Abstract of report presented by Milton B. Trautman at the North Central States Fish and Game Conference, Urbana, Illinois December 6, 1935.

December 2, 1935

REPORT 329

PRESENT STREAM IMPROVEMENT WORK IN MICHIGAN

At present, the work of improving Michigan trout streams is being carried on, as is proper, under the supervision of the Michigan Department of Conservation. In the actual construction work federal funds and federal relief workers are employed.

The program of evaluation of existing improvement devices and further experimentation in methods is being continued, on an enlarged program, by the Institute for Fisheries Research, with Mr. J. W. Leonard in charge.

The checking of the improvement devices and of the improved streams consists primarily of research on:

(1) The permanence of the various types of devices.

(2) The physical effects of the devices on the depth, width, bottom, banks, brush cover and temperature of the improved streams, with special attention to those structures now in use for 2 to 4 years or more.

(3) The biological effects of the devices, determined by quantitative and qualitative studies of the food organisms, by trout counts and by creel census.

Other biological factors, having an intimate bearing on stream improvement are also studied: such as seasonal and general migration of trouts, the need for deep holes in comparatively shallow streams to harbor wintering trout and thus tend to discourage the fall migration downstream into larger waters, the effects on trout of ice formation and ice jams, and the general protection of trout during the winter.

To date our research on Michigan trout streams definitely indicates that:

(1) The stream improvement structures now in use are reasonably permanent.

(2) Certain types of structures have much greater permanence than others.

(3) The uncovering of gravel by improvement devices has increased the total spawning area for trout and the amount of trout food organisms.

(4) The accumulation of silt in quiet water behind improvement devices increases the production of certain types of trout food organisms. Growth of aquatic vegetation is encouraged, thereby increasing the amount of shelter and food for young fish.

(5) All of these indications, and some actual trout counts and creel census data, point toward an increase in the number of trout per unit of stream and in the increase of the trout take.

(6) The work has now progressed to such an extent that a well-trained man can now predict in what manner his structures will modify the physical and biological conditions of a stream.

Mr. Clarence M. Tarzwell, formerly of the Institute staff and now with the U. S. Forest Service in the Southwest, has been granted a four months' leave of absence to return to the Institute to assist in rewriting the "Methods for the improvement of Michigan trout streams", and to prepare a general discussion of the stream improvement problem.