure has increased tremendously in the last ten years, but if the pressure during week ends in 1946 was 25 fishermen per mile, (Foresman, page 2), why did the Sunday checking party never contact more than 76 anglers and on several Sundays as few as 10, although they were covering the Main Rifle River and the more important tributaries as well? The 1944 random census of the Rifle River by a Department employee (Institute for Fisheries Research Report No. 1012) revealed no such heavy pressure as reported by Foresman.

Foresman claims bait fishing prior to June 15 removes most of the big fish. His references on page 9 of his report refute this conclusion, since 13 of the 28 trout larger than 12 inches were reported caught after June 15. Also no valid conclusions can be drawn concerning the effectiveness of bait versus fly unless we knew the number of unsuccessful anglers and the type of line they used. From Mr. Foresman's records it would appear that fly fishermen were more successful than bait fishermen, since of 858 fish listed by him, approximately 600 were taken by flies.

There appears to be some room for doubt as to the contention that the various species of trout consistently feed to the exclusion of the others on certain days. Of the 175 angling days listed by Foresman, 74 angling

days took one species only, 94 angling days brought in two species, and on eight angling days all three species were taken.

Mr. Foresman's contentions about planting details are very justified. Advance notice of a planting by newspaper articles or other means of dissemination bring out the meat hogs, and such publicity on specific releases are to be decried. Flood conditions have been observed to be of extreme detriment to hatchery plantings in various other states. It would be very desirable if recently planted stream areas could be checked for over-the-limit violations, which may occur all too often under present day planting methods.

The suggested methods for planting and fishing for the hatchery trout as outlined by Mr. Foresman (page 3, paragraph 10) might work satisfactorily, provided the angling public could be persuaded to accept additional restrictive legislation as to type of lure. However, in the past Department policy has been against such type of legislation on the general ground that it was class legislation. Planting an area then closing it to fishing has been found on the Pisgah Forest in the Smoky Mountains to be an ineffective measure. If the area in question is closed for only a short time, the first anglers present reap the customary harvest; if closed for an entire season little or no benefit the following season is received in the form of additional fish in the creel, and the native fish in a planted area are forced to undergo unnatural competition for food and space.

The foregoing comments are intended to clarify and not to criticize the interpretation of the data presented by Mr. Foresman. We feel that he is to be commended for the considerable time and effort he has taken to organize this material. When more individual anglers and resort owners are moved to keep similar records on their trout fishing, we will be able

to evaluate the results of various trout stocking policies more accurately.

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