



Serial No. 2178
(B.g.14)

ICES/ICNAF Salmon Doc.69/2
(also ICNAF Res.Doc.69/40)

ANNUAL MEETING - JUNE 1969

The Length, Weight and Age Composition of the Commercial
Catches from the River Tay and River Tweed
in 1968

by W. R. Munro and I. J. R. Hynd

In ICES/ICNAF Salmon Document 68/1 details were given of the length, weight and age composition of the commercial catches taken on the River North Esk from 1962-1966. This report presents a first and preliminary attempt to provide information on these characteristics for the stocks of two other important Scottish salmon rivers, the Tay and the Tweed, based on samples of scales collected during 1968 from the net and coble catches made during the commercial netting season, which extends from 5th February to 20th August on the River Tay and from 15th February to 14th September on the River Tweed.

The commercial catches of these two rivers were each sampled on four occasions and details of sampling dates and numbers sampled are given in Table 1. Although, in each case, the numbers sampled during the first visit are small, in fact, they represent a greater proportion of the month's catch than do the numbers sampled towards the end of the season because of the relatively much larger number of fish entering the rivers then.

Sampling was restricted by the amount of effort which could be devoted to it and the numbers of fish examined were relatively small in relation to total catches, representing only about 1% of the latter in each case. On days when the complete catch could not be sampled care was taken to ensure that a random sample of the available fish was examined but the overall value of the samples, as being truly representative of the total catch, is naturally limited by the small number of occasions on which samples were taken. Despite this limitation it is felt that the data are capable of providing a reasonable first approximation to the actual composition of the relevant stocks and it is hoped to improve on its accuracy this year by increasing the frequency of sampling.

Tables 2 and 3 show the percentage age composition in the samples. While these, in general, probably give a reasonable indication of the age composition for the months sampled, as they stand they are of little value in giving a true picture of the overall age composition and an attempt has therefore been made to derive the latter by weighting the percentages in the samples in relation to the monthly catch figures for the appropriate fishery.

For the River Tay, the March samples was taken as being representative of the age composition during February and March and the percentage age composition for March was used to calculate the numbers in each age class in the combined catch for these two months. The April sample data was used similarly with the catch for April and May. The July sample, which was taken early in the month, was considered to be more representative of the age composition for June and was therefore used to calculate the numbers in each age class in June while the August sample was used to provide the corresponding values for July and August. The numbers in each age class in each period were then totalled and expressed as percentages of the total catch (Table 4).

The River Tweed samples were similarly treated using the March age composition with the combined catch for February and March; the April age composition with the catch for April and May; the June figures with the catch for that month and the August values with the combined catches for July, August and September. The results are given in Table 5.

For both rivers, these weighted values suggest a rather higher proportion of grilse, about 6%, than do the catch returns based on the fishermen's classification into grilse and salmon in which grilse accounted for 47.5% and 50.8% of the total catch for the Rivers Tay and Tweed, respectively. Although

this difference may be in part a reflection of the limitations of the sampling programme, it could also be partly due to the fact that, because weight is the most important criterion used by the fishermen, some of the larger grilse would be included as salmon. For example, in the August samples, over 13% of the grilse from the River Tay and 10% from the River Tweed were over 8 lbs. (3.6 kg.) in weight and would therefore have been classed as salmon by the fishermen.

The average length and average weight of the fish in each age class were also calculated and details of these, for the total samples, are given in Tables 6-9.

Table 1

Sampling Details

<u>River Tay</u>			<u>River Tweed</u>		
<u>Dates</u>		<u>No. in Sample</u>	<u>Dates</u>	<u>No. in Sample</u>	
21, 22	March	34	19, 20	March	48
17, 18, 19	April	197	24, 25	April	94
2, 4	July	104	26, 27	June	130
6	August	100	8	August	133
	Totals	435			405

Table 2

River Tay - Percentage Age Composition in Samples

<u>Age Class</u>	<u>March</u>	<u>April</u>	<u>July</u>	<u>August</u>
1.1+	-	-	-	1.0
2.1+	-	-	10.6	58.0
3.1+	-	-	11.5	15.0
2.2	50.0	54.8	1.9	-
3.2	23.5	21.3	1.0	-
1.2+	-	-	-	2.0
2.2+	-	4.1	59.6	20.0
3.2+	2.9	2.5	9.6	3.0
2.3	11.8	7.1	1.0	-
3.3	11.8	4.6	-	-
2.3+	-	0.5	-	1.0
3.3+	-	0.5	-	-
Previous spawners	-	4.6	4.8	-
No. in sample	34	197	104	100

Table 3

River Tweed - Percentage Age Composition in Samples

<u>Age Class</u>	<u>March</u>	<u>April</u>	<u>June</u>	<u>August</u>
1.1+	-	-	1.5	3.0
2.1+	-	-	13.9	55.6
3.1+	-	-	3.9	16.5
4.1+	-	-	-	0.8
2.2	58.3	69.1	-	-
3.2	37.5	19.1	0.8	-
4.2	-	1.1	-	-
1.2+	-	-	1.5	-
2.2+	-	6.4	70.0	28.1
3.2+	-	1.1	6.9	3.0
2.3	4.2	2.1	-	-
Previous spawners	-	1.1	1.5	-
No. in sample	48	94	130	133

Table 4 River Tay - Estimated Percentage Age Composition

<u>Smolt Age</u>	1+	2	<u>Sea Age</u> 2+	3	3+	<u>Previous Spawners</u>	<u>Overall</u>
1	0.8	-	1.7	-	-	-	2.5
2	49.0	5.2	21.1	1.0	0.1	0.5	76.9
3	13.3	2.2	3.4	0.8	0.8	0.1	20.6
Overall	63.1	7.4	26.2	1.8	0.9	0.6	

Table 5 River Tweed - Estimates Percentage Age Composition

<u>Smolt Age</u>	1+	2	<u>Sea Age</u> 2+	3	3+	<u>Previous Spawners</u>	<u>Overall</u>
1	2.5	-	0.1	-	-	-	2.6
2	46.1	8.1	21.9	0.4	-	0.1	76.6
3	13.7	3.4	2.9	-	-	0.1	20.1
4	0.6	0.1	-	-	-	-	0.7
Overall	62.9	11.6	24.9	0.4	-	0.2	

Table 6 River Tay - Average Fork Length (cm.)

<u>Smolt Age</u>	1+	2	<u>Sea Age</u> 2+	3	3+	<u>Previous Spawners</u>
1	68.0 (1) ^a	-	90.2 (2)	-	-	-
2	65.3 (69)	71.5 (127)	79.1 (90)	93.5 (19)	99.0 (2)	93.4 (11)
3	61.5 (27)	73.4 (51)	79.2 (19)	91.5 (13)	92.5 (1)	84.8 (3)
Overall	64.3 (97)	72.0 (178)	79.4 (111)	92.5 (32)	96.8 (3)	91.4 (14)

^a Figures in brackets denote the number of fish involved.

Table 7 River Tay - Average Whole, Round Weight (kg.)

<u>Smolt Age</u>	1+	2	<u>Sea Age</u> 2+	3	3+	<u>Previous Spawners</u>
1	3.4 (1) ^a	-	8.8 (2)	-	-	-
2	3.1 (69)	3.7 (127)	5.7 (90)	8.6 (19)	10.0 (2)	7.6 (11)
3	2.5 (27)	4.0 (51)	5.4 (19)	7.9 (13)	8.5 (1)	6.3 (3)
Overall	2.9 (97)	3.8 (178)	5.7 (111)	8.3 (32)	9.5 (3)	7.3 (14)

^a Figures in brackets denote the number of fish involved.