Scale-reading constitutes a necessary part of the general scheme of investigational work. It is, however, very far from being an exact science and, with a view to determining more precisely the significance and limitations of scale-reading, Miss Lawrey is collaborating with Mr. Hobbs in a critical examination of existing technique. Meanwhile, although the routine examination of scales is not being proceeded with, the collection of representative samples for reference in connection with future studies is going on.

In making a general report on fresh-water-research activities Mr. Hobbs refers to the value of general impressions, resulting from surveys of stream conditions in different parts of New Zealand in indicating which of a number of possible lines of investigation may prove most fruitful. Two such impressions, arising from the observations he has made over a number of years, are recorded. The first is that the density of fish-stocks varies chiefly according to the facilities different streams offer for successful natural reproduction. The second is an exception to the first—namely, that trout-stocks, considerably in excess of what the extent and quality of spawning-areas lead one to expect, are found when there is a relative or complete absence of eels. This second impression, together with evidence of depredation by eels which has been accumulated over the last six years, suggested the need for a more thorough investigation of the whole eel problem. The commencement towards the end of 1937 of extensive eel-destruction campaign in the Hedgehope and Makarewa Rivers in Southland afforded an excellent opportunity for an extensive scientific study to be made on some aspects of the life-history of eels, and their inter-relationships with trout. At the same time evidence regarding the effect of a large eel-population on trout stocks could be obtained.

Mr. D. Cairns, Fresh-water Biologist, commenced observations in November, 1937, on the various aspects of the biology of the eel indicated above, and it will be necessary to keep a close watch on the Hedgehope-Makarewa experiment for the next few years.

Investigations carried out so far have included studies of the food of the eel and its feeding-habits, the age as determined by its scales and otoliths, seasonal migrations and maturity, and the distribution of the two species and sexes in certain New Zealand waters, and other relevant details. This work has made good progress, and much valuable information has already been collected under these various headings. It is hoped later in the year to publish a paper embodying the results obtained. The establishment of a commercial eel fishery in New Zealand has been the subject of comment in past annual reports, and the present scientific study of the biology of the eel would form a useful background should such an industry be eventually established. With a view to testing how money available for stock-maintenance can best be spent the cost of the Makarewa-Hedgehope experiment is being closely observed and will form a useful basis for possible future operations.

Mr. Cairns has occupied the bulk of his time on the above investigation, but other work has included the general survey of food and conditions in the rivers of the Wellington Province, collection of scale data periodically from one experimental stream (the Horokiwi), study of excessive aquatic weed-growths in two places in Southland, scale-reading, and general laboratory work. In addition, the biologist has co-operated with Mr. Kaberry (District Inspector) on preliminary experiments relating to fishing methods and catches and on pollution problems.

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of Fishery Research.