

of the world, are of profound significance in their bearing upon all life in the sea, including—what is of more immediate importance to us—the fishes. A more particular account of the results obtained must await the completion of the “Dana’s” voyage. My own information was obtained verbally from the “Dana’s” scientific staff, on the strength of the results of temperature-readings and chemical analyses of water at stations off the New Zealand coast. This information forms the basis of my reflections on the problem of salmon acclimatization expressed in an earlier part of this report. I would like to emphasize my conviction that until provision can be made for hydrographical investigations of this kind in our seas, continued over a period of years, we shall never obtain a complete understanding of the migrations and distribution of many of our important food fishes.

FRESH-WATER RESEARCH.

With reference to other fishery work of a scientific character which has been carried on during the past year in the Dominion, the most important and interesting fact to record is the definite progress which has been made with the attempt to grapple scientifically with the problems of the trout-fisheries. The results and conclusions from the year’s research which has been carried on by Captain J. S. Phillips, the holder of the appointment of Fresh-water Research Student in the Victoria University College, are now to hand. This research scheme was created by a grant from the Wellington Acclimatization Society in 1927, and the programme of preliminary investigations was drawn up by a sub-committee appointed by the Council of the society, and including Professor Kirk and myself as scientific advisers. Captain Phillips has now written a report covering the work of the past year and making certain recommendations. This report will be published by the Department as a Fisheries Bulletin.

Prompted by a similar recognition of the need for throwing light on the biological conditions in rivers in relation to the food problems of acclimatized trout, the North Canterbury Acclimatization Society has also made noteworthy progress in a scheme of investigations. Mr. A. W. Parrott, a student in the Biological Department of the Canterbury College, has been engaged in making observations in certain of the Canterbury trout-waters. His preliminary results and recommendations have been published in the annual report of the North Canterbury Acclimatization Society for the year ended 31st March, 1929.

I regard these researches, rendered possible by the enlightened attitude of the Councils of two of our leading Acclimatization Societies, as definitely marking the beginning of a new era in the history of New Zealand fisheries. It does not imply an immediate improvement of the fresh-water fisheries, but it does afford promise, if the researches are followed up, that the future management of fishing-waters will be placed on an increasingly rational footing. The previous and prevailing lack of knowledge of the conditions of aquatic life and of scientific principles of fishery management has led on the one hand to doing nothing because of not knowing what to do, or else to fruitless and wasteful operations of a casual nature without due preparatory consideration and without subsequent study of effects. The results to be obtained by fresh-water research are of fundamental interest to the Fisheries Branch of this Department. It is therefore incumbent upon us to do all in our power to further the work, and it is hoped that the interest and support of the Government will be forthcoming.

OTHER FISHERY RESEARCH.

In Volume 59, Part I, of the “Transactions of the New Zealand Institute,” Professor Malcolm has published a further paper on “Food Value of New Zealand Fish.” In this (Part 9 of the series) the author describes experiments made in the Medical School of Otago University to determine the vitamin content of tinned toheroa and toheroa-soup. To quote from Professor Malcolm’s paper: “While these experiments were in progress similar work was being done on Stewart Island oysters, both fresh and tinned, and on the whole the toheroas were the richer of the two, although both are valuable sources of vitamin A.”

“Food Values of New Zealand Fish: Part 10—Seasonal Variation in Stewart Island Oysters” appears in Volume 59, Part IV, of the “Transactions of the New Zealand Institute.” Dr. Malcolm’s analysis of these oysters monthly from March to late October showed a high glycogen (“fat”) content early in the season and a more or less gradual fall up to October. The vitamin A content was lower in the winter months of June, July, and August than in March to May, and showed a marked increase in September. Both the spawn and the spawned oysters, and also tinned oysters, were found to contain considerable amounts of vitamin A.

“Studies in New Zealand Fishes,” a further taxonomic paper by Mr. L. T. Griffin, of the Auckland Museum, in Volume 59, Part II, of the “Transactions of the New Zealand Institute,” contains a description of ten species, one of them being new to science.

“Sharks of New Zealand: No. 2,” by Mr. W. J. Phillipps, of the Dominion Museum, being the second part of a paper published in *New Zealand Journal of Science and Technology* (Volume 6, 1924) appears in Volume 10, No. 4 (December, 1928), of the same journal. It gives a description of nine species of sharks and dogfish found off the coasts of the Dominion. In the same issue of the journal Mr. Phillipps has a paper on “The Dried Swim-bladder of the Ling as a Commercial Product.”

“Notes on the Pilchard (*Sardinia neopilchardus*) in Queen Charlotte Sound,” “Note on an Anchovy (*Engraulis australis*),” and “Note on a Fish ascending with Whitebait,” are further contributions from Mr. W. J. Phillipps published in Volume 10, No. 6, of the *New Zealand Journal of Science and Technology*.

A report on the work of the Marine Fisheries Investigation Station, Portobello, has been submitted by the Hon. G. M. Thomson, Chairman of the Board of Management (see pages 22 and 23).

I have, &c.,

A. E. HEFFORD,

Chief Inspector of Fisheries.

The Secretary, Marine Department, Wellington.