of mere biological interest: it is necessary for the proper handling of material problems connected with the conservation and development of this fishery. The carrying-out of the required comprehensive scheme of research still remains an undertaking for the future. All that could be done in the year under review was to continue the tagging experiments by marking stripped fish taken for hatchery purposes; to add to our collection of scale samples to afford material for the study of the age and growth of these fishes; and to make a biological examination of such specimens as came to hand. What is particularly needed for a more complete elucidation of the Atlantic-salmon problem are scales from salmon collected at every stage of growth, together with evidence as to their migration at different stages (obtainable by special fishing and marking experiments), and as to the character of their food-supplies. The recapture of eight tagged fish, of which the particulars are given in the accompanying table, was reported during this year. The table also includes two recaptures noted in last year's report.

TAGGED SALMON (*Salmo salar*).

Table showing Particulars of Salmon tagged after Stripping on the Upokororo River (Te Anau) and subsequently recaptured.

Tag No.	Liberation Particulars.					Recapture Particulars.					Increment.		Period between Liberation and Recapture.
	Date.	Place.	Length.	Weight.	Sex.	Date.	Place.	Length.	Weight.	C.F.	Length.	Weight.	
			In.	lb.				In.	lb.		In.	lb.	Months.
MD 17	June 25	Upok. R.	25	5	?	18/12/26	L. Te Anau	26	6	34·5	1	1	18
MD 238	July 25	,,	28	8	Female	23/12/26	,,	29	6	26	2	2	17
MD 387	July 25	,,	24	5	?	28/2/27	Upok. R.	26	5½	32	2	½	19
MD 267	July 25	,,	25	5	Female	3/10/27	L. Te Anau	31¾	7½	24	6¾	2½	27
MD 489	6/6/26	,,	30	7	Female	13/11/27	,,	31	8	27	1	1	17½
MD 486	6/6/26	,,	22	2½	Female	16/11/27	,,	30½	7	25	8½	4½	17½
MD 474	31/5/26	,,	26	4	Female	17/11/27	,,	31	8½	30	5	4½	17½
MD 488	6/6/26	,,	28	7	Female	23/12/27	,,	31	8½	29	3	1½	18½
MD 14	June 25	,,	27	4	Female	31/12/27	Mouth of Upok. R.	29	6	26	2	2	18
MD 471	27/6/26	,,	30	7	Female	19/1/28	,,	30	8	30	0	1	7

The figures under the last column ("C.F.") of the "Recapture Particulars" give what is called by English salmon investigators the "condition factor" of each fish on recapture. This figure represents the relationship between weight and length according to the formula—

$$\text{Condition-factor} = \frac{W}{L3} \times 100{,}000.$$

By this formula a good average salmon in the British Isles has a condition factor of about 40. The condition-factor of grilse is lower (usually about 30).

Scale samples from each of the above fish were obtained which afforded additional information as to the life-history of the specimen besides that given by the marking experiment. This is scarcely the place for a detailed discussion (which will be dealt with in a special report), but it may be mentioned that of the eight fish four had spawned for a second time subsequent to the occasion on which they were marked, and one had spawned once before being marked. The three others would have spawned in 1928 if they had escaped capture. Thus three showed a one-year interval between spawning and five a two-year interval. Spawning in successive winters is considered to be the usual habit of the species, and one wonders whether the biennial spawning of these Te Anau salmon may be due to the effects of artificial stripping or whether it is caused by inadequate food-supplies in the fresh water. It will be noted that three fish only showed an appreciable increment in length during the period between marking and recapture. It is possible that these fish were sea-run, for it is a fact that a proportion of these salmon go down to the sea. It is equally certain that a large proportion remain and feed in fresh water. Two scale samples from fish caught in tidal water have been received up to date. The whole subject needs far more investigation before any clear-cut conclusions can be drawn.

In addition, the recapture of a tagged fish (MD 604) marked on the 30th July, 1927, has been reported. The only particulars given state that the fish was caught in Lake Te Anau on the 24th February, 1928, and that its weight was 5½ lb. The particulars recorded on liberation were—length, 26 in.; weight, 4 lb. The fish was a female. It will be noticed that not a single male fish has so far come to light again.

We take this opportunity to express our thanks for the assistance rendered by the staff and members of the Southland Acclimatization Society, to whom we are indebted for the collection of scale samples and information and for forwarding evidence of the recapture of tagged fish.

Oysters.

The cultivation experiments with rock-oysters on the Australian system have been mentioned above in connection with the general subject, but it may be added here that it is intended to make these experiments on as scientific a basis as our facilities allow. Results are to be determined in a precise and quantitative manner and not appraised by general impressions. A method has been devised by which the actual increase in growth can be measured, the Marine Biologist being responsible for making periodical observations.