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First estimates of "salmon" versus
grilse quantities in Canadian commercial
catches, 1969 and 1970

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Although it is usually assumed that reported catches of salmon in the Canadian Maritime Provinces and Quebec consist almost entirely of 2 sea year and older fish, it has not been possible to break down the Canadian catch as a whole by sea age groups because of the unknown proportions of grilse versus other sea age groups in Newfoundland and Labrador catches. Since the catch at West Greenland consists almost entirely of fish, which if surviving, would return to home waters as 2 sea year salmon, it is of paramount importance in estimating effects of the fishery at Greenland on home waters fisheries and stocks to know the proportion of 2 sea year salmon in home waters areas. Studies to determine this proportion in Newfoundland and Labrador fisheries were begun by the St. John's Biological Station in 1969. Analyses are not complete, but a first estimate for 1969 and 1970 catches is presented here.

A purchase slip system for statistical records of salmon catches was introduced in 1969. Although salmon are not always separated into size categories for price purposes, sufficient quantities are so separated as "small" and "large" that estimates of the total quantities of each type landed in most statistical districts can be made. Round fish are divided as less than 6 lb. (2.7 Kg) or 6 lb. and above. Dressed fish (head off and gutted) are separated as less than 5 lb. (2.3 Kg) or 5 lb. and above. A conversion factor of 1.2 from dressed to round is reasonably accurate, and allows transfer of all data in terms of round weight. A 6 lb. dividing line is effective in separating one sea year fish from other sea age groups (Table 5).

Summary data for 1969 and 1970 are presented in Tables 1 and 2. Statistical areas are shown on the attached map. Quantities not separated as "small" and "large" are substantial in many statistical areas; thus estimates for the island of Newfoundland as a whole were made from the combined original data, rather than by addition of estimates from each separate statistical area. For Labrador, estimated proportions of grilse in 1969 and 1970 are 16% and 21% respectively. Comparable estimates for Newfoundland are 35% and 47%.

Independent estimates of the percentage of grilse in catches from several statistical areas have been made from analysis of age distributions of random samples of the catch, and are compared with estimates from size categories in Table 3. Differences are not inordinately great considering the inadequate sample sizes in both types of data. In fact, the estimates from size category data are probably more accurate for the areas compared, since in these areas the quantities so divided were relatively large, while the scale samples were neither taken from a wide area nor over the whole fishing season. It is known, for example, that percentage of grilse in the catches in these areas increases toward the end of the season.

When estimates from size category data in Newfoundland and Labrador are added to quantities taken in other areas (assumed to be 2 sea year or older fish), the estimated grilse proportions in Canadian catches as a whole are 21% in 1969 and 30% in 1970 (Table 4).

It must be emphasized that these are very rough estimates. They are likely to be minimum estimates of proportions of grilse actually caught, since unknown quantities are consumed locally or disposed of privately because of their lower value to corporate fish buyers.

TABLE 1. Salmon catches by size category, Nfld. and Labrador, 1969. Quantities are in thousands of pounds

Area	Estimated Quantities		Total	Percent Unsize
	Small	Large		
A	196	221	419	14
B	137	94	231	66
C	55	90	145	60
D	59	71	130	55
E	50	52	102	93
F	66	56	122	88
G	?	?	30	100
H	100	16	116	90
I	28	29	57	56
J	88	561	649	24
K	48	30	78	72
L	20	10	30	54
M	24	10	34	24
N	7	7	14	53
*Total Nfld.	753	1406	2159	46
Labrador	59	858	1017	22
Grand Total	912	2264	3176	38

* Estimated from quantities originally reported as small and large, not by addition of estimates for each area.

TABLE 2. Salmon catches by size category, Nfld. and Labrador, 1970. Quantities are in thousands of pounds.

Area	Estimated Quantities		Total	Percent Unsized
	Small	Large		
A	279	252	531	8
B	244	140	384	67
C	91	168	259	43
D	79	92	171	48
E	67	78	145	87
F	134	68	202	81
G	?	?	52	100
H	54	5	59	93
I	52	11	63	67
J	80	334	414	62
K	24	107	131	85
L	28	7	35	65
M	31	10	41	52
N	18	3	21	55
*Total Nfld.	1187	1321	2508	56
Labrador	210	798	1008	11
Grand Total	1397	2119	3516	44

* Estimated from quantities originally reported as small and large, not by addition of estimates from each area.

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TABLE 3. Percent grilse in commercial catches in various Newfoundland areas estimated from (A) partial breakdown of catch in size categories and (B) scale reading of random samples from the catch.

Year	Area	Percent Grilse	
		A	B
1969	A	47	38
	C	38	28
	* J	14	2
1970	A	53	39
	C	35	49
	* J	19	<1

* Scale Sampling from drift net fishery only.

TABLE 4. First estimates of quantities of grilse and other sea age groups taken in Canadian commercial salmon fisheries. Quantities are in metric tons.

Area	1969			1970		
	Grilse	Other	% Grilse	Grilse	Other	% Grilse
Labrador	72	389	16	95	362	21
Newfoundland	342	638	35	538	599	47
Nova Scotia		77	0		68	0
New Brunswick		266	0		260	0
Quebec		173	0		174	0
Total	414	1543	21	633	1463	30

TABLE 5 Percent Distribution, Sea Age versus Whole Weight. All data combined, except Area 0. Number of fish = 3180. PS = previous spawners.

Whole Weight (KG)	1	2	3	4	PS	Total
1.3	0.09					0.09
.4	0.25					0.25
.5	0.38					0.38
.6	0.69				0.06	0.75
.7	2.11					2.11
.8	3.40				0.03	3.43
.9	4.37					4.37
2.0	2.26					2.26
.1	3.27	0.03				3.30
.2	2.39	0.09				2.48
.3	1.73	0.13				1.86
.4	0.82	0.19				1.01
.5	0.47	0.13			0.03	0.63
.6	0.35	0.13			0.06	0.54
.7	0.22	0.25			0.06	0.53
.8	0.09	0.50			0.03	0.62
.9	0.03	0.79			0.09	0.91
3.0		0.19				0.19
.1	0.09	0.79	0.03		0.03	0.94
.2		1.07			0.13	1.20
.3	0.06	1.29			0.03	1.38
.4		2.45			0.06	2.51
.5		2.58			0.06	2.64
.6		0.66				0.66
.7		2.67			0.13	2.80
.8		2.86			0.09	2.95
.9	0.03	3.81			0.06	3.90
4.0		4.06	0.06		0.06	4.18
.1		0.79			0.06	0.85
.2		3.87			0.19	4.06
.3		3.77	0.06		0.09	3.92
.4		4.21	0.03		0.13	4.37
.5		4.15			0.09	4.24
.6		0.66				0.66
.7	0.03	3.43	0.03		0.09	3.58
.8		3.62			0.09	3.71
.9		2.51	0.03		0.13	2.77
5.0		2.99	0.03		0.03	3.05
.1		2.04	0.06		0.09	2.19
.2		0.57			0.06	0.63
.3		1.67	0.06		0.05	1.79
.4		1.82	0.03		0.13	1.98
.5		1.19			0.03	1.22
.6		1.38	0.13			1.51
.7		0.13	0.03			0.16
.8		0.82	0.06		0.06	0.94
.9		0.69	0.09		0.06	0.84
6.0		0.35	0.09		0.03	0.47
.1		0.31	0.16		0.03	0.50
.2		0.09				0.09

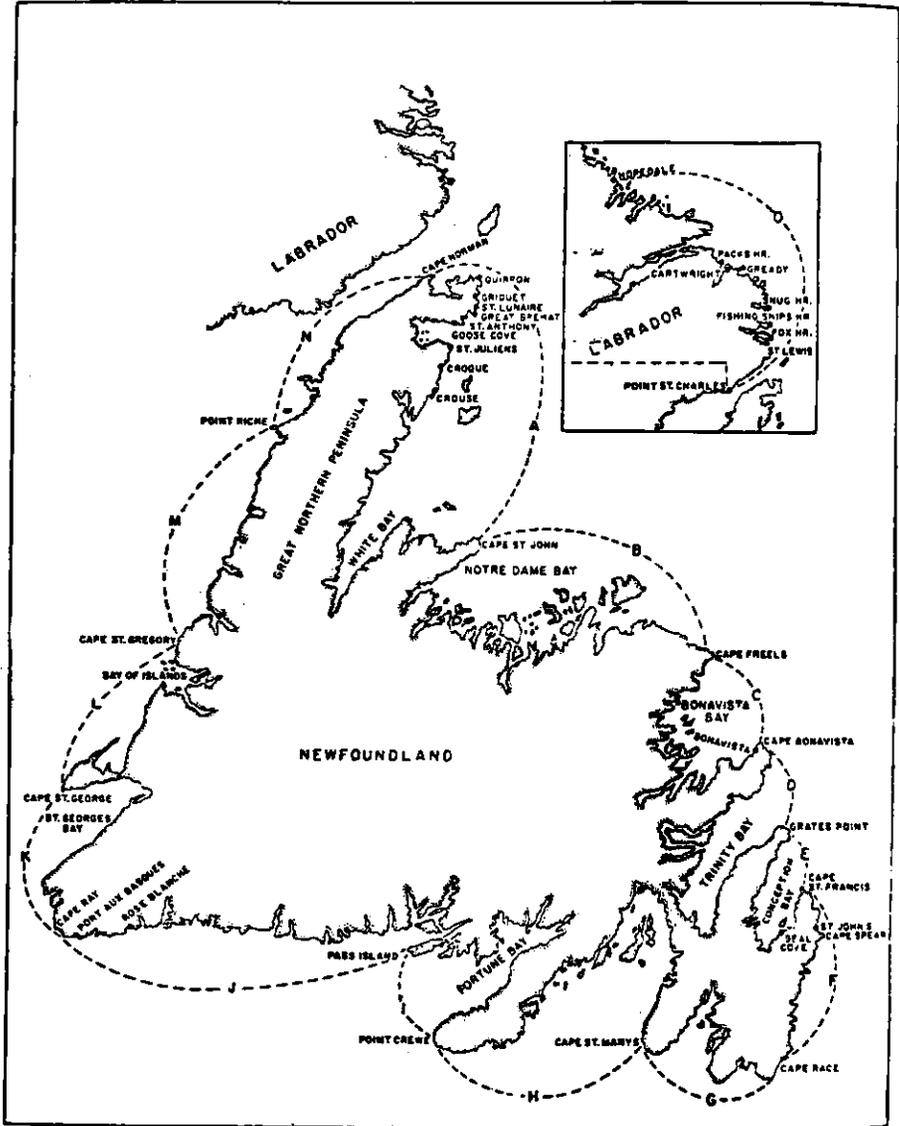
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TABLE 5 (Cont'd.)

Whole Weight (KG)	1	2	3	4	PS	Total
.3		0.31	0.06		0.03	0.40
.4		0.16	0.16			0.32
.5		0.25	0.06		0.06	0.37
.6		0.16	0.09			0.25
.7		0.13	0.13			0.26
.8		0.06	0.06		0.03	0.15
.9		0.16	0.09		0.03	0.28
7.0		0.09	0.09		0.03	0.21
.1		0.13	0.06		0.03	0.22
.2		0.03	0.19			0.22
.3			0.09		0.03	0.12
.4		0.03	0.28			0.31
.5		0.03	0.31		0.06	0.40
.6			0.28			0.28
.7		0.03	0.16			0.19
.8		0.03	0.31		0.03	0.37
.9						
8.0			0.22		0.06	0.28
.1			0.06			0.06
.2			0.13			0.13
.3			0.35		0.03	0.38
.4			0.13			0.13
.5			0.09			0.09
.6			0.22			0.22
.7		0.03	0.06			0.09
.8			0.19		0.03	0.22
.9			0.09			0.09
9.0			0.13		0.03	0.16
.1			0.16	0.03		0.19
.2			0.03			0.03
.3			0.03			0.03
.4			0.09			0.09
.5			0.03			0.03
.6			0.06			0.06
.7			0.13			0.13
.8			0.03			0.03
.9			0.03		0.03	0.06
10.4		0.03	0.03			0.06
10.6			0.03		0.03	0.06
10.7			0.03		0.03	0.06
10.8			0.03			0.03
10.9			0.03			0.03
11.3			0.03			0.03
11.4					0.06	0.06
11.7			0.03			0.03
12.4			0.03			0.03
12.5			0.03			0.03
12.8					0.06	0.06
13.0					0.03	0.03
14.0					0.03	0.03
14.7				0.03		0.03
Total	<3.13	67.49	5.93	0.06	3.21	99.82

Whole Weight (KG)	1	2	3	4	PS	Total
<2.7	22.58	0.70	0.00	0.00	0.18	23.46
>2.7a	0.55	66.79	5.93	0.06	3.03	76.36

a - 2.7 and above



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