

FRESH-WATER FISHERIES.

In the past, although responsible for the departmental administration of fresh-water fisheries under Part II of the Fisheries Act, 1908, the Marine Department has had but a remote contact and a somewhat second-hand acquaintance with material conditions in respect of the general fresh-water fisheries of the Dominion apart from its activities in connection with the acclimatization of quinnat and Atlantic salmon, and with subsequent hatchery and stocking operations. With its assumption of the responsibility of conducting fresh-water research in the Dominion and with the appointment of departmental officers as District Inspectors of Fisheries for the Wellington, Canterbury, and Otago districts, the interest and activities of the Marine Department in relation to inland fisheries have been extended during the past year. It seems fitting, therefore, that some reference should here be made to the nature of the responsibilities with which we are faced and to the Department's attitude and policy in relation to the fresh-water section of the nation's fishery resources. Of principal importance among these are our trout fisheries, which constitute an asset of high recreational value both to our own people and to our overseas visitors. And, since the kinds of fresh food available to many of our population are lacking in variety, though generally ample in quantity, the value of our trout and salmon fisheries as a source of food-supply is by no means inconsiderable.

The earliest trout-fishery problems of New Zealand were those pertaining to their original creation—in other words, the introduction and naturalization of European and American species of trout in the rivers and lakes of New Zealand—and these were overcome by the enterprise and zeal of the pioneers of sixty to seventy years ago, who succeeded in hatching out fry from ova imported into this country and planted them in suitable and unsuitable—but mostly suitable—waters throughout the colony. Once introduced, the trout, like so many other naturalized species, found Nature in New Zealand a most beneficent, not to say indulgent, foster-mother. They waxed fat and lusty, they increased and multiplied, and in a remarkably short space of time they made this country an angler's El Dorado. The waters were virgin and pure; food for baby trout, food for youthful trout, and food for the giant of the tribe was there in plenty. There were clean stream-beds of gravel and shingle for spawning and deep pellucid pools where the big fish had their lairs. The average trout's expectation of life was not unduly lowered by the wiles of the angler, or even by the predatory attentions of the poacher, because there were relatively few of either. Certain work in connection with trout fisheries had to be done, and was done, by acclimatization society staffs, but actually the task of maintaining them was a sinecure for many years.

That was in the past. There are wonderful trout, and there is first-class trout fishing to be got in New Zealand to-day. But whereas formerly this was the usual thing in many waters throughout both North and South Islands, it is now rather the exceptional thing; and the indications of progressive deterioration in our trout-fishing assets, high though the standard is in comparison with that of the fishing obtained in most other countries, are a matter for serious concern among those who are responsible for the management of inland fisheries.

As to the causes to which deterioration of trout-stocks in various waters is ascribable, one may hear the question freely discussed and sometimes confidently settled wherever two or more anglers are gathered together, but there is insufficient reference to facts in such discussions, and conclusions reached are often contradictory. The only inquiry into the question that has been made in a scientific way was that carried out by Professor E. Percival, whose findings were set out in a paper entitled "On the Depreciation of Trout Fishing in the Oreti (or New) River, Southland, with Remarks on Conditions in other Parts of New Zealand," which was published by this Department as Fisheries Bulletin No. 5 in 1932. The most significant point that is demonstrated in the paper is with reference to the part played by the angler. Percival's principal conclusion is "that the primary factors in bringing about depreciation are an increased number of anglers with greater facilities for taking fish, owing to the ease and speed of locomotion, and the almost complete absence of restrictions; so that the killing-power has become constantly greater." One may take it that, so far as the Oreti River is concerned, Professor Percival has proved his case; and with regard to other waters, concerning which accurate and comprehensive data for scientific analysis are not available, it is quite certain that increased intensity of fishing of late years has been a dominantly operative factor. It is not, however, the whole story applicable to all waters where fishing has depreciated. Apart from the undoubted fact that the trout living in New Zealand in the nineteenth century ran much less risk of coming to an untimely end through meeting an alluring-looking morsel with a barbed hook concealed in it, in many of our rivers the trout of 1937 is living in a markedly different habitat from that in which his progenitor of 1897, or even of 1917, was reared and lived his life. The rivers themselves have been changed in character. The dominating agency by which the changes have been wrought has been the erosion that has taken place in the higher lands from which their waters drain. In the last fifty years hundreds of thousands of tons of debris have been brought down from the hillsides and much of it deposited in the beds of rivers, here changing what was once stable stream-bottom into beds of shifting shingle, and there filling up once deep pools where the big trout lurked in safety. There is also the increased tendency for floods to be higher and more sudden in their incidence and for low-water conditions to be more extreme and of longer duration than when the land surface of the watershed was in its primeval state as Nature made it, before the extensive areas of bush, scrub, and tussock had been afflicted by their present-day baldness and before the land-drainage works that have been necessitated by agricultural requirements had changed the riparian character of the lower courses. With increased abstraction of water from rivers for irrigation purposes the ill-effects of reduced water-flow in dry weather are augmented and more prolonged. Such conditions not only reduce food-supplies for the fish, but also prevent their ascent to and return from the upper waters where the natural spawning-places are. These conditions alone are sufficient to account for a