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MONTANA GRAYLING IN MICHIGAN

While ichthyologists try to discover scientific methods for distinguish-
ing Montana grayling from Michigan grayling, a small trial stocking of the
former species is living, growing and waxing fat in a small lake in northern
Michigan, far from the mountain-fringed waters whence the brood stock was
derived.

For several years numerous employees of the Fish Division, from Fred
Westerman on down, have taken turns in sloshing about in the icy waters
of the Otter River in hopeful but fruitless efforts to take a specimen of
the Michigan grayling from its last frontier. They are now forced to admit
that our native grayling has followed the passenger pigeon and the heath
hen into Limbo. Future generations of sportsmen and nature lovers will
know it only from pictures or from the scanty number of specimens whose
embalmed, discolored bodies repose in jars of pickle on dusty museum shelves.

Just how much difference exists between the Montana and Michigan
species is a question the best fish taxonomists have not answered as yet.
Some slight differences may be noted, but resemblance is exceedingly close.
Physiological differences may be present, and that is one of the reasons
why the Institute for Fisheries Research is following the experimental
planting so closely. In any event, there is hope that light may be shed
on the much argued question of why the Michigan grayling did disappear.
Many possible explanations have been suggested--that the grayling's spring

spawning activities were disrupted, and nests destroyed, by the annual log-drives of the lumbermen; that when the brook trout was introduced the grayling was unable to meet the added competition; that ecological changes in its habitat, induced by deforestation and increased cultivation, proved unfavorable; or, that the grayling was so unwary and so avid for any sort of bait that it was brought to the danger point through overfishing.

As long ago as 1900 Michigan's fish culturists tried to bolster the fast declining native grayling population with plantings of the Montana species when it appeared that the Michigan grayling could not be successfully propagated. Between 1926 and 1936 almost two million fry and about half a million yearling Montana grayling were stocked in various Michigan streams and lakes. Very rarely it is rumored about that a grayling has been taken by an angler; but no evidence has been secured that any of these planted fish have reproduced successfully--and certainly the plantings themselves cannot have been very successful, or reports of grayling capture would be more plentiful.

Why? That question, the keystone of the research worker's creed, brings us back to the little northern lake where, as mentioned in the first paragraph, Montana grayling are prospering. It is a small lake, less than eleven acres in surface area. It has no inlet or outlet. The water in its deeper parts stays cold when summer heat brings the surface temperature above the limits tolerated by grayling. Prior to 1936 this lake gave inadequate support to an over-abundant population of yellow perch. The perch is a prolific fish, but does not make good growth in cold water. In consequence, the lake was overrun with a horde of under-size, scrawny perch, unattractive to the fisherman. Since the lake lies on state-owned land, and could be easily patrolled, it was decided that a grayling experiment should be conducted in it.

In September of 1936, the Institute removed all the perch and other fish from the lake, and in October of the same year five thousand 4-inch Montana grayling from the Wolf Lake Hatchery were planted. All other fish having been removed, none remained to compete with the grayling. Because the grayling is protected by law, the lake could be closed to angling without difficulty.

Ever since the planting was made, small samples of the population have been collected at about three-month intervals. The contents of the stomachs are analyzed in great detail, to learn what natural food organisms are favored by the grayling at different seasons and at different stages of growth. Each individual fish is weighed and measured. The values thus obtained reveal, at a glance, whether or not the fish are growing at a satisfactory rate.

The grayling are now entering their fourth year of life. Their appearance at various intervals is shown in the accompanying photograph. Although they have not grown as rapidly as is customary for Montana grayling in their native waters, their present length and plumpness makes them a very desirable object of angling. That they are voracious feeders is attested by the fact that not one of the stomachs examined to date has been wholly empty, a condition frequently encountered when studying stomachs of trout and pan fish. It is interesting to note that although mayfly nymphs and other herbivorous food organisms are numerous in the lake, the grayling stomachs contain high proportions of predacious forms such as dragonfly nymphs and diving beetles. During spring and fall large quantities of terrestrial insects enter the diet, thus showing that the fish feed at the surface readily. During the months of July and August, when the surface waters are quite warm, the fish seem to stay in the cooler, deeper regions where they feed largely on tiny crustaceans such as water fleas.

The experiment is by no means concluded. One important fact, however, has already been demonstrated--Montana grayling will live and grow in Michigan. The heavy stockings of the past have proven, by their uniform failure, that introduction into our streams is fruitless. One of the next questions to be tested is that of competition. Was the lake planting successful only because all other fish had been eradicated? If not, what are the species with which the grayling can live in harmony? Can the growth rate be accelerated by fertilizing the water, or by applying other known methods of environmental control? It is likely that the future attitude of the Department of Conservation toward the grayling will be determined by the answers to these and allied questions. If, as at present appears probable, the grayling must be treated as an intolerant fish demanding special conditions for successful growth and viability, further propagation of the species would have to be confined to small lakes whose existing fish fauna is less valuable than grayling. The eradication of the undesirable fish would be expensive, and with this would be coupled the cost of hatching, rearing, and stocking an annual quota of grayling--for this species can reproduce only in streams. Although the grayling takes flies avidly when the surface waters are cool, little surface feeding is done during July and August. For this reason, an open season for grayling fishing would have to be short, including the period from the first spring emergence of insects to the time when warming of surface water drives the fish to the depths. Continuing the grayling season into the fall months on these few designated waters might be desirable. A low catch limit, and special enforcement personnel, would almost certainly be required.

Many fishermen enjoy angling for rare or unusual fish. If it is decided to open a few specially designated lakes to grayling fishing,

such sportsmen may be willing to buy a special grayling license, the revenue from which could be used to defray the extra expense. Such a plan, however, is in the indefinite future. The present problem is to find out the requirements of grayling in Michigan waters and the best way to maintain grayling fishing if such a program is to be adopted.

INSTITUTE FOR FISHERIES RESEARCH

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