

On several occasions during the year use has been made of information gained through the diary scheme to determine the probable effect of proposed changes in district regulations, and decisions have been made in accordance with these findings.

Horokiwi Investigation.—Analysis of the results of the detailed studies made on this stream in 1939–42 have been continued and the manuscript is now well advanced for publication.

During the year a circular was prepared showing the results obtained from the studies of ten years of anglers' diaries from this stream. The results indicated clearly that in this very typical small trout stream, natural phenomena such as floods had been of very much greater importance than liberations in determining the size of the stock.

Erosion and Flooding.—Progress has been made with the analysis of the results of the studies made in 1947 on the effects of floods and the shifting of river-beds on the bottom fauna. It is hoped that the results will be published during the coming year.

Fiordland Expedition.—The data collected by the fisheries officers who accompanied the above expedition have been analysed and the results will be published with the other reports on the expedition.

No trout or other introduced fish were found in the area, and native fresh-water fish were not abundant, although eels and bullies were recorded, as well as several species of *Galaxias*.

Publications.—Although no Fisheries Bulletins or other major publications have appeared during the year a number of technical and research articles have been published by members of the staff in various journals. These include "Migrating Eels in Lake Ellesmere," by D. F. Hobbs, and "Some Aspects of the Production and Cropping of Fresh Waters," by K. R. Allen in "Proceedings of New Zealand Science Congress, 1947"; "The New Zealand Grayling," by K. R. Allen, and "Problems of Marine and Fresh-water Fisheries Biology in New Zealand," by K. R. Allen and R. M. Cassie in *Tuatara*, and "Lakes," by K. R. Allen in *New Zealand Science Review*.

MARINE RESEARCH

Work has continued on the two major lines of research commenced last year—namely, trawl mesh selectivity and toheroa population studies. In addition, the detailed analysis of catches from selected boats in the Nelson area has been continued. During the year a systematic plankton sampling programme in the Hauraki Gulf and adjacent waters was commenced in co-operation with Mr. A. S. Fuller, of the Zoology Department of the Auckland University College. The Marine Biologist also made fishing trips on trawlers from Gisborne and Dunedin to make a preliminary acquaintance with these fisheries and their problems.

Sufficient experimental trawling by the research vessel "Ikaterere" has now been completed to produce some reasonably conclusive data, suggesting that at least in Hauraki Gulf the optimum mesh size of cod-ends for snapper is nearer 5 in. than the present legal minimum of 4 in. As time has permitted trawl catches have been subjected to biological examination, yielding valuable statistics for several species of fish.

Further surveys of the toheroa populations have been made on the Muriwai and Waiterere beaches, but this data is still being statistically examined.