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*Transactions of the American Fisheries Society* 1961;90:424–438**Growth of Wild and Hatchery Strains of Brook Trout**

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*Abstract.*—Various growth characteristics of the brook trout (*Salvelinus fontinalis*) were investigated by comparing the performance of three wild populations with five hatchery groups. Wild populations attained a total length at the end of 2 years of about 6 inches, which was less than half the size of the hatchery trout in the same period. Differences in weight between wild fish and hatchery fish for the same period were of the order of 10 times. Unfavorable temperature and lack of food were chief causes of slow growth of wild populations. Among the hatchery groups, inbreeding caused a decrease in growth. Randomly bred groups were very similar in size at all times up to 20 months of age. Growth rates of brook trout decline rapidly with increase in length or weight. Total length does not increase exponentially over long time periods, but growth in length more closely approximates a linear series with time. Different mathematical models were applied to growth data from the hatchery groups. The Walford-Ford concept was not applicable because the predicted ultimate sizes of the groups were unrealistic. The concept of Parker and Larkin appeared to describe adequately the growth curves obtained and was useful in measuring differences due to genetic factors. Weight-length curves were similar for fish of different strains grown under similar environmental conditions. Inbred groups had markedly different weight-length curves from those of randomly bred groups. A modification of LeCren's relative condition factor, derived from the weight-length data of the hatchery groups of brook trout, is proposed. It compares the observed weight of a fish with the weight expected to promote the optimum rate of growth of the species. Examples of its use for wild and hatchery groups are given.

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