

SOME NOTES ON THE
AGE AND SIZE OF MORICE RIVER
STEELHEAD TROUT FROM ANGLERS' CATCHES
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WHATELY, M. R.
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SIZE OF MORICE RIVER
BJEJ c. 1 mm SMITHERS

BY

M. R. Whately
M. C. Morris
B. M. Eccles

B. C. FISH AND WILDLIFE BRANCH, SMITHERS, B.C.

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INTRODUCTION

A creel census was conducted on the Morice River steelhead fishery during Autumn, 1976. Objectives of the study were two-fold:

- 1) To collect detailed information on angler origin, angler distribution in the fishery, effort, success, and tackle preferences.

- 2) To collect and analyze data concerning the biology of the Morice steelhead, including basic life histories.

The program is a two-year study which will be completed in 1977. This report is intended only as a means of presenting the 1976 age and size data (item (2) above) in a logical fashion; a more complete report with discussion and comparisons with other work will be forthcoming following the 1977 fishery.

RESULTS

ADULT STEELHEAD AGE-SEX RELATIONSHIPS

Two hundred and thirty scale samples were collected from angler-caught steelhead during the 1976 fall fishery. Of this number, 225 had scales that were readable for total age determination.

Twelve distinct age groups were identified among the sample (Table 1), of which the most frequently observed were 4.1+ (38.2 percent), 4.2+ (26.2 per cent), 3.2+ (13.8 per cent), and 3.1+ (10.7 percent).

Morice River steelhead sampled in 1976 had spent two (0.4 per cent), three (26.2 per cent), four (19.8 per cent), and five (3.6 per cent) winters in freshwater before migrating to sea (Table 2).

Of the 211 maiden fish sampled (14 were repeat spawners), over half (55.9 per cent) were returning from the ocean after only one winter. (Table 3). Fish returning after two winters (.2+) accounted for 43.2 per cent of the sample, while fish of ocean age .3+ were less than one per cent of the sample. Almost two-thirds (63.7 per cent) of the male fish in the sample were of ocean age .1+, while females were almost evenly distributed between age .1+ (48.6 per cent) and .2+ (51.4 per cent).

TABLE 1. Steelhead trout age groups, Morice River, 1976.

Age Group	Number Steelhead	Number ♂	Number ♀	Percent Total
2.1+	1	1	0	0.4
3.1+ ¹	24	16	8	10.7
3.2+ ¹	31	8	23	13.8
3.3+	1	1	0	0.4
3.2S1+	3	0	3	1.3
4.1+ ¹	86	44	42	38.2
4.2+ ¹	59	27	32	26.2
4.3+	1	1	0	0.4
4.1S1+	6	4	2	2.8
4.2S1+	5	0	5	2.2
5.1+	7	4	3	3.2
5.2+	1	0	1	0.4
12	225	106	119	100 %
R.1+	1	0	1	
R.2+	3	1	2	

1 - Within these age groups are included several samples that displayed additional freshwater growth following the last freshwater annulus: 3+.1+ (8; 6 ♂); 3+.2+ (5; 2 ♂); 4+ .1+ (3; 2 ♂); 4+ .2+ (3; 1 ♂).

TABLE 2. Numbers and percentages of male and female steelhead of different freshwater ages, Morice River, 1976, (n = 225).

		Freshwater Age				
		2	3.	4.	5.	Total
♂	n	1	25	76	4	106
	%	0.9	23.6	71.7	3.8	100%
♀	n	0	34	81	4	119
	%	-	28.6	68.0	3.4	100%
Total	n	1	59	157	8	225
	%	0.4	26.2	69.8	3.6	100%

TABLE 3. Numbers and percentages of male and female steelhead of different ocean ages, Morice River, 1976 (Repeat spawners not included, sample size 211).

		Ocean Age			
		.1+	.2+	.3±	Total
♂	n	65	35	2	102
	%	63.7	34.3	2.0	100%
♀	n	53	56	0	109
	%	48.6	51.4	-	100%
Total	n	118	91	2	211
	%	55.9	43.2	0.9	100%

Among the scale sample of 225 steelhead, 14 or 6.2 per cent were observed to be repeat spawners (Table 4). The ratio of female to male repeat spawners was approximately 2.5:1. The majority of females were of the .2S1+ ocean age category, whereas all of the males (4) were in the .1S1+ group. None of the fish in the sample had spawned more than once prior to capture.

Table 4. Numbers and percentages of different ocean age groups of repeat spawning steelhead, Morice River, 1976 (n=225)

		Ocean Age			% Total Sample
		.1S1+	.2S1+	Total	
♂	n	4	0	4	1.8 (n=225)
	%	100	-	100	28.6 (n=14)
♀	n	2	8	10	4.4 (n=225)
	%	20	80	100	71.4 (n=14)
Total	n	6	8	14	
	%	42.8	57.2	100	6.2 (n=225)

ADULT STEELHEAD AGE SIZE RELATIONSHIPS

Length and weight data was collected from as many steelhead as possible during the 1976 fishery. Male steelhead of the most frequently observed ocean age - .1+ - (63%) averaged 1.64 kg. (3.75 lbs) (Table 5). Female steelhead of the same ocean age category weighed slightly less with an average of 1.46 kg. (3.25 lb.). Males of the next most common ocean age group .2+ - averaged 4.23 kg. (9.5 lbs.). Again, females of the same age weighed less than their male counterparts and averaged 3.58kg. (7.75 lbs.).

TABLE 5: Round weights and fork lengths of male and female steelhead of different ocean ages among anglers' catches from the Morice River, fall 1976. Repeat spawners are not included; numbers of fish for each age category vary because of incomplete information as to weight or length, or both. (English measurements are given in parentheses)...

Sex	Ocean Age	Average	Range	Number
<u>Weight Kg.</u>				
male	.1+	1.64 kg. (3.75 lbs.)	.9 kg-292 kg. (2- 6.50 lbs.)	38
	.2+	4.23 kg. (9.50 lbs.)	2.25 kg.-7.2 kg. (5-16 lbs.)	20
	.3+	-	8.1 kg. (18 lbs.)	1
Female	.1+	1.46 kg. (3.25 lb.)	.67 kg.-2.02 kg. (1.50-4.50 lbs.)	33
	.2+	3.58 kg. (7.75 lb.)	2.7 kg.-5 kg. (6-11 lb)	33
	.3+	-	-	
<u>Length - Cm</u>				
male	.1+	54.61 cm. (21.50 ins.)	50 cm-64 cm.(19.50- 25 ins.)	59
	.2+	74.94 cm. (29.50 ins.)	65 cm - 88.5 cm. (25.50 - 35 ins.)	32
	.3+	-	95 cm. (37.50 ins.)	1
	.3+	-	95 cm (37.50 ins.)	1
female	.1+	55.03 cm. (21.75 ins.)	49.5 cm. - 66 cm	50
	.2+	71.83 cm. (28.25 ins.)	62 cm.-82 cm. (24-32 ins.)	58
	.3+	-	-	

The Morice steelhead population appears to be composed of two distinct. age-length groups (Table 5 and Figure 1). Steelhead of ocean age .1± are almost totally within the length range of 50 and 65 cm., while fish of .2+ are largely within the 65 to 80 cm. (or greater) range. There is very little overlap between the two groups, providing for a distinctly bimodal population (Fig. 1).

When steelhead weights are plotted against lengths and a curve fitted by eye (Fig. 2), the bimodal phenomenon is again observed. In general, steelhead in the 50 to 65 cm. range weigh between 0.67 and 2.92 kg. (1.5 to 6.5 lbs.) and are largely of age .1+ (Table 5). Two-ocean fish in the over 65 cm. range weight between 2.25 and 7.2 kg. (5 to 16 lbs.).

Fig. 1. Length frequency of steelhead trout in anglers' catches, Morice River, Fall 1976

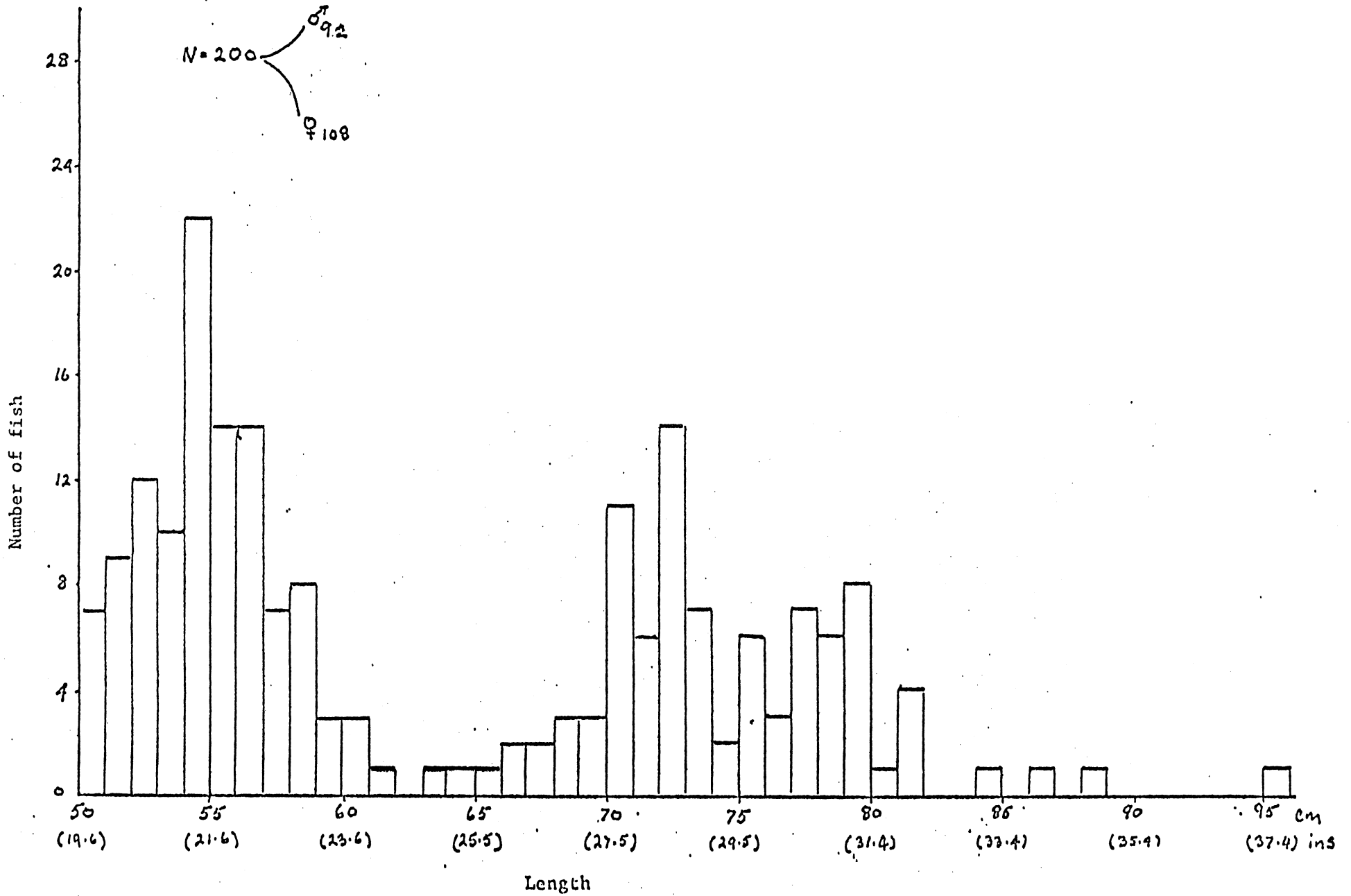


Fig. 2 Length-weight relationships of steelhead trout in anglers' catches, Morice River, Fall 1976

