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Fish Stocking Policies in Michigan

Contribution from the Michigan Institute for Fisheries Research

by

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Major policies and programs of fish conservation in Michigan are subject to the approval of the State Conservation Commission. Fish culture has constituted a large part of fish management in this state. In recent years many important and widespread changes in fish stocking practices have been made. The experiences in fish management and the conclusions from research, which together have been the basis for these changes, have been summarized in a report (Westerman and Hazzard, 1945) which has had wide distribution among Michigan sportsmen.

The present paper is in the form of an outline of the fish stocking policy now being followed in Michigan. The major changes in stocking policy have been made during the past 10 years, a period to which this discussion is mostly limited. In presenting the subject, my role is principally that of compiler and spokesman.

Major emphasis of fish plantings has been on the trouts (brook, brown, and rainbow), the basses (largemouth and smallmouth), and the bluegill, perch, and walleye (Table 1 and Figure 1).

Table 1.--Summary of major fish plantings in Michigan inland waters by state hatcheries, 1937-1946^{1/}

(Figures are in thousands; in reading, add ,000).

Species and age	Year									
	1937	1938	1939	1940	1941	1942	1943	1944	1945	1946
All trout ^{2/}										
Yearling and adults	537	460	448	618	596	625	568	638	912	1,035
Fry and Fingerling	9,659	8,393	7,064	8,030	9,271	5,506	8,027	2,851	2,282	3,050
Bass										
Fry and fingerling	707	951	1,229	1,198	912	717	748	965	802	70
Bluegill										
Fry and fingerling	14,926	19,452	22,820	14,893	19,574	8,558	4,636	3,833	2,416	9
Perch										
Fry and fingerling	4,980	5,241	8,896	275	11,473	238	148	...	2	...
Walleye										
Fry	117,920	119,205	139,131	121,781	5,600	78,241	8,243	16,080	810	63

^{1/}Data are summarized from the tenth and thirteenth biennial reports of the Michigan Department of Conservation for the years 1939-1940 and 1945-1946, and from a mimeographed summary of fish plantings for 1946.

^{2/}Brook, brown, rainbow and lake trout. Total plantings for the decade consisted of 43 percent brooks, 34 percent browns, 20 percent rainbows, and 3 percent lake trout. Those cited as "yearlings and adults" were mostly of legal size (over 7 inches) or nearly so; all of them planted during 1946 were of legal size.

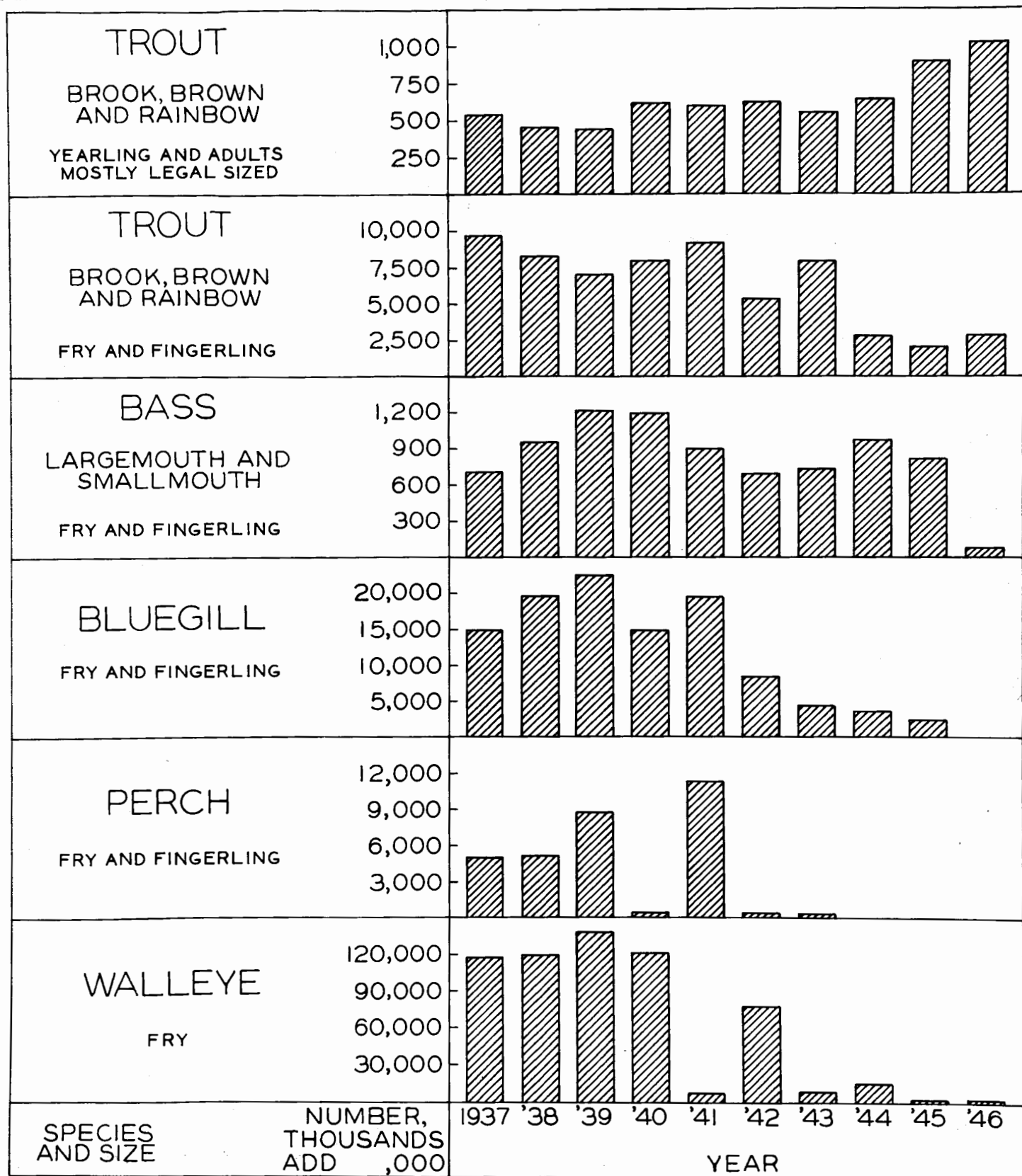


Figure 1.--Summary of major fish plantings in Michigan inland waters by state hatcheries, 1937-1946. Data are given in Table 1.

The history of trout culture in most states has seen a major change in emphasis on size of planted trout, a change from fry plantings, to fingerling plantings, to plantings of legal-sized fish. The switch from fingerlings to legals in Michigan has occurred mostly during the past 10 years. Plantings of legal fish have been more than doubled, while fry and fingerling plantings have been reduced by two-thirds since 1937 (Figure 1). Factors responsible for the change to legal-size trout plantings have included public demand, increased license revenue due to ever-growing numbers of anglers, and especially the unequivocal results of research on the survival rates of artificially propagated trout of various ages. Before adopting a program of planting legal trout, the Conservation Commission insisted on experiments to evaluate the returns of such plantings.

Shetter (1939) described some of the Michigan experiments which demonstrated that fingerling trout plantings give poor returns to anglers. Plantings of jaw-tagged fingerlings, made in five streams and one lake, were followed by creel census. The returns to anglers amounted to less than 2 percent. A recent review of other literature on the subject is given by Schuck (1948). Subsequent experiments (Westerman and Hazzard, op. cit.) on planting legal-sized trout in our best streams have shown an average return of about 20 percent of these fish to anglers. This higher return has been interpreted by the Commission as justification for the change to plantings of legal-size fish. Similarly, planting during spring and the open season is favored over fall planting for legal trout.

What is still a major consideration in the planting of legal trout is one of economics. The trout fisherman on a two-and-a-half-dollar license who catches several legal-sized hatchery trout has not paid his share of the bill. It is costly to raise trout to a length of 7 inches or more.

Experience with planting lake trout in inland lakes of the state has been comparable to stream trout. Until recent years, lake stocking was limited to fry and fingerlings. Then plantings of 2-year-old trout, made experimentally first in Crystal Lake, Benzie County by our fish culturists, resulted in much better returns than had been obtained from the smaller fish. Recent plantings have been limited largely to the 2-year-olds.

Trout planting in lakes is a practice of long standing in some states, a recent practice in others, including Michigan. Such stocking for maintenance of angling quality can be justified readily in lakes which have suitable trout habitat for all needs except reproduction. Brooks, browns, and rainbows will all do well in lakes, but each apparently has quite specific requirements. Competition from pike, bass, perch, and other warm-water fish is frequently a limiting factor. Considerable effort is being expended on surveys of lakes to locate those which have suitable habitat for trout. Some lakes, being of small size and land-locked, are readily depopulated of fish by poisoning before the trout are introduced. About 35 lakes have been so treated in Michigan thus far. Currently, trout plantings are being made in approximately 150 inland lakes in the state. Stocking of fingerlings is the policy for small lakes previously depopulated by poisoning, and legal-sized

trout are planted in larger lakes where there is considerable competition with warm-water game species. Legal trout, especially brook trout, liberated in small lakes give generally unsatisfactory results. There is a fast removal for the first few days, and thereafter very few trout are caught.

A special type of trout fishing in Michigan is provided at a group of small artificial ponds located mostly in the southern part of the state. There are now 12 of these ponds, spring fed and suitable for trout throughout the year. They range in size from 1/2 to 15 acres. Nine of them were built originally for bass and bluegill production; three are new constructions. Open to trout fishing during the regular season, they have the following special regulations: daylight fishing only, fly fishing only, and fishing only without boat or raft. On nine ponds there is a two-trout limit, on three ponds the limit is five. The ponds are stocked with legal-sized hatchery fish each fall, of which anglers remove between 30 and 50 percent. The special regulations are necessary to spread the catch over a considerable number of fishermen. These ponds have proven to be very popular among trout anglers in the southern part of the state, since they are given an opportunity to "warm up" with the fly rod before embarking on a longer trip to the major trout waters farther north.

Most significant in Michigan's current stocking policy is the almost complete cessation, during the past two to five years, including 1947, of plantings of warm-water species including bass, bluegill, perch, walleye and pike. This curtailment has been adopted in view of the findings of field survey parties, population studies, winterkill counts,

creel censuses, and other management investigations. After many years of hatchery operations most of our lakes now contain a considerable variety of game species and have been exposed to the introduction of many others; so that in the realm of new introductions (a species per given lake or stream), the untried possibilities are few. Each proposed instance of a new introduction should be given cautious consideration. Furthermore, our common lake species of bass, bluegill, sunfish, perch, walleye, and pike are in most habitats very efficient in reproduction, so that in the great majority of lakes seining parties encounter a substantial population of the young and juveniles of most game species. It is not to be implied that natural reproduction is phenomenally successful in every lake every year for every species. Year-class dominance and cycles of abundance among different species are known, and are manifestations of differential success in reproduction. So that, theoretically, some degree of desirable control of populations could be effected by stocking. But it is a far cry to the future when this type of stocking will be an effective and general tool in management of sport fisheries. To warrant such stocking would require in each instance a detailed knowledge of the particular fish population and a precise understanding of population dynamics, neither of which we have at the present time. Furthermore, it seems probable that other methods of population control would be far more practical than the degree of stocking necessary for population control.

Past plantings of warm-water game species were distributed among hundreds of lakes on a rather orderly schedule year after year with special emphasis on lakes which were productive and heavily fished. Although the annual state-wide totals were large, the yearly plants to

individual waters necessarily were small, in the magnitude of a few thousand or less. For example, state-wide stocking records for bluegills and bass over the decade of 1936-1945 have been totaled and averaged per acre of lake planted. Bluegills were planted at the average rate of 35 fingerlings per acre in an annual average of 1,138 lakes having an average area of 268 acres; largemouth bass at the rate of 2.4 fingerlings per acre in 687 lakes of an average area of 381 acres; and smallmouth bass at the rate of 1.9 fingerlings per acre in 308 lakes of an average area of 492 acres. In sharp contrast are the large numbers of young game and pan fish to be encountered in lakes, as demonstrated for example by seining operations during the summer of 1947. Twelve lakes were selected on the basis of considerable public interest in fishing, and intensive seining operations were conducted on shoal areas. Numbers of fish caught were used to calculate average numbers per acre for each lake. These values ranged from 103 to 1,760, and averaged 742 fish per acre for the 12 lakes (Beckman, MS).

Thus, the evidence is virtually incontestable that the average planting of these warm-water species has involved an insignificant number of fish as compared to the numbers already present. Especially significant is the accumulating evidence of overpopulation and stunting encountered commonly among the pan fishes, the considerable surplus of brood stock not touched by anglers, the high densities of lake populations (200 or more legal-sized pan and game fish per acre) counted after winterkills, as compared to creel census estimates of the annual harvest of fish per acre by angling, generally in the neighborhood of 30 to 50 fish per acre. Another significant source of information is the history of a group of

Michigan lakes which, until recently, were classified by law as "pike lakes." So classified as to permit a longer fishing season in the spring, these lakes as a matter of policy did not receive plantings of bass and bluegills. Yet many of them maintained outstanding fishing for these species, indicating that good fishing will be maintained without plantings.

The policy of general curtailment of warm-water fish planting was adopted by the Commission and made effective in 1946. It is still in effect. Actually, plantings of bluegill, perch, and walleye were greatly curtailed starting about 1942. The future depends much upon the attitude of organized sportsmen, which so far has been mostly favorable to the new policies.

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