

The analysis of the scale sample thus shows that, of the ninety-eight fish in their third year, twenty-three were 8 in. long, thirty-one were 9 in. long, and so on.

Besides the general investigation of the age composition and growth variation of trout-stocks in different waters, Mr. Parrott has commenced the study of the formation of the characteristic growth-lines on scales in relation to the development of the reproductive organs in the two sexes, and has worked out a method for a standardized classification of fishing-waters based on the growth-rate of brown trout, and has made preliminary field observations in connection with the liberation of trout-fry in Canterbury streams. A substantial quantity of data has now been worked up by Mr. Parrott as material for a comprehensive report on the growth, &c., of New Zealand trout, which it is hoped to publish in the near future.

The Field Biologist, Mr. D. F. Hobbs, after observing the conditions under which trout and quinnat salmon spawned, and studying the mortality occurring during the incubation and alevin stages under natural conditions in certain streams in Canterbury and Westland during the winters of 1933 and 1934, extended this line of investigation, at the request of the Councils of the Acclimatization Societies concerned, to rivers in the Southland, Waitaki, and Auckland Acclimatization Districts in the winter and spring of 1935. Owing to the extent of country to be covered in a limited time his examinations were necessarily of a cursory nature in many cases, and his tours were actually preliminary surveys as preparations for more detailed and quantitative work in the future. Among the problems of practical importance upon which attention was focused were such questions as the relative extent of suitable spawning-ground available in different river systems and the possible factors inimical to the safety of ova after deposit in the "redds" (nests for ova made in the shingle or gravel on the river-bottom), among which, in Southland, the most probable appeared to be disturbance and silt deposit by floods, and in certain waters disturbance by later spawners. A report by Mr. Hobbs has been submitted to the Southland Acclimatization Society and published in their annual report for the year ended 31st March, 1936. A preliminary examination of the Kakanui River has been the subject of a report to the Waitaki Acclimatization Society dealing with the extent of spawning-areas, the character of the trout "redds" examined, the observed losses in the embryonic stages and in the "alevin" stage when the newly hatched fry, not having yet assimilated all their egg-yolk, remain among the stones below the surface of the river-beds. The report made to the Auckland Acclimatization Society, besides covering the observations made during a seven-weeks tour of the district, gives a comprehensive review of the problems involved in the practical management of trout-waters by an acclimatization society. The key-note of Mr. Hobbs' report, which also indicates the essential relationship of research to the functions of acclimatization societies or other fishery-controlling authorities, may be indicated by the following quotation:—

"The district contains many miles of water providing angling of varying quality. The need, of course, is to maintain and if possible improve the sport offering where it is now moderately satisfactory and to improve the yield of the allegedly poorer waters, especially those nearest to where the numbers of potential anglers are greatest. As the limitation is one of finance, it is necessary to add that resources must be used to this end to the best economic advantage. Your latest annual report indicates that you are relying largely on an increased hatchery output to achieve the results desired. There is a very general tendency on the part of anglers to believe that almost any fisheries problem can be remedied simply by increasing liberations. While there is no doubt that in many waters an increase in number of takable fish will result from increased liberations, such increases are at present of absolutely unknown extent, and virtually nothing is known of the economics of maintaining stocks by hatchery liberations or by other means. As it is essential that your anglers, who, under your democratic system of fisheries control, really determine your policy, should have a broader knowledge of the principles involved in stock-maintenance, I have in this report endeavoured to provide some basis of intelligent approach to the whole question. The broad issue that will require consideration is how can your society exercise most intelligently its power to draft conservational regulations and how use, to the best advantage, its income to obtain the maximum yield from its waters."

There follows a discussion of food resources and the physical conditions affecting them, factors limiting fish-stocks, propagation (natural and artificial), past measures taken to conserve and maintain stocks of trout, migratory habits of trout, and angling intensity in their bearing upon the conditions occurring in the waters of the Auckland Acclimatization District, concluding with an indication of the directions in which an acclimatization society may by the organized activities of its executive staff co-operate in research work and so lead to an understanding of the factors involved that will place future fishery-management on a more rational and practical foundation. The report has been published in the society's annual report for 1935-36, and, in my opinion, constitutes a distinctly valuable contribution to our literature on fresh-water-fisheries management in New Zealand.

Professor E. Percival, Honorary Director of Research to the Committee, besides making observations of the trout-redds in the Selwyn River in continuation of the investigation of the incidence and effects of superimposition of later upon earlier redds commenced by Mr. Hobbs, has continued his personal investigation of the plankton of Lake Brunner. The object of these studies is to ascertain the nature and seasonal abundance of the more minute forms of life in the water of this lake. The results so far obtained indicate that Lake Brunner possesses a richer fauna of minute crustaceans than is the case in any other lake in New Zealand that Professor Percival has sampled. These organisms are of especial interest as constituting a valuable source of food for certain fishes. This branch of aquatic biology has been studied in Europe and