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DOI: 10.1577/1548-8659(1953)83[120:CSOWAH]2.0.CO;2

Transactions of the American Fisheries Society 1954;83:120–130

Comparative Survival of Wild and Hatchery-Reared Cutthroat Trout in a Stream

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Abstract.—Gorge Creek, a typical small mountain trout stream on the eastern slope of the Rocky Mountains, was used in a test to measure survival and weight changes in hatchery-reared cutthroat trout (*Salma clarki*). A resident population of this species exists in the stream. The experimental procedure was to introduce groups of trout into enclosures 1/2 to 3/4 mile long; each trout in a group was given a numbered Petersen tag and weighed before planting. Recapture by angling and reweighing were carried out throughout the season of planting and also in later summers. In this way six lots of pond-reared, one lot of stream-reared, and one lot of transplanted wild cutthroat trout were studied. Pond-reared fish exhibited very low survivals over the first (0 to 4.9 percent) and second (0 to 3.1 percent) winter. Survival was largely independent of age. Transplanted wild trout showed survivals of 46.0 to 29.0 percent to the second and third summers, respectively. Stream-reared hatchery fish gave an intermediate value (17.2 percent to the second summer).

All lots of trout lost weight for some 30 or 40 days when superimposed on a resident population. This loss was more severe and was regained more slowly in pond-reared trout than in transplanted wild trout.

It is held that the low survivability of hatchery fish is due to the absence of natural selection at early stages in the life history.

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