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Canadian Atlantic Fisheries
Scientific Advisory Committee

CAFSAC Research Document 91/16

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Comité scientifique consultatif des
pêches canadiennes dans l'Atlantique

CSCPCA Document de recherche 91/16

**Status of Atlantic Salmon (Salmo salar L.)
Stocks of the Newfoundland Region, 1990**

by

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Abstract

A major change was introduced in the management of the commercial Atlantic salmon fishery in 1990. Quotas were introduced for the first time in Salmon Fishing Areas (SFAs) 2-11 while in SFA 1 an allowance catch was in effect. In Labrador, the commercial fishery lasted the entire season (closed on October 15) without the quota/allowance having been taken. The catch of small salmon was among the lowest since 1974 while that of large salmon was the lowest. Recreational catches of small and large salmon in Labrador in 1990 were below 1989 and the 1974-83 and 1984-89 means. Low catches of small and large salmon in both the commercial and recreational fisheries suggest a low abundance of both components in Labrador in 1990. In insular Newfoundland, commercial catches of both small and large salmon were the lowest on record which could be attributed in part to the implementation of quotas. The commercial fishery closed during June-July in SFAs 4, 5, 6, 8, 10, and 11 when quotas were caught. In SFAs 3, 7, and 9, the fishery lasted the entire season without quotas being taken. Catches of small and large salmon in 1990 were less than the average catch to the same date for the 1984-89 period for all SFAs except 10 and 11 and in most cases were less than the lower limit of the 95% confidence interval. The recreational catch of grilse in insular Newfoundland increased by 51% over 1989 but remained below the 1974-83 and 1984-89 means. The catch in 1989 however was approximately one-half of the previous 5-year mean. Commercial catches in conjunction with recreational catches and counts at counting facilities suggest that overall there was a decrease in abundance of both small and large salmon in insular Newfoundland in 1990. There is evidence to suggest that low marine survival could have contributed to low abundance in 1990. It is hypothesized that adverse environmental conditions (low water levels and high water temperatures) in rivers in 1987 could also have contributed to low returns in 1990 and could impact negatively in 1991.

Résumé

L'année 1990 a été marquée par un changement majeur dans la gestion de la pêche commerciale du saumon de l'Atlantique. En effet, on a adopté pour la première fois des contingents dans les zones de pêche du saumon (ZPS) 2 à 11 et instauré une limite de prises admissibles dans la ZPS 1. Au Labrador, la pêche commerciale s'est poursuivie toute la saison (jusqu'à la fermeture, le 15 octobre) sans que l'on n'épuise le contingent ou la limite de prises. Les prises de petit saumon étaient parmi les plus basses et celles de gros saumon les plus basses de toutes depuis 1974. Les prises sportives de petit et de gros saumon au Labrador étaient inférieures à celles de 1989 ainsi qu'aux moyennes de 1974-1983 et de 1984-1989. Le faible volume de prises sportives et commerciales de petit et de gros saumon permet de croire que le saumon, gros ou petit, était peu abondant au Labrador en 1990. Dans l'île de Terre-Neuve, les prises commerciales de gros et de petit saumon étaient les plus basses jamais enregistrées, ce qui pourrait être dû en partie à l'adoption des contingents. La pêche commerciale a cessé en juin-juillet dans les ZPS 4, 5, 6, 8, 10 et 11, une fois les contingents capturés. Dans les ZPS 3, 7 et 9, la pêche s'est poursuivie jusqu'à la fin de la saison sans que l'on n'épuise les contingents. En 1990, les prises de petit et de gros saumon ont été inférieures à la moyenne des prises obtenues à la même date durant la période de 1984-1989 dans toutes les ZPS, sauf les zones 10 et 11. Dans la plupart des cas, elles se situaient en dessous de la limite inférieure (95 %) de l'intervalle de confiance. Les prises sportives de madeleineaux dans l'île de Terre-Neuve ont augmenté de 51 % par rapport à celles de 1989, tout en demeurant inférieures aux moyennes de 1974-1983 et de 1984-1989. Précisons qu'en 1989 les prises étaient inférieures de moitié environ à la moyenne quinquennale précédente. Les données sur les prises commerciales combinées aux résultats de la pêche sportive et des dénombrements effectués à diverses installations de dénombrement nous portent à croire que l'abondance du petit et du gros saumon a généralement diminué dans l'île de Terre-Neuve en 1990. Certains signes donnent à penser que cette faible abondance pourrait être partiellement due à un bas taux de survie en mer. On formule l'hypothèse que les conditions environnementales défavorables qui ont affecté les rivières en 1987 (bas niveaux d'eau et hautes températures) ont pu aussi contribuer au petit nombre de remontées en 1990 et pourraient continuer d'avoir des effets négatifs en 1991.

Introduction

This paper presents the status of Atlantic salmon stocks of the Newfoundland Region (Fig. 1) in 1990. Catch and effort data for the commercial and recreational fisheries and fishway counts (insular Newfoundland) are examined in relation to historical data and the 1990 Management Plan.

A major change was introduced in the management of the commercial fishery in 1990. Quotas were introduced for the first time in Salmon Fishing Areas (SFAs) 2-11 while in SFA 1 an allowance catch was in effect. The fishing season started on June 5 and ended when the quota was caught. In some SFAs, caution notices were moved farther out from the mouths of rivers. Otherwise, regulations were the same as in 1989. It was illegal to retain Atlantic salmon caught as by-catch and the mandatory carcass tagging program remained in effect. The number of licensed fishermen and the amount of licensed gear in the commercial fishery in 1990 are shown in Tables 1 and 2 respectively. The numbers of commercial fishermen and gear units decreased slightly from 1989 in both insular Newfoundland and Labrador.

For the recreational fishery, regulations in 1990 were the same as in 1989. There was a mandatory release of large salmon in insular Newfoundland; however, this regulation did not apply to Labrador. The maximum number of fish that could be retained per day was two and the maximum number that could be hooked and released was four. Angling ceased for the day when one or the other limit was attained. The mandatory carcass tagging program remained in effect as did the season bag limit of 15 fish.

A number of rivers were closed to angling as a result of low water levels and high water temperatures in 1990. These closures occurred after the first week of August and most were one week in duration. The rivers involved and the duration of closure for each river are shown in Table 3.

Methods

In order to monitor the quota in each SFA, estimates of catch at the community level were compiled on a weekly basis by Fisheries and Habitat Management Branch (FHMB) personnel (Fishery Officers) of the Department of Fisheries and Oceans (DFO). Another means of monitoring quotas was through logbooks which were issued to fishermen by Fisheries Statistics and Systems Branch (FSSB) of DFO. These logbooks were to be completed and returned on a weekly basis. Data compiled by FSSB in the manner described by Ash and O'Connell (1987a,b) as used in previous status of stocks reports were also

available. Therefore, in 1990, three sets of commercial catch data were available and these were as follows:

SFA	Quota	Total Catch		
		FSSB	FHMB	Logbooks
1*	80	30	31	-
2	200	151	96	90
3	155	135	128	126
4	100	92	91	91
5	25	15	25	15
6	20	12	19	15
7	15	6	13	5
8	10	3	9	3
9	7	3	6	5
10	25	23	24	22
11	25	30	26	26

* Allowance catch

There were obvious inconsistencies among the three data sets. However, in keeping with previous reports, FSSB data were used in the present analysis. Also, the FSSB data set was the only one offering catch broken out in terms of small and large salmon.

Commercial and recreational fishery catch and effort data and fishway and counting fence data were added to that presented in O'Connell et al. (1990a). Effort in the commercial fishery was presented as the number of gear units (91.5 m of gill net or salmon trap) licensed to prosecute the fishery. Recreational fishing effort was presented as rod days (defined as any day or part thereof on which an angler fishes).

Data collection, the calculation of mean weights of small and large salmon in the commercial fishery, the breaking down of unsized catch into the small and large categories, and the estimation of numbers of small and large salmon followed procedures outlined in Ash and O'Connell (1987a,b).

Means and 95% confidence intervals for ratio variables were calculated according to Cochran (1977).

Results

COMMERCIAL FISHERY

Because of the quota system, the commercial fishery in 6 out of 11 SFAs closed prior to the usual closure date of October 15 (Table 4). In order to relate catch in 1990 to previous years in terms of an index of abundance, comparison is made with the average cumulative catch to the date of closure

of the fishery in each SFA for the period 1984-90 (Table 4). Catches in 1990 are compared to years prior to quotas (1974-89) for Labrador, insular Newfoundland, the entire Newfoundland Region, and for each SFA separately in Appendix 1a-n.

Labrador

Total catch (small and large salmon combined) was below allowance in SFA 1 and below quota in SFA 2 (Table 4); the fishery in both SFAs spanned the entire season (closed on October 15). Total catch was below the lower limit of the 95% confidence interval of the 1984-89 mean in SFA 1 and similar to the lower limit in SFA 2. A similar pattern was more or less true for small and large salmon treated separately. The catch of small salmon (60 t) in 1990 was among the lowest on record while that of large salmon (122 t) and the total Labrador catch (181 t) were the lowest on record (Appendix 1a).

Insular Newfoundland

In insular Newfoundland, SFAs closing prior to October 15 were 4, 5, 6, 8, 10, and 11. These areas were closed on the premise that quotas were taken, based on a combination of FHMB and logbook catch information. According to FSSB catch data, total catches were below quota in all SFAs except 11 where the quota was exceeded (Table 4). Total catch was below the 1984-89 mean in all SFAs except 10 and 11 and in most cases was less than the lower limit of the 95% confidence interval (Table 4). A similar pattern with respect to the mean and the 95% confidence interval was evident for small and large salmon in SFAs 3-9. In SFA 10 the catch of small salmon increased over the mean and there was no change for large salmon; in SFA 11 there was a decrease in the catch of small salmon relative to the mean while the catch of large salmon increased. Catches of small (151 t) and large (167 t) salmon in insular Newfoundland in 1990 were the lowest on record (Appendix 1b).

RECREATIONAL FISHERY AND COUNTS AT COUNTING FACILITIES

Recreational catches of small and large salmon, effort, and catch per unit of effort (CPUE) for Labrador and insular Newfoundland are shown in Table 5 and Appendix 2a-b. Catch, effort, and CPUE in 1990 expressed as percentages in relation to 1989 and the 1974-83 and 1984-89 means are presented in Table 6. Catch and effort data for the entire Newfoundland Region are shown in Appendix 2c.

Labrador

The catch of grilse in Labrador in 1990 (2243) declined by 36, 19, and 22% from 1989, the 1974-83 mean, and the 1984-89 mean respectively. The catch of large salmon (259) was also below 1989 and each mean (37, 44, and 26% respectively). Effort was lower than in 1989 but increased over the means. CPUE decreased from 1989 and both means.

Insular Newfoundland

The recreational catch of grilse (17409) in insular Newfoundland in 1990 was 51% above 1989 but 6 and 22% below the 1974-83 and 1984-89 means respectively. The catch in 1989 was approximately one-half of average catch.

Effort and CPUE increased over 1989 but remained below the means. In 1987, drought conditions forced the closure of most rivers in insular Newfoundland to angling for extended periods, hence this year was not included in the 1984-89 means for catch, effort, and CPUE.

Analysis by SFA

Recreational fishery catch and effort data for each SFA of the Newfoundland Region are presented in Table 5 and Appendix 2d-n. Table 6 shows recreational catches, effort, and CPUE in 1990 for each SFA expressed as percentages in relation to 1989, the 1974-83 mean, and the 1984-89 mean.

Labrador

SFA 1: The catch of grilse was below 1989 and the lower limit of the 95% interval of each mean. The same was true for large salmon. Effort decreased from 1989 and the 1984-89 mean but was the same as the 1974-83 mean. CPUE decreased from 1989 and both means.

SFA 2: Grilse catch decreased from 1989 and the means but remained within the limits of the 95% confidence interval of each mean. The catch of large salmon was lower than in 1989, increased over the 1974-83 mean, and decreased from the 1984-89 mean; changes were within the 95% confidence limits of the means. Effort in 1990 was similar to 1989 and higher than the means. CPUE showed a decrease from 1989 and both means.

Insular Newfoundland

SFA 3: The catch of grilse improved over 1989 and the means and in the case of the 1984-89 mean was higher than the upper limit of the 95% confidence interval. Effort increased over 1989 and both means; CPUE increased over 1989, decreased from the 1974-83 mean, and was similar to the 1984-89 mean.

SFA 4: The catch of grilse increased over 1989 but remained below the lower limit of the 95% confidence interval of each mean. Effort and CPUE increased over 1989 but were below the means. It should be pointed out that for rivers in Section 06 (Fig. 2) of SFA 4, catches of grilse for the most part were similar to or greater than 1989 and the means. For most of the remaining rivers in SFA 4, particularly Gander and Exploits rivers, catches in 1990 were well below average.

Counts of grilse and large salmon at fishways located in Exploits River (Bishop's Falls and Great Rattling Brook) and Salmon Brook (Gander River), and a counting fence installed just above head of tide in the main stem of Gander River, are presented in Tables 7 and 8 respectively. Table 9 shows counts in 1990 expressed as percentages in relation to 1989 and the 1974-83 and 1984-89 means. The count of grilse at the Bishop's Falls fishway, located on the main stem of the Exploits River, was below 1989 and the 1984-89 mean but higher than the 1874-83 mean. The count at Great Rattling Brook however was below 1989 and both means. The count of grilse at the Gander River counting fence was similar to 1989. A partial count was obtained at Salmon Brook because low water levels prevented fish from ascending the fishway for most of August and

these conditions prevailed at the time counting operations ceased in early September. Counts of large salmon increased over 1989 at both Exploits River fishways but were below the means. The count of large salmon at the Gander River fence improved over 1989.

SFA 5: The catch of grilse increased over 1989, was similar to the 1974-83 mean, but decreased from the 1984-89 mean (within the 95% confidence interval). Effort increased over 1989 and was similar to the means; CPUE increased over 1989 and was the same as the means.

Fishways in SFA 5 are located in Middle Brook and Terra Nova River (upper and lower). The count of grilse in Middle Brook in 1990 (Table 7) increased over 1989 but was below both means (Table 9). The grilse count at the lower Terra Nova River fishway in 1990 was the same as in 1989; it increased over the 1974-83 mean but was below the 1984-89 mean. The count of large salmon in Middle Brook in 1990 (Table 8) was below 1989 and the means (Table 9). The count of large salmon at the lower Terra Nova River fishway was the same as in 1989 and higher than the means.

SFA 6: The catch of grilse increased over 1989 and the 1974-83 mean but was below the 1984-89 mean. Effort was similar to 1989 and increased over the means; CPUE increased over 1989 but was below the means.

SFA 7: Grilse catch was below 1989 and the lower limit of the 95% confidence interval of each mean. Effort decreased from 1989 and both means; CPUE improved over 1989 but remained below the means.

SFA 8: Grilse catch decreased from 1989 and the 1984-89 mean and increased over the 1974-83 mean. Effort was similar to 1989 but below the means; CPUE decreased from 1989 but was above the means.

SFA 9: The catch of grilse and CPUE increased over 1989 and was similar to the means. Effort increased over 1989 and remained the same as the means.

A number of counting fences (Biscay Bay River, Northeast Brook, Trepassey, and Colinet River) and a fishway (Rocky River) have been operated in SFA 9 over the years. Counts of grilse in Biscay Bay River and Northeast Brook, Trepassey in 1990 (Table 7) increased over 1989 but remained below the 1984-89 mean (Table 9). It should be pointed out that for Biscay Bay River the count in 1989 was partial due to a brief washout in July; it is estimated that 100 fish (grilse and large salmon combined) escaped the count. The count of grilse in Colinet River in 1990 was also partial and an estimated 100 fish escaped uncounted. The count of grilse in Rocky River increased over 1989 and the mean. Large salmon counts in 1990 (Table 8) were below 1989 and the mean in Biscay Bay River and Northeast Brook (Table 9); the count in Rocky River exceeded 1989 and the mean.

SFA 10: The catch of grilse was similar to 1989 but below the lower limit of the 95% confidence interval of each mean. Effort was the same as in 1989 but below the means; CPUE decreased from 1989 and the 1984-89 mean and increased over the 1974-83 mean.

The count of grilse at the Northeast River, Placentia fishway in 1990 (Table 7) decreased from 1989, increased over the 1974-83 mean, and was the same as the 1984-89 mean (Table 9). Large salmon in 1990 (Table 8) increased over 1989 and the 1984-89 mean but decreased from the 1974-83 mean (Table 9).

SFA 11: The catch of grilse in 1990 increased over 1989 and was comparable to the means. Effort was similar to 1989, increased over the 1974-83 mean, but was below the 1984-89 mean. CPUE increased over 1989, decreased from the 1974-83 mean, and was similar to the 1984-89 mean.

The count of grilse at the Conne River counting fence (Table 7) was similar to 1989 but below the mean (Table 9). The count of grilse at the Grand Bank fishway increased over 1989 and the mean. Large salmon in 1989 (Table 8) increased over 1989 but was below the mean in Conne River; in Grand Bank Brook the count increased over 1989 and the mean (Table 9).

Discussion

Except for the introduction of quotas and movement of caution signs, the Management Plan in 1989 was a continuation of a five-year Management Plan introduced in 1984 and variously modified since its introduction. Major changes in the fisheries were put into effect under this plan. Details of the 1984 Management Plan and an analysis of its impacts in terms of commercial catches and river escapements in the Newfoundland Region are provided by O'Connell et al. (1990b). In this context, the most pertinent comparisons of commercial and recreational catches and counts at counting facilities in 1990 are with the 1984-89 mean.

In insular Newfoundland the recreational catch of grilse in 1990 showed a marked improvement over 1989 although there were some exceptions on certain rivers. However, the catch in 1989 was approximately one-half of average catch. In spite of the implementation of quotas in the commercial fishery, recreational catches in most SFAs were either comparable to or below the 1984-89 mean. Counts of grilse at fishways and counting fences were also low in nearly all cases, compared to the 1984-89 mean. This suggests that had 1990 management measures not been in place, escapements might have been lower than indicated.

Total commercial catch was below quota/allowance in Labrador even though the fishery was open for the entire season. Low catches of small and large salmon in both the commercial and recreational fisheries suggest a low abundance of both components in Labrador in 1990. The low commercial catches in insular Newfoundland could be attributed in part to the implementation of quotas. Cumulative commercial catches to the time of fishery closure coupled with recreational catches and fishway counts suggest that overall there was a decrease in the abundance of both small and large salmon. There were however some notable exceptions to this general trend. In SFA 3, there was a marked increase in recreational catch and increases in commercial catch occurred in SFAs 10 (small salmon) and 11 (large salmon).

A lower marine survival could have contributed to the suggested low abundance in 1990. The survival of smolts (back to the river) in 1990 for Northeast Brook, Trepassey in SFA 9 and Conne River in SFA 11 was low for the second consecutive year. (Table 10).

It is hypothesized that adverse environmental conditions (low water levels and high water temperatures) in rivers in 1987 could also have contributed to low returns in 1990 and could impact negatively in 1991. Fig. 3a-b shows mean weekly water levels recorded at counting facilities in insular Newfoundland for the period 1985-90. In 1987, water levels from Standard Weeks 25-27 (late June-early July) onwards, were lower than all other years in virtually all rivers.

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Table 1. The number of licensed commercial Atlantic salmon fishermen for each SFA and the total for the insular Newfoundland and Labrador portions of the Newfoundland Region.

Year	No. of fishermen by SFA											Nfld. Region (Insular)	
	1	2	Nfld. Region (Labrador)	3	4	5	6	7	8	9	10		11
1974	108	323	431	626	1203	693	519	513	320	135	331	314	4654
1975	187	421	608	732	1399	765	596	635	314	103	388	402	5334
1976	179	464	643	660	1234	685	525	518	308	103	335	354	4722
1977	196	432	628	621	1154	622	469	446	264	86	303	334	4299
1978	290	403	693	629	1148	621	473	459	261	87	284	326	4288
1979	272	410	682	630	1148	617	457	445	266	85	296	321	4265
1980	271	352	623	617	1163	591	446	449	246	81	279	311	4183
1981	266	350	616	602	1126	550	412	429	246	75	269	305	4014
1982	262	339	601	569	1047	493	394	375	239	71	255	279	3722
1983	273	417	690	578	1033	479	383	356	239	68	250	263	3649
1984	248	378	626	512	892	395	317	277	200	58	201	213	3065
1985	234	351	585	439	695	283	259	229	186	45	162	182	2480
1986	212	356	568	438	696	281	257	231	183	45	164	185	2480
1987	213	362	575	433	693	275	255	231	175	43	163	182	2450
1988	182	361	543	432	682	259	241	217	177	43	156	172	2380
1989	196	353	549	425	679	257	238	216	175	42	156	172	2360
1990	151	349	500	427	669	248	234	212	169	38	150	172	2319

Table 2. The amount of licensed commercial salmon gear for each SFA and the total for the insular Newfoundland and Labrador portions of the Newfoundland Region.

No. of gear units (91.5m) by SFA													
Year	1	2	Nfld. Region (Labrador)	3	4	5	6	7	8	9	10	11	Nfld. Region (Insular)
1974	288	1900	2188	2371	3151	2014	1589	1861	1608	407	1031	1008	15040
1975	556	2164	2720	2704	3962	2565	2074	2567	1875	432	1330	1504	19013
1976	549	2418	2967	2528	3547	2354	2074	2276	1823	347	1207	1377	17533
1977	612	2253	2865	2364	3327	2163	1876	1973	1582	292	1063	1288	15928
1978	1001	2167	3168	2406	3371	2172	1901	2066	1588	287	1069	1298	16158
1979	979	2244	3223	2418	3349	2169	1853	1971	1617	283	1051	1279	15990
1980	1018	1958	2976	2378	3485	2320	1834	2024	1536	268	1003	1268	16116
1981	981	1948	2929	2309	3390	1944	1709	1954	1524	252	979	1254	15315
1982	1046	1828	2874	2083	3002	1551	1536	1548	1395	222	837	1097	13271
1983	1080	1879	2959	2315	3729	1661	1499	1402	1089	235	934	1069	13933
1984	992	1471	2463	1892	3124	1341	1160	1012	774	201	718	786	11008
1985	936	1402	2338	1750	2768	1122	1036	914	744	178	644	722	9878
1986	848	1424	2272	1752	2782	1124	1028	922	732	180	656	740	9916
1987	852	1471	2323	1730	2764	1100	1018	920	700	172	652	728	9784
1988	728	1444	2172	1728	2728	1036	964	868	708	172	624	692	9520
1989	784	1412	2196	1700	2716	1028	952	864	700	168	624	688	9440
1990	604	1392	1996	1708	2674	988	932	848	676	152	600	688	9266

Table 3. Periods of closure due to low water levels and high water temperatures for scheduled rivers in the Newfoundland Region (Insular), 1990.

River	Period closed
<u>SFA 3</u>	
Salmon River, Ariege Bay	Aug 15 - Aug 21
Easter Brook, Canada Bay	Aug 15 - Sept 3
Northeast Brook, Chimney Bay	Aug 15 - Aug 21
Beaver Brook, Western Brook	Aug 15 - Aug 21
Northwest Brook, Canada Bay	Aug 15 - Aug 21
<u>SFA 5</u>	
Northwest River, Port Blandford	Aug 17 - Sept 3
Salmon Brook, Port Blandford	Aug 17 - Sept 3
Southwest Brook, Port Blandford	Aug 17 - Sept 3
<u>SFA 6</u>	
Shoal Harbour River	Aug 17 - Sept 3
Deer Harbour River	Aug 17 - Sept 3
Bellevue Brook (Trout Brook)	Aug 7 - Aug 17
<u>SFA 7</u>	
Salmon Cove River	Aug 7 - Aug 17
North River, Conception Bay	Aug 7 - Aug 17
South River, Conception Bay	Aug 7 - Aug 17
North Arm River, Holyrood	Aug 7 - Aug 17
<u>SFA 9</u>	
Biscay Bay River	Aug 7 - Aug 17
Northwest Brook, Trepassey	Aug 7 - Aug 17
Peters River, SMB	Aug 7 - Aug 17
Salmonier River	Aug 7 - Aug 17
North Harbour River	Aug 7 - Aug 17
Little Salmonier River	Aug 7 - Aug 17
Big Barachois River	Aug 7 - Aug 17
Branch River	Aug 9 - Aug 16
<u>SFA 10</u>	
Northeast River, Placentia	Aug 9 - Aug 16
North Harbour River	Aug 9 - Aug 16
Pipers Hole River	Aug 9 - Aug 16
Nonsuch Brook	Aug 9 - Aug 16

Table 3. (Cont'd)

River	Period closed
<u>SFA 10 (Cont'd)</u>	
Cape Roger River	Aug 9 - Aug 16
Bay De L'Eau River	Aug 9 - Aug 16
Northeast Branch (Red Harbour)	Aug 9 - Aug 16
Red Harbour River	Aug 9 - Aug 16
Big Salmonier River	Aug 9 - Aug 16; Aug 30 - Sept 3
Salmonier River (Lamaline)	Aug 9 - Aug 16
Piercey's Brook	Aug 9 - Aug 16
<u>SFA 11</u>	
Grand Bank Brook	Aug 9 - Aug 16
Garnish River	Aug 9 - Aug 16
Conne River	July 1 - July 26

Table 4. Commercial quotas and catches of Atlantic salmon for each SFA in 1990 and mean cumulative catch to the date of closure of the fishery, 1984-89. Catches are also expressed as percentages in relation to the 1984-89 means. 95% confidence limits are in parentheses.

SFA	Quota (t)	Date closed	Catch (t) in 1990			\bar{x} catch to closing date, 1984-89			% change from \bar{x}		
			small	large	total	small	large	total	small	large	total
Labrador											
1	80*	Oct. 15	8	22	30	19.2	51.3	70.8	-58	-57	-58
						(14.6-23.8)	(38.2-64.5)	(56.5-85.2)			
2	200	Oct. 15	52	100	151 ¹	88.0	167.0	254.7	-41	-40	-41
						(43.9-132.1)	(101.4-232.6)	(149.8-359.5)			
Insular Nfld.											
3	155	Oct. 15	43	92	135	99.7	94.5	194.2	-57	-3	-31
						(50.5-148.8)	(47.9-141.1)	(100.4-288.0)			
4	100	Jul. 25	61	31	92	75.2	44.5	119.7	-19	-30	-23
						(53.2-97.2)	(27.5-61.5)	(90.0-158.4)			
5	25	Jul. 7	9	7	15 ¹	18.9	17.3	36.2	-52	-60	-59
						(14.9-22.8)	(10.9-23.6)	(28.6-43.7)			
6	20	Jul. 14	7	4	12 ¹	16.9	12.8	29.7	-59	-69	-60
						(10.8-22.9)	(7.9-17.6)	(19.9-39.4)			
7	15	Oct. 15	3	3	6	6.8	12.7	19.8	-56	-76	-70
						(4.8-8.9)	(9.7-15.6)	(14.8-24.9)			
8	10	Jul. 21	1	2	3	10.5	11.0	21.5	-91	-82	-86
						(6.5-14.5)	(6.9-15.2)	(14.4-28.6)			
9	7	Oct. 15	2	1	3	6.7	2.0	9.0	-70	-50	-67
						(4.3-9.0)	(1.3-2.7)	(6.9-11.1)			
10	25	Jun. 30	16	7	23	12.9	7.0	19.9	+24	0	+16
						(7.1-18.7)	(4.1-10.0)	(11.2-28.6)			
11	25	Jun. 21	9	20	30 ¹	9.4	13.8	23.2	-4	+45	+29
						(3.3-15.5)	(8.2-19.4)	(12.2-34.2)			

*Allowance catch.

¹Error due to rounding.

Table 5. Atlantic salmon recreational catch, effort, and catch per unit effort (CPUE) data for 1990 for each SPA and the insular and Labrador portions of the Newfoundland Region. Catches in 1989, the 1974-83, and the 1984-89 means are included; 95% Confidence Intervals are in parentheses.

Salmon Fishing Area	Grilse (< 63 cm)				Large salmon (> 63 cm)				Effort (rod days)				CPUE			
	1990	1989	\bar{x} 1974-83	\bar{x} 1984-89 ¹	1990	1989	\bar{x} 1974-83	\bar{x} 1984-89 ¹	1990	1989	\bar{x} 1974-83	\bar{x} 1984-89 ¹	1990	1989	\bar{x} 1974-83	\bar{x} 1984-89 ¹
1	272	857	611.8 (172.8)	713.5 (208.2)	70	98	296.6 (94.8)	140.2 (39.9)	678	998	680.7 (179.2)	951.2 (286.2)	0.50	0.96	1.33 (0.31)	0.90 (0.14)
2	1971	2654	2160.1 (337.8)	2165.0 (767.4)	189	310	169.7 (51.4)	207.7 (117.8)	3174	3284	2216.1 (342.6)	2620.7 (588.1)	0.68	0.90	1.05 (0.30)	0.91 (0.18)
Nfld Reg. (Labrador)	2243	3511	2771.9 (383.8)	2878.5 (905.9)	259	408	466.3 (113.3)	347.8 (104.2)	3852	4282	2896.8 (441.4)	3571.8 (761.3)	0.65	0.92	1.12 (0.23)	0.90 (0.11)
3	1718	738	1557.3 (465.0)	1115.4 (527.4)					3159	1672	2659.5 (564.1)	2136.8 (756.5)	0.54	0.44	0.59 (0.12)	0.52 (0.09)
4	5662	3786	8507.2 (1660.6)	9004.6 (3876.4)					23533	17767	25998.5 (2891.9)	28158.4 (7877.0)	0.24	0.21	0.34 (0.04)	0.32 (0.06)
5	2414	1417	2530.8 (690.0)	3164.6 (1410.4)					7999	6617	8459.1 (1401.5)	10528.0 (2841.9)	0.30	0.21	0.30 (0.06)	0.30 (0.10)
6	334	246	309.4 (92.8)	372.2 (109.8)					3089	2959	2620.0 (479.8)	2884.2 (573.2)	0.11	0.08	0.12 (0.03)	0.13 (0.05)
7	49	66	102.4 (29.9)	100.8 (28.5)					827	1226	1579.5 (194.7)	1317.4 (481.6)	0.06	0.05	0.07 (0.02)	0.08 (0.03)
8	86	99	76.6 (17.9)	99.6 (30.0)					349	330	448.2 (88.7)	493.6 (196.9)	0.25	0.30	0.17 (0.06)	0.20 (0.05)
9	1866	1315	1744.5 (288.8)	1800.0 (583.5)					8240	7039	8198.3 (1183.8)	8228.4 (1318.6)	0.23	0.19	0.22 (0.05)	0.22 (0.05)
10	835	898	1114.7 (256.9)	1271.6 (318.4)					4778	4709	8558.0 (1108.2)	5908.4 (1133.7)	0.17	0.19	0.13 (0.02)	0.22 (0.03)
11	4446	2960	4890.1 (928.7)	5276.2 (1845.1)					12520	11543	10245.8 (2259.7)	14136.8 (1975.2)	0.36	0.26	0.48 (0.07)	0.37 (0.09)
Nfld Reg. (Ins.)	17409	11525	20833.0 (3429.0)	22205.0 (7517.6)					64494	53862	68766.9 (7534.9)	73792.0 (14436.0)	0.27	0.21	0.31 (0.04)	0.30 (0.05)

¹1987 not included in mean for SFAs 3-11.

Table 6. Recreational catch, effort and catch per unit effort in 1990 for each SFA, and the insular and Labrador portions of the Newfoundland Region, expressed as percentages in relation to 1989, the 1974-83 mean and the 1984-89 mean.

Salmon Fishing Area	Grilse (< 63 cm)			Salmon (\geq 63 cm)			Effort (rod days)			CPUE		
	1989	\bar{X} 1974-83	\bar{X} 1984-89*	1989	\bar{X} 1974-83	\bar{X} 1984-89*	1989	\bar{X} 1974-83	\bar{X} 1984-89*	1989	\bar{X} 1974-83	\bar{X} 1984-89*
1	-68	-56	-62	-29	-76	-50	-32	0	-29	-48	-62	-44
2	-26	-9	-9	-39	+11	-9	-3	+43	+21	-24	-35	-25
Nfld Reg. (Labrador)	-36	-19	-22	-37	-44	-26	-10	+33	+8	-29	-42	-28
3	+133	+10	+54				+89	+19	+48	+23	-8	+4
4	+50	-33	-37				+32	-9	-16	+14	-29	-5
5	+70	-5	-24				+21	-5	-24	+43	0	0
6	+36	+8	-10				+4	+18	+7	+38	-8	-15
7	-26	-52	-51				-33	-48	-37	+20	-14	-25
8	-13	+12	-14				+6	-22	-29	-17	+47	+25
9	+42	+7	+4				+17	+1	0	+21	+5	+5
10	-7	-25	-34				+1	-44	-19	-11	+31	-23
11	+50	-9	-16				+8	+22	-11	+38	-25	-3
Nfld Reg. (Insular)	+51	-16	-22				+20	-6	-13	+29	-13	-10

*1987 not included in mean for SFAs 3-11.

Table 7. Counts of grilse from fishways and counting fences in insular Newfoundland 1955-90 by Salmon Fishing Area (SFA); also shown are means (\bar{X}), standard deviations (SD), and coefficients of variation (CV).

Year	Fishways										Counting fences				
	SFA 4		SFA 5			SFA 9	SFA 10	SFA 11	SFA 4	SFA 9		SFA 11			
	1A	1B	2	3	4	5	6	7	8	9	10	11	12	13	
1955						53									
1956				324 ^a	558	32									
1957			642	28 ^a	141	21									
1958			1072	332 ^a	677	10									
1959	886		591	295 ^a	394	120									
1960	1013	94	291		490	86									
1961	839	319	41		318	74									
1962		1037			496	284									
1963	1202	491			551	372									
1964		1752			419	246									
1965	1228	587			474	334									
1966	829 ^a	942			368	134									
1967	1372	822			613	373									
1968		1334			715	409		57 ^a							
1969	979	892			658	463									
1970		1023			754	563									
1971	961	902	714		580	316		159							
1972	794	495 ^a	541	838	609	330		236							
1973	205		970	1079 ^a	455	340		399 ^a							
1974	2538		862	770 ^a		161		224							
1975	9010	6012		1119 ^a		782		186 ^a							
1976	4106	3037				346		294							
1977	6058	4294				371									
1978	3757	2633	755	1412	810	436		390							
1979	6693	3923	404 ^a	1283 ^a	569	455		454							
1980		4550	997	1703	842	422		433							
1981	9015 ^a	4286	2459	2415	1115	619		334 ^a							
1982	7654 ^a	2836	1425	1281	963	625		86 ^a					133		
1983		3031 ^a	978	1195	1210	853		233		2330			272		
1984	17389	6398 ^a	1081	1379	1232	911		419		2430	89		359		
1985	16648	5987	1663	904	1557	960		384		1377 ^a	124		170		
1986	9674	3065	1064	1036	1051	726		725	211	2516	158	296	7515		
1987	8977	2316	493 ^a	914	974	570	80	325 ^a	155 ^a	1302 ^a	91	368	9687		
1988	8972	3436	1562	772	1737	795	307	543	149	1695	97	202 ^a	7118		
1989	7192	1694	596	496	1138	668	167	706	175	7685	889 ^a	62	431	4469	
1990	6629	1057	328 ^a	744	1149	410 ^a	391	551	208	7513	1657	71	307 ^a	4321	
1974-83															
\bar{X}	5360.3	3946.4	1246.0	1601.2	918.2	507.0		338.0							
SD	2353.4	1111.8	636.5	494.0	230.4	211.1		101.1							
CV	43.90	28.17	51.08	30.85	25.09	41.64		29.91							
N	6	8	6	5	6	10		6							
1984-89															
\bar{X}	11475.3	3299.6	1193.2	916.8	1281.5	771.7	184.7	555.4	178.3	2213.7	103.5	324.8	7197.2		
SD	4377.9	1646.3	430.9	291.9	301.4	147.6	114.5	157.8	31.1	451.2	33.2	98.9	2140.8		
CV	38.15	49.89	36.11	31.84	23.52	19.13	61.99	28.41	17.44	20.38	32.08	30.45	29.74		
N	6	5	5	6	6	6	3	5	3	3	6	5	4		

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|-------------------------------|-------------------------------|--------------------------------|
| 1 Exploits River | 4 L. Terra Nova River | 9 Gander River |
| (a) Bishop's Falls | 5 U. Terra Nova River | 10 Biscay Bay River |
| (b) Gt. Rattling Brook | 6 Rocky River | 11 Northeast Brook (Trepassey) |
| 2 Gander River (Salmon Brook) | 7 Northeast River (Placentia) | 12 Colinet River |
| 3 Middle Brook | 8 Grand Bank Brook | 13 Conne River |

^aPartial counts: not included in means

Table 8. Counts of large salmon from fishways and counting fences in insular Newfoundland 1955-90 by Salmon Fishing Area (SFA); also shown are means (\bar{X}), standard deviations (SD), and coefficients of variation (CV).

Year	Fishways						Counting fences							
	SFA 4		SFA 5			SFA 9	SFA 10	SFA 11	SFA 4	SFA 9		SFA 11		
	1A	1B	2	3	4	5	6	7	8	9	10	11	12	13
1955						24								
1956				56 ^a	36	44								
1957			323	2 ^a	41	1								
1958			502	231 ^a	195	0								
1959	119 ^a		290	13 ^a	67	20								
1960	157	9	183		217	0								
1961	118	53	15		99	1								
1962		31			275	4								
1963	65	37			320	35								
1964		116			297	18								
1965	203	190			254	51								
1966	506 ^a	470			220	2								
1967	710	382			359	42								
1968		687			374	28		11 ^a						
1969	498	290			393	136								
1970		199			470	170								
1971	300	261	494		277	121		21						
1972	113	234 ^a	53	10 ^a	348	202		34						
1973	89		135	9 ^a	299	222		64 ^a						
1974	411		8	77 ^a		122		9						
1975	1441	544		9 ^a		48		36 ^a						
1976	493	121				37		56						
1977	584	221				262								
1978	302	78	52	16	20	88		32						
1979	276	119	6 ^a	54 ^a	170	30		37						
1980		418	15	91	40	15		34						
1981	1695 ^a	514	33	38	90	28		62 ^a						
1982	133a	123 ^a	18	20	19	8		36 ^a					116	
1983		223 ^a	12	75	57	76		22			88		43	
1984	355	111 ^a	38	57	107	98		44			83	33	97	
1985	181	38	26	27	112	60		0			21 ^a	41	42	
1986	353	174	12	15	140	58		39	4		101	30	31	397
1987	310	41	9 ^a	19	56	38	1	16 ^a	2 ^a		106 ^a	30	55	498
1988	147	10	24	14	206	45	6	11	2		58	19	14 ^a	418
1989	89	14	24	19	142	51	9	15	7	451	104 ^a	18	81	319
1990	122	15	7 ^a	13	144	34 ^a	17	25	15	508	73	9	50 ^a	361
1977-83														
\bar{X}	584.5	267.2	23.0	48.0	66.0	71.4		31.7						
SD	435.2	193.6	16.6	33.5	57.4	75.8		15.7						
CV	74.46	72.46	72.17	69.79	86.97	106.16		49.53						
N	6	8	6	5	6	10		6						
1984-89														
\bar{X}	239.2	55.4	24.8	25.2	127.2	58.3	5.3	21.8	4.3		80.7	28.5	61.2	408.0
SD	114.7	67.7	9.2	16.3	49.6	21.1	4.0	18.9	2.5		21.6	8.7	27.4	73.6
CV	47.95	122.20	37.10	64.68	38.99	36.19	75.47	86.70	58.14		26.77	30.53	44.77	18.04
N	6	5	5	6	6	6	3	5	3		3	6	5	4

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|-------------------------------|-------------------------------|--------------------------------|
| 1 Exploits River | 4 L. Terra Nova River | 9 Gander River |
| (a) Bishop's Falls | 5 U. Terra Nova River | 10 Biscay Bay River |
| (b) Gt. Rattling Brook | 6 Rocky River | 11 Northeast Brook (Trepassey) |
| 2 Gander River (Salmon Brook) | 7 Northeast River (Placentia) | 12 Colinet River |
| 3 Middle Brook | 8 Grand Bank Brook | 13 Conne River |

^aPartial counts: not included in means

Table 9. Counts of grilse and large salmon from fishways and counting fences in insular Newfoundland for 1990 expressed as percentages in relation to 1989, the 1974-83 mean and the 1984-89 mean.

	Grilse			Large salmon		
	1989	\bar{x} 1974-83	\bar{x} 1984-89	1989	\bar{x} 1974-83	\bar{x} 1984-89
FISHWAYS						
SFA 4						
Bishops Falls (Exploits River)	-8	+24	-42	+37	-79	-49
Gt. Rattling Brook (Exploits River)	-38	-73	-68	+7	-94	-73
SFA 5						
Middle Brook	+50	-54	-19	-32	-73	-48
Lower Terra Nova River	+1	+25	-10	+1	+118	+13
Upper Terra Nova River	-39	-19	-47	-33	-52	-42
SFA 9						
Rocky River	+134		+112	+89		+221
SFA 10						
Northeast River (Placentia)	-22	+63	-1	+67	-21	+15
SFA 11						
Grand Bank Brook	+19		+17	+114		+249
COUNTING FENCES						
SFA 4						
Gander River	-2			+13		
SFA 9						
Biscay Bay River ^a	+86		-25	-30		-10
Northeast Brook (Trepassey)	+15		-31	-50		-68
SFA 11						
Conne River	-3		-40	+13		-12

^a Partial count in 1989 (see text).

Table 10. Atlantic salmon smolt-to-adult survival (back to the river) for Northeast Brook, Trepassey (SFA 9) and Conne River (SFA 11).

Year	Northeast Brook			Conne River		
	Smolts year i	Grilse year i+1	% Survival	Smolts year i	Grilse year i+1	% Survival
1986	1117	91	8.1			
1987	1404	97	6.9	74585	7627	10.2
1988	1692	62	3.7	68938	4968	7.2
1989	1708	71	4.2	76424	5383	7.0

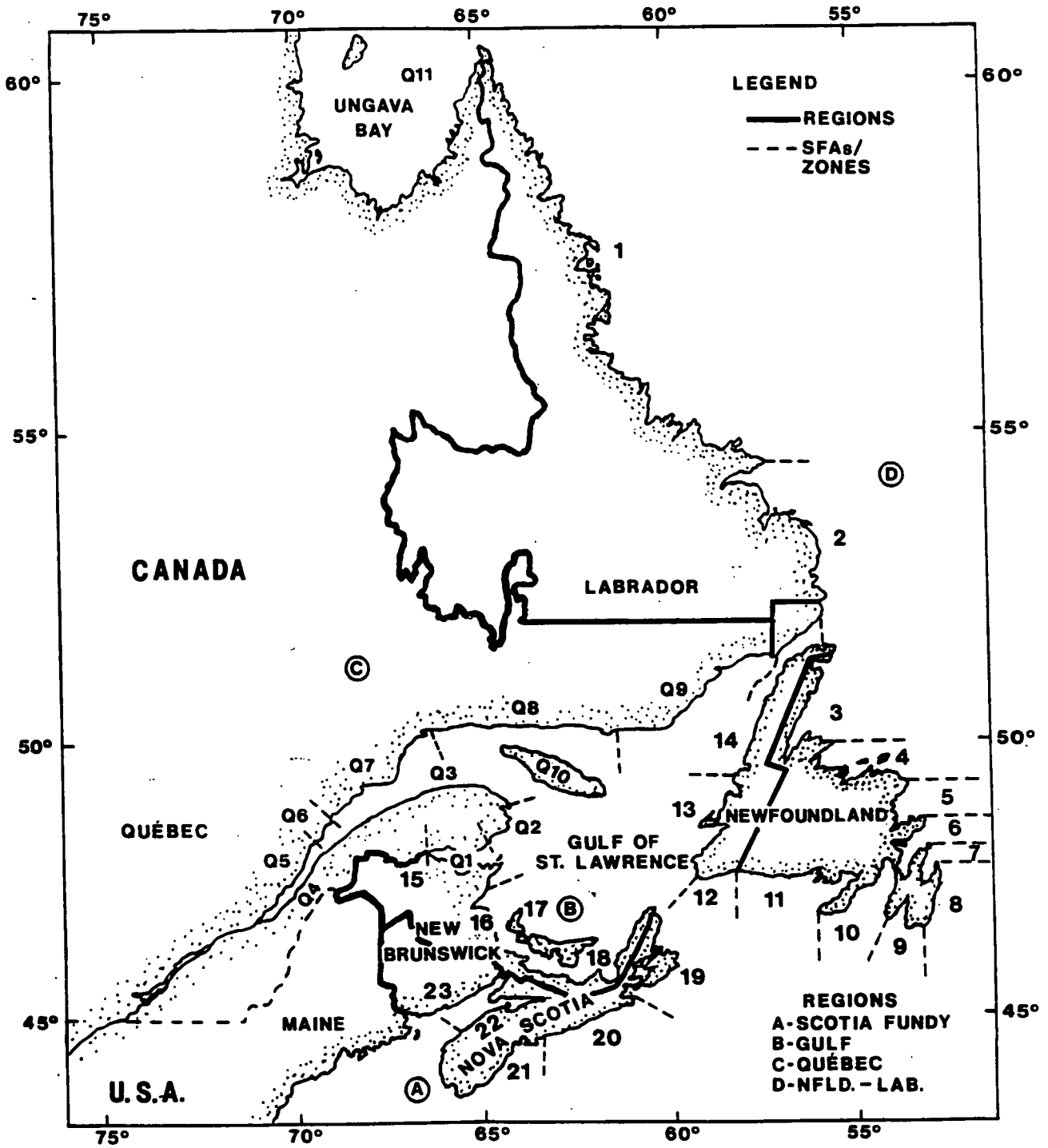


Fig. 1. Map of Atlantic Provinces of Canada showing Salmon Fishing Areas (SFAs) 1-23, Salmon Management Zones of Quebec (Qs) 1-11, and regional boundaries. The Newfoundland Region is comprised of SFAs 1-11.

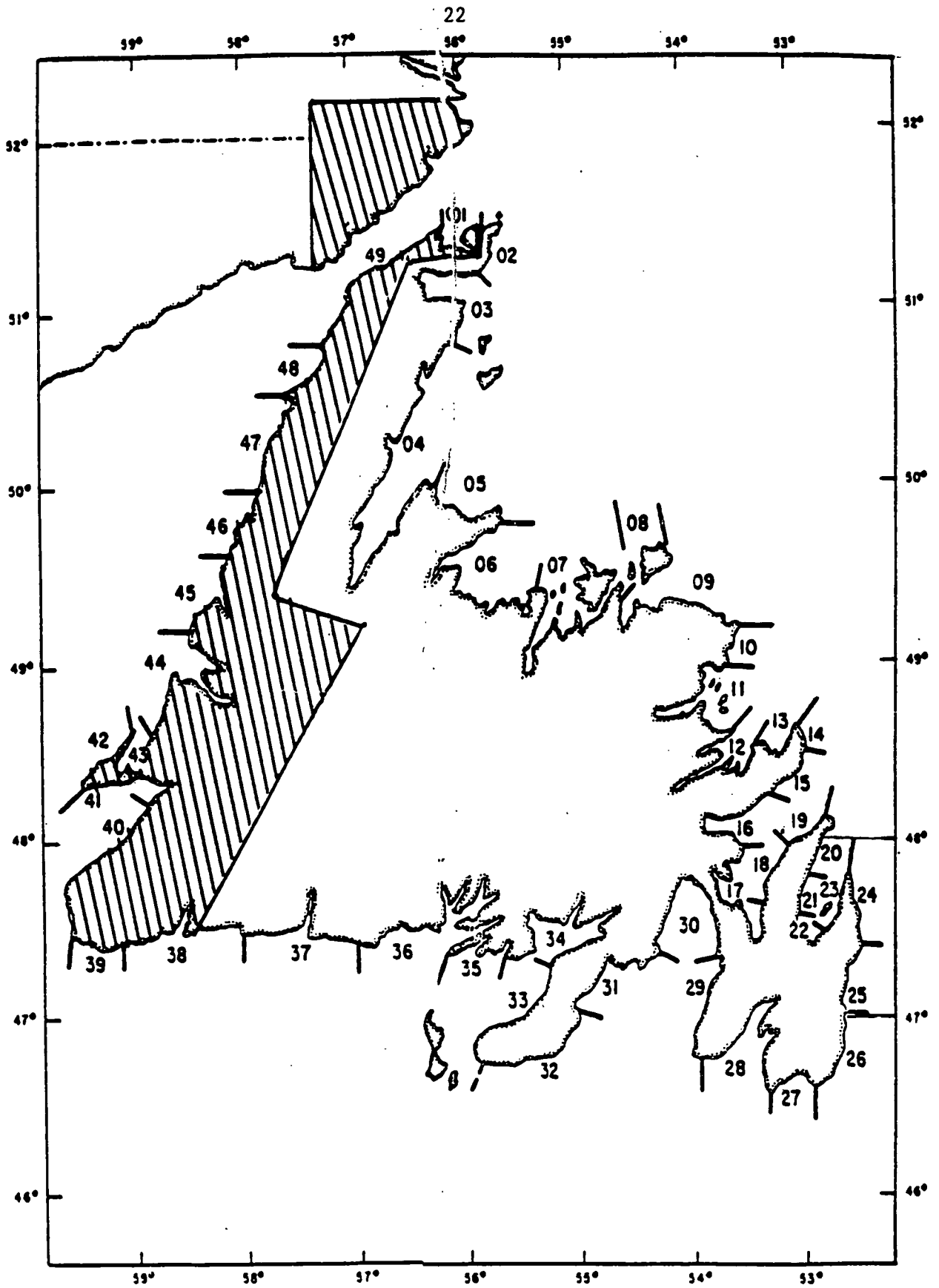
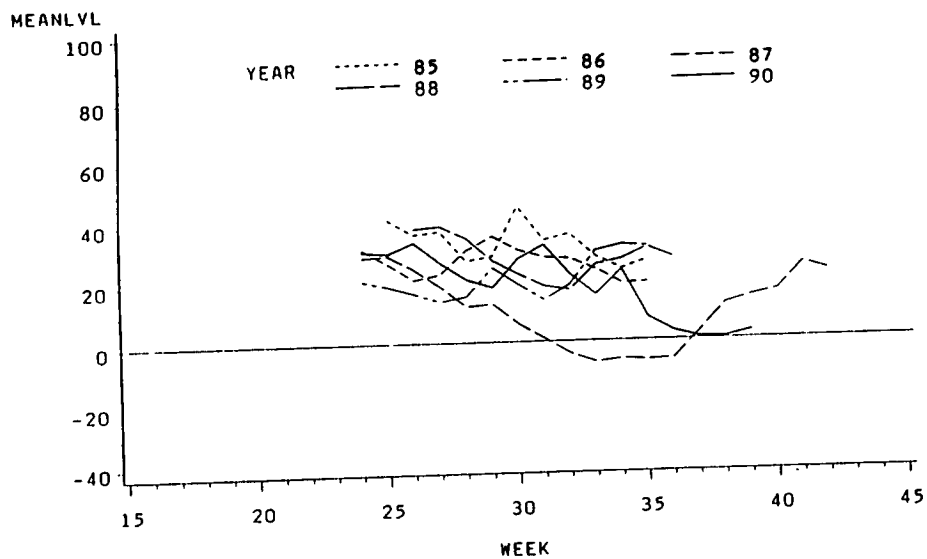
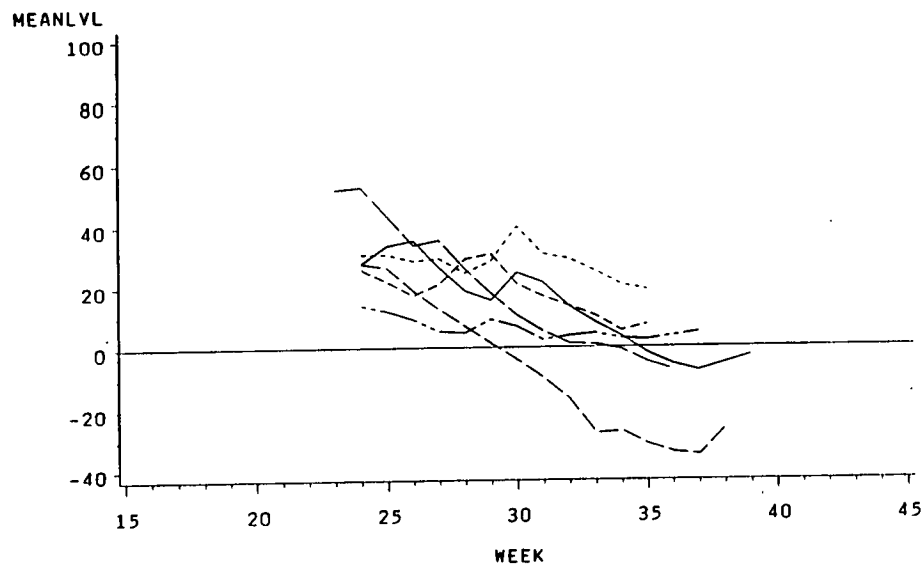


Fig. 2. Map of insular Newfoundland showing the locations of Statistical Sections. Cross-hatched portion denotes area belonging to the Gulf Region.

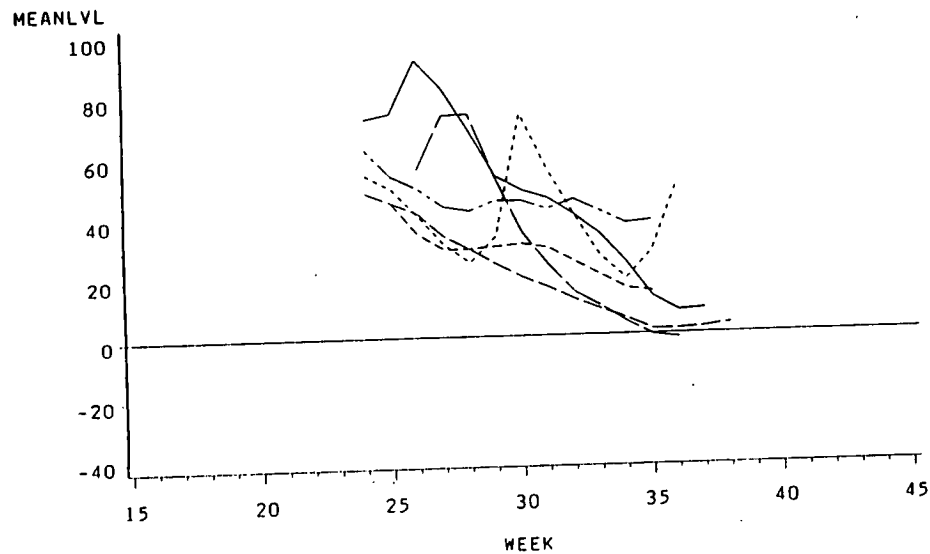
RIVER=GANDER RIVER (SALMON BROOK)



RIVER=MIDDLE BROOK (GAMBO)



RIVER=TERRA NOVA RIVER (MOUTH - LOWER FISHWAY)



RIVER=BISCAY BAY RIVER

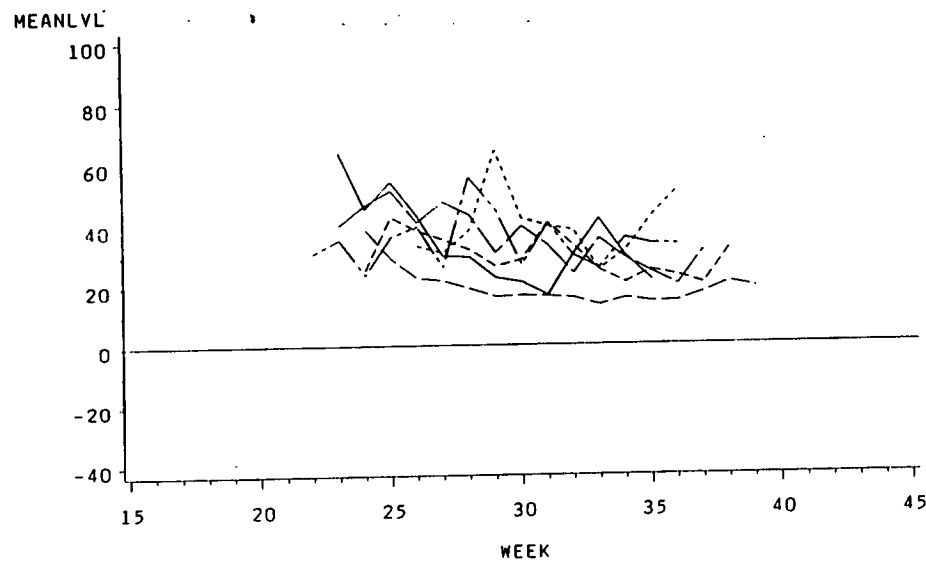
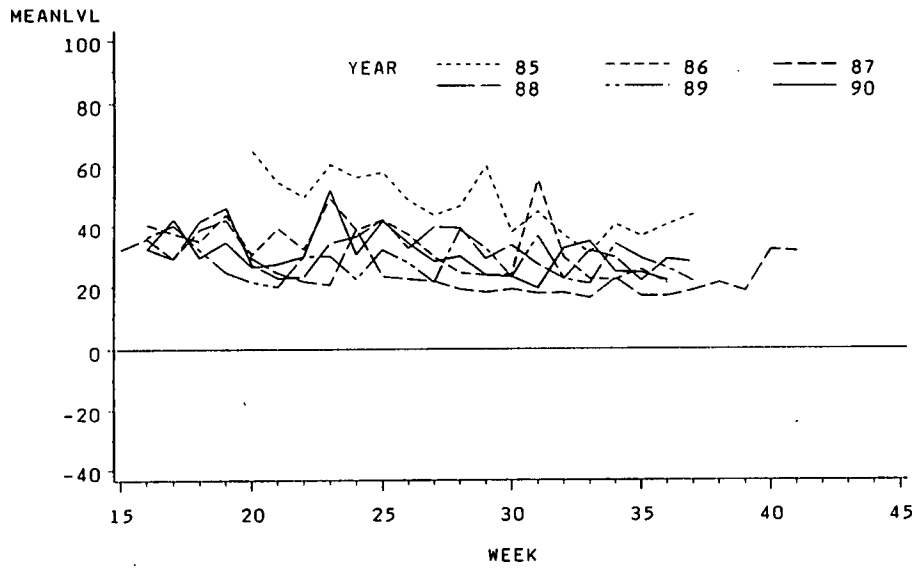
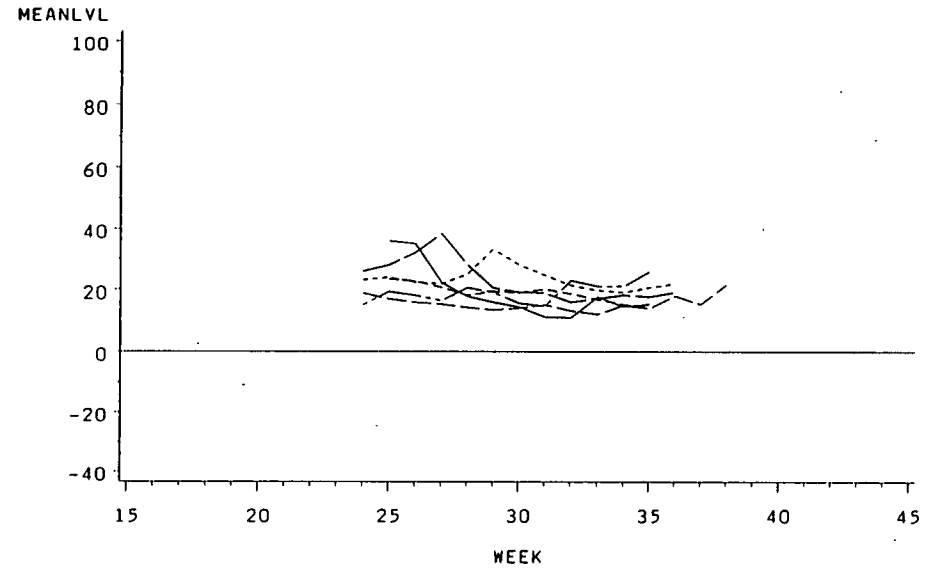


Fig. 3a. Mean water levels by Standard Week measured at Salmon Brook, Middle Brook, lower Terra Nova River, and Biscay Bay River counting facilities, 1985-90.

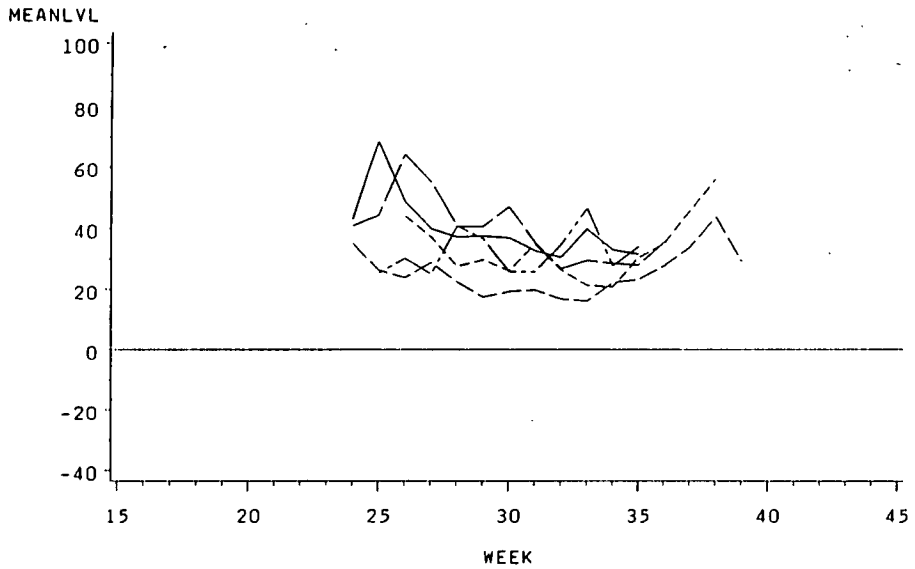
RIVER=NORTHEAST BROOK (TREPASSEY)



RIVER=NORTHEAST RIVER (PLACENTIA)



RIVER=GRAND BANK BROOK



RIVER=CONNE RIVER

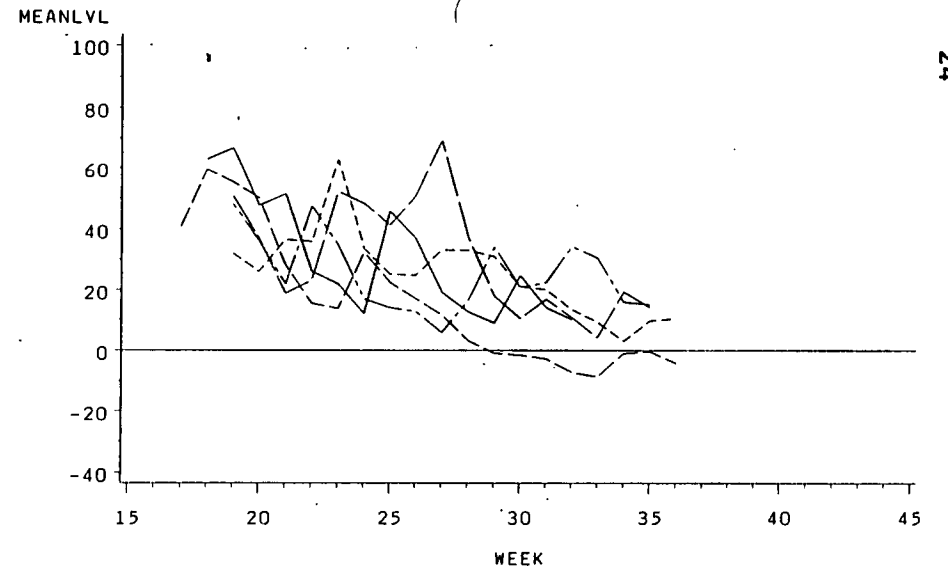


Fig. 3b. Mean water levels by Standard Week measured at Northeast Brook (Trepassey), Northwest River (Placentia), Grand Bank Brook, and Conne River counting facilities, 1985-90.

Appendix 1a. Summary of Atlantic salmon commercial catch data for Labrador (Newfoundland Region), 1974-90. Weight in metric tonnes.

LABRADOR (NFLD REGION)								
YEAR	SMALL WEIGHT	SMALL NUMBER	LARGE WEIGHT	LARGE NUMBER	TOTAL WEIGHT	TOTAL NUMBER	PERCENT SMALL (W)	PERCENT SMALL (N)
1974	94	46993	524	106902	617	153895	15.24	30.54
1975	176	92497	429	99769	605	192266	29.09	48.11
1976	137	65057	523	116351	661	181408	20.73	35.86
1977	117	58335	481	98316	599	156651	19.53	37.24
1978	56	29630	375	79758	430	109388	13.02	27.09
1979	81	38520	213	48364	294	86884	27.55	44.33
1980	209	94986	579	115817	788	210803	26.52	45.06
1981	224	108022	538	104728	763	212750	29.36	50.77
1982	144	72070	362	77277	506	149347	28.46	48.26
1983	91	46149	239	52723	330	98872	27.58	46.68
1984	48	23169	170	36984	217	60153	22.12	38.52
1985	75	39899	136	30041	211	69940	35.55	57.05
1986	126	63100	271	53223	397	116323	31.74	54.25
1987	155	78065	327	68056	482	146121	32.16	53.42
1988	144	76022	212	45007	357	121029	40.34	62.81
1989	95	47433	194	43097	289	90530	32.87	52.39
1990 ¹	60	29514	122	24637	181	54151	33.15	54.50

MEANS, STANDARD DEVIATIONS AND CONFIDENCE INTERVALS (1974-1983):

MEAN:	132.90	65225.90	426.30	90000.50	559.30	155226.40	*23.76	*42.02
S.D.:	55.99	26314.08	126.94	24535.64	167.88	45266.08	* 1.52	* 2.03
95% LCL:	92.85	46403.25	335.50	72449.98	439.21	122847.25	*20.79	*38.03
95% UCL:	172.95	84048.55	517.10	107551.02	679.39	187605.55	*26.74	*46.01

MEANS, STANDARD DEVIATIONS AND CONFIDENCE INTERVALS (1984-1989):

MEAN:	107.17	54614.67	218.33	46068.00	325.50	100682.67	*32.92	*54.24
S.D.:	41.67	21620.13	69.76	13296.64	106.59	32906.16	* 1.97	* 2.37
95% LCL:	63.43	31922.04	145.12	32111.77	213.62	66144.15	*29.06	*49.60
95% UCL:	150.91	77307.29	291.55	60024.23	437.38	135221.18	*36.79	*58.88

NOTE: FLAGGED VALUES INDICATE CALCULATIONS OBTAINED USING RATIO ESTIMATORS

¹Preliminary data.

Appendix 1b. Summary of Atlantic salmon commercial catch data for insular Newfoundland (Newfoundland Region), 1974-90. Weight in metric tonnes.

INSULAR NEWFOUNDLAND (NFLD REGION)								
YEAR	SMALL WEIGHT	SMALL NUMBER	LARGE WEIGHT	LARGE NUMBER	TOTAL WEIGHT	TOTAL NUMBER	PERCENT SMALL (W)	PERCENT SMALL (N)
1974	432	231372	586	123464	1017	354836	42.48	65.21
1975	466	245898	641	138352	1106	384250	42.13	63.99
1976	372	199752	548	124172	922	323924	40.35	61.67
1977	352	179273	651	138857	1004	318130	35.06	56.35
1978	171	86859	380	80323	550	167182	31.09	51.95
1979	334	168148	195	43441	526	211589	63.50	79.47
1980	498	240126	538	113730	1034	353856	48.16	67.86
1981	379	201068	556	116613	936	317681	40.49	63.29
1982	362	189032	270	62038	629	251070	57.55	75.29
1983	263	140138	269	60756	534	200894	49.25	69.76
1984	241	130131	240	54283	482	184414	50.00	70.56
1985	348	191216	242	57537	590	248753	58.98	76.87
1986	392	200267	282	60699	674	260966	58.16	76.74
1987	434	225025	357	77945	794	302970	54.66	74.27
1988	249	134562	192	43581	443	178143	56.21	75.54
1989	266	148297	190	46261	456	194558	58.33	76.22
1990 ¹	151	81438	167	36264	319	117702	47.34	69.19

MEANS, STANDARD DEVIATIONS AND CONFIDENCE INTERVALS (1974-1983):

MEAN:	362.90	188166.60	463.40	100174.60	825.80	288341.20	*43.95	*65.26
S.D.:	95.31	48591.99	169.07	35193.27	236.03	74931.96	* 1.87	* 1.63
95% LCL:	294.72	153408.40	342.47	75000.60	656.97	234741.83	*40.29	*62.06
95% UCL:	431.08	222924.80	584.33	125348.60	994.63	341940.57	*47.60	*68.45

MEANS, STANDARD DEVIATIONS AND CONFIDENCE INTERVALS (1984-1989):

MEAN:	321.67	171583.00	250.50	56717.67	573.17	228300.67	*56.12	*75.16
S.D.:	81.42	39230.94	62.61	12287.91	140.14	50281.67	* 1.47	* 1.13
95% LCL:	236.21	130405.95	184.79	43820.20	426.07	175524.71	*53.24	*72.94
95% UCL:	407.12	212760.05	316.21	69615.13	720.26	281076.62	*59.00	*77.37

NOTE: FLAGGED VALUES INDICATE CALCULATIONS OBTAINED USING RATIO ESTIMATORS

¹Preliminary data.

Appendix 1c. Summary of Atlantic salmon commercial catch data for the entire Newfoundland Region, 1974-90. Weight in metric tonnes.

NFLD. & LABRADOR (NFLD REGION)								
YEAR	SMALL WEIGHT	SMALL NUMBER	LARGE WEIGHT	LARGE NUMBER	TOTAL WEIGHT	TOTAL NUMBER	PERCENT SMALL(W)	PERCENT SMALL(N)
1974	526	278365	1110	230366	1634	508731	32.19	54.72
1975	642	338395	1070	238121	1711	576516	37.52	58.70
1976	509	264809	1071	240523	1583	505332	32.15	52.40
1977	469	237608	1132	237173	1603	474781	29.26	50.05
1978	227	116489	755	160081	980	276570	23.16	42.12
1979	415	206668	408	91805	820	298473	50.61	69.24
1980	707	335112	1117	229547	1822	564659	38.80	59.35
1981	603	309090	1094	221341	1699	530431	35.49	58.27
1982	506	261102	632	139315	1135	400417	44.58	65.21
1983	354	186287	508	113479	864	299766	40.97	62.14
1984	289	153300	410	91267	699	244567	41.34	62.68
1985	423	231115	378	87578	801	318693	52.81	72.52
1986	518	263367	553	113922	1071	377289	48.37	69.81
1987	589	303090	684	146001	1276	449091	46.16	67.49
1988	393	210584	404	88588	800	299172	49.13	70.39
1989	361	195730	384	89358	745	285088	48.46	68.66
1990 ¹	211	110952	289	60901	500	171853	42.20	64.56

MEANS, STANDARD DEVIATIONS AND CONFIDENCE INTERVALS (1974-1983):

MEAN:	495.80	253392.50	889.70	190175.10	1385.10	443567.60	*35.80	*57.13
S.D.:	140.74	69519.91	284.47	57956.56	388.98	115662.61	* 1.89	* 1.99
95% LCL:	395.13	203664.41	686.22	148718.36	1106.86	360833.30	*32.08	*53.22
95% UCL:	596.47	303120.59	1093.2	231631.84	1663.34	526301.90	*39.51	*61.03

MEANS, STANDARD DEVIATIONS AND CONFIDENCE INTERVALS (1984-1989):

MEAN:	428.83	226197.67	468.83	102785.67	898.67	328983.33	*47.72	*68.76
S.D.:	108.70	52543.90	123.69	23398.34	225.76	73221.33	* 2.09	* 1.77
95% LCL:	314.74	171047.26	339.01	78226.62	661.71	252129.76	*43.62	*65.30
95% UCL:	542.92	281348.07	598.66	127344.71	1135.62	405836.90	*51.82	*72.22

NOTE: FLAGGED VALUES INDICATE CALCULATIONS OBTAINED USING RATIO ESTIMATORS

¹Preliminary data.

Appendix 1d. Summary of Atlantic salmon commercial catch data for Salmon Fishing Area 1, 1974-90. Weight in metric tonnes.

SALMON FISHING AREA 1								
YEAR	SMALL WEIGHT	SMALL NUMBER	LARGE WEIGHT	LARGE NUMBER	TOTAL WEIGHT	TOTAL NUMBER	PERCENT SMALL (W)	PERCENT SMALL (N)
1974	12	6211	35	7113	47	13324	25.53	46.62
1975	42	22105	76	17603	118	39708	35.59	55.67
1976	30	14124	139	30882	169	45006	17.75	31.38
1977	25	12363	98	20046	123	32409	20.33	38.15
1978	28	14530	124	26321	151	40851	18.54	35.57
1979	16	7419	72	16444	88	23863	18.18	31.09
1980	41	18587	112	22337	153	40924	26.80	45.42
1981	20	9616	123	24853	143	34469	13.99	27.90
1982	18	9174	66	14006	84	23180	21.43	39.58
1983	20	9907	61	13239	81	23146	24.69	42.80
1984	16	7683	32	6832	48	14515	33.33	52.93
1985	21	11054	51	11349	72	22403	29.17	49.34
1986	24	11794	65	12821	89	24615	26.97	47.91
1987	12	6248	62	13080	75	19328	16.00	32.33
1988	22	11682	42	9020	65	20702	33.85	56.43
1989	20	10041	56	12497	76	22538	26.32	44.55
1990 ¹	8	4452	22	4368	30	8820	26.67	50.48

MEANS, STANDARD DEVIATIONS AND CONFIDENCE INTERVALS (1974-1983):

MEAN:	25.20	12403.60	90.60	19284.40	115.70	31688.00	*21.78	*39.14
S.D.:	10.15	5027.29	33.59	7058.27	39.41	10344.22	* 2.12	* 3.06
95% LCL:	17.94	8807.54	66.58	14235.57	87.51	24288.70	*17.63	*33.15
95% UCL:	32.46	15999.66	114.62	24333.23	143.89	39087.30	*25.93	*45.14

MEANS, STANDARD DEVIATIONS AND CONFIDENCE INTERVALS (1984-1989):

MEAN:	19.17	9750.33	51.33	10933.17	70.83	20683.50	*27.06	*47.14
S.D.:	4.40	2290.51	12.52	2500.84	13.64	3513.99	* 2.58	* 3.21
95% LCL:	14.55	7346.20	38.20	8308.27	56.51	16995.19	*22.01	*40.85
95% UCL:	23.79	12154.47	64.47	13558.07	85.15	24371.81	*32.11	*53.43

NOTE: FLAGGED VALUES INDICATE CALCULATIONS OBTAINED USING RATIO ESTIMATORS

¹Preliminary data.

Appendix 1e. Summary of Atlantic salmon commercial catch data for Salmon Fishing Area 2, 1974-90. Weight in metric tonnes.

SALMON FISHING AREA 2								
YEAR	SMALL WEIGHT	SMALL NUMBER	LARGE WEIGHT	LARGE NUMBER	TOTAL WEIGHT	TOTAL NUMBER	PERCENT SMALL (W)	PERCENT SMALL (N)
1974	82	40782	489	99789	570	140571	14.39	29.01
1975	134	70392	353	82166	487	152558	27.52	46.14
1976	107	50933	384	85469	492	136402	21.75	37.34
1977	92	45972	383	78270	476	124242	19.33	37.00
1978	28	15100	251	53437	279	68537	10.04	22.03
1979	65	31101	141	31920	206	63021	31.55	49.35
1980	168	76399	467	93480	635	169879	26.46	44.97
1981	204	98406	415	79875	620	178281	32.90	55.20
1982	126	62896	296	63271	422	126167	29.86	49.85
1983	71	36242	178	39484	249	75726	28.51	47.86
1984	32	15486	138	30152	169	45638	18.93	33.93
1985	54	28845	85	18692	139	47537	38.85	60.68
1986	102	51306	206	40402	308	91708	33.12	55.94
1987	143	71817	265	54976	407	126793	35.14	56.64
1988	122	64340	170	35987	292	100327	41.78	64.13
1989	75	37392	138	30600	213	67992	35.21	54.99
1990 ¹	52	25062	100	20269	151	45331	34.44	55.29

MEANS, STANDARD DEVIATIONS AND CONFIDENCE INTERVALS (1974-1983):

MEAN:	107.70	52822.30	335.70	70716.10	443.60	123538.40	*24.28	*42.76
S.D.:	52.03	24515.45	117.11	22822.27	153.07	41396.27	* 1.82	* 2.41
95% LCL:	70.48	35286.22	251.93	54391.17	334.10	93927.35	*20.70	*38.03
95% UCL:	144.92	70358.38	419.47	87041.03	553.10	153149.45	*27.85	*47.48

MEANS, STANDARD DEVIATIONS AND CONFIDENCE INTERVALS (1984-1989):

MEAN:	88.00	44864.33	167.00	35134.83	254.67	79999.17	*34.55	*56.08
S.D.:	42.04	21553.58	62.51	12148.26	99.90	31995.73	* 2.19	* 2.58
95% LCL:	43.87	22241.56	101.38	22383.94	149.81	46416.24	*30.26	*51.02
95% UCL:	132.13	67487.11	232.62	47885.73	359.52	113582.09	*38.85	*61.14

NOTE: FLAGGED VALUES INDICATE CALCULATIONS OBTAINED USING RATIO ESTIMATORS

¹Preliminary data.

Appendix 1f. Summary of Atlantic salmon commercial catch data for Salmon Fishing Area 3, 1974-90. Weight in metric tonnes.

SALMON FISHING AREA 3								
YEAR	SMALL WEIGHT	SMALL NUMBER	LARGE WEIGHT	LARGE NUMBER	TOTAL WEIGHT	TOTAL NUMBER	PERCENT SMALL (W)	PERCENT SMALL (N)
1974	66	33129	83	18492	149	51621	44.30	64.18
1975	119	59495	121	26850	240	86345	49.58	68.90
1976	169	88837	174	40514	343	129351	49.27	68.68
1977	122	61215	240	51168	363	112383	33.61	54.47
1978	49	24384	82	17463	131	41847	37.40	58.27
1979	204	101970	65	15509	269	117479	75.84	86.80
1980	167	79798	165	34637	332	114435	50.30	69.73
1981	174	93658	175	36148	349	129806	49.86	72.15
1982	111	58977	79	17262	190	76239	58.42	77.36
1983	100	55136	94	20601	194	75737	51.55	72.80
1984	58	31539	88	19540	146	51079	39.73	61.75
1985	73	40484	50	11394	123	51878	59.35	78.04
1986	102	53685	90	18538	192	72223	53.13	74.33
1987	189	95777	180	38316	369	134093	51.22	71.43
1988	104	55251	88	19100	192	74351	54.17	74.31
1989	77	42687	74	18534	151	61221	50.99	69.73
1990 ¹	43	22917	92	19104	135	42021	31.85	54.54

MEANS, STANDARD DEVIATIONS AND CONFIDENCE INTERVALS (1974-1983):

MEAN:	128.10	65659.90	127.80	27864.40	256.00	93524.30	*50.04	*70.21
S.D.:	49.85	25417.66	57.69	12167.53	87.65	31727.65	* 3.90	* 3.13
95% LCL:	92.44	47478.46	86.53	19160.87	193.30	70829.29	*42.39	*64.07
95% UCL:	163.76	83841.34	169.07	36567.93	318.70	116219.31	*57.69	*76.35

MEANS, STANDARD DEVIATIONS AND CONFIDENCE INTERVALS (1984-1989):

MEAN:	100.50	53237.17	95.00	20903.67	195.50	74140.83	*51.41	*71.81
S.D.:	46.82	22621.46	44.30	9054.81	89.23	30959.29	* 1.93	* 1.66
95% LCL:	51.36	29493.53	48.50	11399.68	101.84	41645.76	*47.63	*68.55
95% UCL:	149.64	76980.80	141.50	30407.65	289.16	106635.90	*55.19	*75.06

NOTE: FLAGGED VALUES INDICATE CALCULATIONS OBTAINED USING RATIO ESTIMATORS

¹Preliminary data.

Appendix 1g. Summary of Atlantic salmon commercial catch data for Salmon Fishing Area 4, 1974-90. Weight in metric tonnes.

SALMON FISHING AREA 4								
YEAR	SMALL WEIGHT	SMALL NUMBER	LARGE WEIGHT	LARGE NUMBER	TOTAL WEIGHT	TOTAL NUMBER	PERCENT SMALL(W)	PERCENT SMALL(N)
1974	54	26821	52	11456	105	38277	51.43	70.07
1975	142	71225	103	22950	246	94175	57.72	75.63
1976	57	30249	60	14303	117	44552	48.72	67.90
1977	85	44691	96	20371	181	65062	46.96	68.69
1978	36	17821	68	14564	104	32385	34.62	55.03
1979	45	21524	33	7403	78	28927	57.69	74.41
1980	135	64024	110	24029	245	88053	55.10	72.71
1981	87	44106	128	26632	215	70738	40.47	62.35
1982	98	50764	69	16022	166	66786	59.04	76.01
1983	74	37560	56	12789	130	50349	56.92	74.60
1984	73	38857	50	10976	123	49833	59.35	77.97
1985	68	37957	43	10019	111	47976	61.26	79.12
1986	119	59902	81	17047	200	76949	59.50	77.85
1987	109	54935	71	15087	180	70022	60.56	78.45
1988	68	36016	35	8179	104	44195	65.38	81.49
1989	85	46988	48	10834	133	57822	63.91	81.26
1990 ¹	61	32024	31	6944	92	38968	66.30	82.18

MEANS, STANDARD DEVIATIONS AND CONFIDENCE INTERVALS (1974-1983):

MEAN:	81.30	40878.50	77.50	17051.90	158.70	57930.40	*51.23	*70.56
S.D.:	35.98	17660.87	30.11	6179.33	61.23	22683.42	* 2.57	* 1.88
95% LCL:	55.56	28245.55	55.96	12631.78	114.90	41704.79	*46.19	*66.88
95% UCL:	107.04	53511.45	99.04	21472.02	202.50	74156.01	*56.26	*74.25

MEANS, STANDARD DEVIATIONS AND CONFIDENCE INTERVALS (1984-1989):

MEAN:	87.00	45775.83	54.67	12023.67	141.83	57799.50	*61.34	*79.20
S.D.:	22.05	9891.08	17.60	3344.58	39.13	13123.58	* 0.92	* 0.65
95% LCL:	63.86	35394.10	36.19	8513.18	100.76	44024.90	*59.54	*77.93
95% UCL:	110.14	56157.57	73.14	15534.16	182.90	71574.10	*63.14	*80.46

NOTE: FLAGGED VALUES INDICATE CALCULATIONS OBTAINED USING RATIO ESTIMATORS

¹Preliminary data.

Appendix 1h. Summary of Atlantic salmon commercial catch data for Salmon Fishing Area 5, 1974-90. Weight in metric tonnes.

SALMON FISHING AREA 5								
YEAR	SMALL WEIGHT	SMALL NUMBER	LARGE WEIGHT	LARGE NUMBER	TOTAL WEIGHT	TOTAL NUMBER	PERCENT SMALL (W)	PERCENT SMALL (N)
1974	31	15344	35	7551	65	22895	47.69	67.02
1975	48	28024	112	24380	160	52404	30.00	53.48
1976	13	6284	44	10811	57	17095	22.81	36.76
1977	38	18031	90	19150	128	37181	29.69	48.50
1978	22	11578	59	12785	81	24363	27.16	47.52
1979	11	5342	18	3849	28	9191	39.29	58.12
1980	40	18246	47	10609	87	28855	45.98	63.23
1981	28	14252	65	14366	93	28618	30.11	49.80
1982	37	18607	23	6089	60	24696	61.67	75.34
1983	27	13723	31	7288	58	21011	46.55	65.31
1984	25	13390	33	7756	58	21146	43.10	63.32
1985	41	21323	31	7518	72	28841	56.94	73.93
1986	36	18044	25	6062	61	24106	59.02	74.85
1987	39	21588	21	5794	60	27382	65.00	78.84
1988	23	12774	16	4523	39	17297	58.97	73.85
1989	24	13417	13	3240	37	16657	64.86	80.55
1990 ¹	9	4899	7	1757	15	6656	60.00	73.60

MEANS, STANDARD DEVIATIONS AND CONFIDENCE INTERVALS (1974-1983):

MEAN:	29.50	14943.10	52.40	11687.80	81.70	26630.90	*36.11	*56.11
S.D.:	11.84	6545.49	29.96	6292.41	38.35	11709.27	* 3.43	* 3.20
95% LCL:	21.03	10261.07	30.97	7186.79	54.27	18255.17	*29.38	*49.84
95% UCL:	37.97	19625.13	73.83	16188.81	109.13	35006.63	*42.83	*62.38

MEANS, STANDARD DEVIATIONS AND CONFIDENCE INTERVALS (1984-1989):

MEAN:	31.33	16756.00	23.17	5815.50	54.50	22571.50	*57.49	*74.24
S.D.:	8.21	4103.65	8.01	1733.73	13.69	5091.87	* 3.33	* 2.30
95% LCL:	22.71	12448.78	14.76	3995.77	40.13	17227.04	*50.97	*69.74
95% UCL:	39.95	21063.22	31.57	7635.23	68.87	27915.96	*64.02	*78.73

NOTE: FLAGGED VALUES INDICATE CALCULATIONS OBTAINED USING RATIO ESTIMATORS

¹Preliminary area.

Appendix 1i. Summary of Atlantic salmon commercial catch data for Salmon Fishing Area 6, 1974-90. Weight in metric tonnes.

SALMON FISHING AREA 6								
YEAR	SMALL WEIGHT	SMALL NUMBER	LARGE WEIGHT	LARGE NUMBER	TOTAL WEIGHT	TOTAL NUMBER	PERCENT SMALL(W)	PERCENT SMALL(N)
1974	74	39102	94	19185	168	58287	44.05	67.09
1975	40	21994	67	14171	106	36165	37.74	60.82
1976	21	10204	33	6648	54	16852	38.89	60.55
1977	34	15236	57	11849	90	27085	37.78	56.25
1978	21	10193	55	10689	76	20882	27.63	48.81
1979	20	9661	9	1757	29	11418	68.97	84.61
1980	29	14568	35	6919	63	21487	46.03	67.80
1981	23	12843	50	10356	73	23199	31.51	55.36
1982	23	12006	20	4278	43	16284	53.49	73.73
1983	11	6432	18	4086	30	10518	36.67	61.15
1984	19	10436	15	3532	34	13968	55.88	74.71
1985	46	26911	19	4462	65	31373	70.77	85.78
1986	31	16227	23	4715	54	20942	57.41	77.49
1987	27	15197	20	4365	48	19562	56.25	77.69
1988	14	8464	10	2180	25	10644	56.00	79.52
1989	18	10304	10	2749	27	13053	66.67	78.94
1990 ¹	7	3835	4	1106	12	4941	58.33	77.62

MEANS, STANDARD DEVIATIONS AND CONFIDENCE INTERVALS (1974-1983):

MEAN:	29.60	15223.90	43.80	8993.80	73.20	24217.70	*40.44	*62.86
S.D.:	17.55	9376.12	25.89	5292.02	41.58	14142.17	* 2.50	* 2.46
95% LCL:	17.05	8517.09	25.28	5208.38	43.46	14101.70	*35.53	*58.03
95% UCL:	42.15	21930.71	62.32	12779.22	102.94	34333.70	*45.34	*67.69

MEANS, STANDARD DEVIATIONS AND CONFIDENCE INTERVALS (1984-1989):

MEAN:	25.83	14589.83	16.17	3667.17	42.17	18257.00	*61.26	*79.91
S.D.:	11.69	6752.91	5.42	1028.56	16.04	7541.57	* 3.23	* 2.09
95% LCL:	13.57	7501.94	10.48	2587.59	25.33	10341.32	*54.94	*75.81
95% UCL:	38.10	21677.73	21.85	4746.75	59.01	26172.68	*67.59	*84.01

NOTE: FLAGGED VALUES INDICATE CALCULATIONS OBTAINED USING RATIO ESTIMATORS

¹Preliminary data.

Appendix 1j. Summary of Atlantic salmon commercial catch data for Salmon Fishing Area 7, 1974-90. Weight in metric tonnes.

SALMON FISHING AREA 7								
YEAR	SMALL WEIGHT	SMALL NUMBER	LARGE WEIGHT	LARGE NUMBER	TOTAL WEIGHT	TOTAL NUMBER	PERCENT SMALL (W)	PERCENT SMALL (N)
1974	43	21478	83	17277	126	38755	34.13	55.42
1975	19	9819	56	12153	75	21972	25.33	44.69
1976	15	7983	33	7042	48	15025	31.25	53.13
1977	23	11318	56	11875	78	23193	29.49	48.80
1978	10	4771	40	8572	50	13343	20.00	35.76
1979	5	2347	7	1418	11	3765	45.45	62.34
1980	22	10012	52	10747	74	20759	29.73	48.23
1981	18	9363	55	11168	73	20531	24.66	45.60
1982	6	3091	11	2425	17	5516	35.29	56.04
1983	7	3741	16	3478	23	7219	30.43	51.82
1984	6	3962	12	2736	19	6698	31.58	59.15
1985	8	4685	16	3582	25	8267	32.00	56.67
1986	7	3417	12	2634	19	6051	36.84	56.47
1987	10	4811	16	3510	26	8321	38.46	57.82
1988	5	2870	11	2467	16	5337	31.25	53.78
1989	5	2979	9	2219	14	5198	35.71	57.31
1990 ¹	3	1346	3	649	6	1995	50.00	67.47

MEANS, STANDARD DEVIATIONS AND CONFIDENCE INTERVALS (1974-1983):

MEAN:	16.80	8392.30	40.90	8615.50	57.50	17007.80	*29.22	*49.34
S.D.:	11.35	5626.94	24.21	5035.61	35.07	10450.63	* 1.69	* 2.08
95% LCL:	8.68	4367.31	23.58	5013.49	32.41	9532.39	*25.91	*45.27
95% UCL:	24.92	12417.29	58.22	12217.51	82.59	24483.21	*32.52	*53.42

MEANS, STANDARD DEVIATIONS AND CONFIDENCE INTERVALS (1984-1989):

MEAN:	6.83	3787.33	12.67	2858.00	19.83	6645.33	*34.45	*56.99
S.D.:	1.94	838.60	2.80	561.35	4.79	1385.65	* 1.38	* 0.66
95% LCL:	4.80	2907.13	9.72	2268.81	14.80	5190.94	*31.74	*55.71
95% UCL:	8.87	4667.53	15.61	3447.19	24.86	8099.72	*37.17	*58.28

NOTE: FLAGGED VALUES INDICATE CALCULATIONS OBTAINED USING RATIO ESTIMATORS

¹Preliminary data.

Appendix 1k. Summary of Atlantic salmon commercial catch data for Salmon Fishing Area 8, 1974-90. Weight in metric tonnes.

SALMON FISHING AREA 8								
YEAR	SMALL WEIGHT	SMALL NUMBER	LARGE WEIGHT	LARGE NUMBER	TOTAL WEIGHT	TOTAL NUMBER	PERCENT SMALL(W)	PERCENT SMALL(N)
1974	50	27847	84	18210	134	46057	37.31	60.46
1975	28	14513	83	17669	111	32182	25.23	45.10
1976	17	9128	50	10628	67	19756	25.37	46.20
1977	15	7915	55	11754	70	19669	21.43	40.24
1978	3	1487	28	5901	31	7388	9.68	20.13
1979	5	2719	9	1881	14	4600	35.71	59.11
1980	22	10362	67	13953	89	24315	24.72	42.62
1981	13	6940	38	8644	51	15584	25.49	44.53
1982	9	3457	9	2238	17	5695	52.94	60.70
1983	9	4836	15	3441	24	8277	37.50	58.43
1984	15	8156	16	3898	31	12054	48.39	67.66
1985	15	6604	16	4589	31	11193	48.39	59.00
1986	16	8029	8	2010	24	10039	66.67	79.98
1987	10	5498	13	2766	23	8264	43.48	66.53
1988	7	3853	12	2712	19	6565	36.84	58.69
1989	7	3720	5	1314	12	5034	58.33	73.90
1990 ¹	1	849	2	332	3	1181	33.33	71.89

MEANS, STANDARD DEVIATIONS AND CONFIDENCE INTERVALS (1974-1983):

MEAN:	17.10	8920.40	43.80	9431.90	60.80	18352.30	*28.13	*48.61
S.D.:	13.84	7722.92	28.65	6054.52	41.15	13236.28	* 2.77	* 3.74
95% LCL:	7.20	3396.14	23.30	5101.06	31.36	8884.29	*22.70	*41.28
95% UCL:	27.00	14444.66	64.30	13762.74	90.24	27820.31	*33.55	*55.93

MEANS, STANDARD DEVIATIONS AND CONFIDENCE INTERVALS (1984-1989):

MEAN:	11.67	5976.67	11.67	2881.50	23.33	8858.17	*50.00	*67.47
S.D.:	4.18	1958.91	4.41	1200.62	7.28	2731.12	* 3.99	* 3.52
95% LCL:	7.28	3920.58	7.04	1621.32	15.69	5991.57	*42.18	*60.57
95% UCL:	16.05	8032.76	16.30	4141.68	30.98	11724.77	*57.82	*74.37

NOTE: FLAGGED VALUES INDICATE CALCULATIONS OBTAINED USING RATIO ESTIMATORS

¹Preliminary data.

Appendix 11. Summary of Atlantic salmon commercial catch data in salmon Fishing Area 9, 1974-90.
Weight in metric tonnes.

SALMON FISHING AREA 9								
YEAR	SMALL WEIGHT	SMALL NUMBER	LARGE WEIGHT	LARGE NUMBER	TOTAL WEIGHT	TOTAL NUMBER	PERCENT SMALL (W)	PERCENT SMALL (N)
1974	8	4396	2	420	10	4816	80.00	91.28
1975	6	3395	3	628	9	4023	66.67	84.39
1976	5	2833	1	310	7	3143	71.43	90.14
1977	4	2454	1	266	6	2720	66.67	90.22
1978	7	3702	5	1013	11	4715	63.64	78.52
1979	21	11445	6	1239	26	12684	80.77	90.23
1980	12	6153	3	522	14	6675	85.71	92.18
1981	13	7024	4	834	17	7858	76.47	89.39
1982	13	6706	2	395	14	7101	92.86	94.44
1983	7	3891	2	447	9	4338	77.78	89.70
1984	10	5203	2	336	12	5539	83.33	93.93
1985	9	4849	2	483	11	5332	81.82	90.94
1986	6	3131	2	418	8	3549	75.00	88.22
1987	5	2907	1	300	7	3207	71.43	90.65
1988	5	2787	3	663	8	3450	62.50	80.78
1989	5	3027	2	589	8	3616	62.50	83.71
1990 ¹	2	1162	1	189	3	1351	66.67	86.01

MEANS, STANDARD DEVIATIONS AND CONFIDENCE INTERVALS (1974-1983):

MEAN:	9.60	5199.90	2.90	607.40	12.30	5807.30	*78.05	*89.54
S.D.:	5.17	2718.42	1.66	322.05	5.89	2945.23	* 2.75	* 1.26
95% LCL:	5.90	3255.39	1.71	377.03	8.09	3700.56	*72.66	*87.07
95% UCL:	13.30	7144.41	4.09	837.77	16.51	7914.04	*83.44	*92.01

MEANS, STANDARD DEVIATIONS AND CONFIDENCE INTERVALS (1984-1989):

MEAN:	6.67	3650.67	2.00	464.83	9.00	4115.50	*74.07	*83.71
S.D.:	2.25	1077.38	0.63	142.11	2.00	1033.92	* 3.91	* 2.03
95% LCL:	4.30	2519.84	1.34	315.67	6.90	3030.30	*66.41	*84.72
95% UCL:	9.03	4781.49	2.66	613.99	11.10	5200.70	*81.74	*92.69

NOTE: FLAGGED VALUES INDICATE CALCULATIONS OBTAINED USING RATIO ESTIMATORS

¹Preliminary data.

Appendix 1m. Summary of Atlantic salmon commercial catch data for Salmon Fishing Area 10, 1974-90. Weight in metric tonnes.

SALMON FISHING AREA 10								
YEAR	SMALL WEIGHT	SMALL NUMBER	LARGE WEIGHT	LARGE NUMBER	TOTAL WEIGHT	TOTAL NUMBER	PERCENT SMALL (W)	PERCENT SMALL (N)
1974	62	36686	36	7880	99	44566	62.63	82.32
1975	15	9604	16	3304	31	12908	48.39	74.40
1976	19	11266	20	4269	39	15535	48.72	72.52
1977	19	11366	17	3677	36	15043	52.78	75.56
1978	13	7416	22	4782	35	12198	37.14	60.80
1979	5	3129	14	3106	20	6235	25.00	50.18
1980	35	19347	28	5916	63	25263	55.56	76.58
1981	8	4698	11	2226	19	6924	42.11	67.85
1982	30	16820	16	3526	46	20346	65.22	82.67
1983	10	5084	12	2767	22	7851	45.45	64.76
1984	18	9632	8	1724	26	11356	69.23	84.82
1985	40	22460	11	2261	51	24721	78.43	90.85
1986	34	15627	15	3471	49	19098	69.39	81.83
1987	19	10075	9	1986	28	12061	67.86	83.53
1988	12	6854	6	1350	18	8204	66.67	83.54
1989	28	15736	11	2774	40	18510	70.00	85.01
1990 ¹	16	9406	7	1913	23	11319	69.57	83.10

MEANS, STANDARD DEVIATIONS AND CONFIDENCE INTERVALS (1974-1983):

MEAN:	21.60	12541.60	19.20	4145.30	41.00	16686.90	*52.68	*75.16
S.D.:	17.02	9951.08	7.74	1682.53	24.32	11475.93	* 3.68	* 2.77
95% LCL:	9.42	5423.52	13.66	2941.77	23.60	8478.09	*45.48	*69.73
95% UCL:	33.78	19659.68	24.74	5348.83	58.40	24895.71	*59.89	*80.59

MEANS, STANDARD DEVIATIONS AND CONFIDENCE INTERVALS (1984-1989):

MEAN:	25.17	13397.33	10.00	2261.00	35.33	15658.33	*71.23	*85.56
S.D.:	10.67	5667.51	3.10	764.35	13.38	6150.01	* 2.09	* 1.78
95% LCL:	13.97	7448.68	6.75	1458.73	21.29	9203.24	*67.13	*82.08
95% UCL:	36.36	19345.99	13.25	3063.27	49.38	22113.42	*75.33	*89.05

NOTE: FLAGGED VALUES INDICATE CALCULATIONS OBTAINED USING RATIO ESTIMATORS

¹Preliminary data.

Appendix 1n. Summary of Atlantic salmon commercial catch data for Salmon Fishing Area 11, 1974-90. Weight in metric tonnes.

SALMON FISHING AREA 11								
YEAR	SMALL WEIGHT	SMALL NUMBER	LARGE WEIGHT	LARGE NUMBER	TOTAL WEIGHT	TOTAL NUMBER	PERCENT SMALL (W)	PERCENT SMALL (N)
1974	44	26569	117	22993	161	49562	27.33	53.61
1975	49	27829	80	16247	128	44076	38.28	63.14
1976	56	32968	133	29647	190	62615	29.47	52.65
1977	12	7047	39	8747	52	15794	23.08	44.62
1978	10	5507	21	4554	31	10061	32.26	54.74
1979	18	10011	34	7279	51	17290	35.29	57.90
1980	36	17616	31	6398	67	24014	53.73	73.36
1981	15	8184	30	6239	46	14423	32.61	56.74
1982	35	18604	41	9803	76	28407	46.05	65.49
1983	18	9735	25	5859	44	15594	40.91	62.43
1984	17	8956	16	3785	33	12741	51.52	70.29
1985	48	25943	54	13229	101	39172	47.52	66.23
1986	41	22205	26	5804	67	28009	61.19	79.28
1987	26	14237	26	5821	53	20058	49.06	70.98
1988	11	5693	11	2407	22	8100	50.00	70.28
1989	17	9439	18	4008	34	13447	50.00	70.19
1990 ¹	9	5000	20	4270	30	9270	30.00	53.94

MEANS, STANDARD DEVIATIONS AND CONFIDENCE INTERVALS (1974-1983):

MEAN:	29.30	16407.00	55.10	11776.60	84.60	28183.60	*34.63	*58.21
S.D.:	16.75	9853.06	40.42	8467.08	55.19	17829.48	* 3.46	* 3.58
95% LCL:	17.32	9359.03	26.19	5720.03	45.12	15430.04	*27.85	*51.20
95% UCL:	41.28	23454.97	84.01	17833.17	124.08	40937.16	*41.41	*65.22

MEANS, STANDARD DEVIATIONS AND CONFIDENCE INTERVALS (1984-1989):

MEAN:	26.67	14412.17	25.17	5842.33	51.67	20254.50	*51.61	*71.16
S.D.:	14.79	8052.89	15.29	3846.13	29.02	11563.47	* 3.85	* 3.65
95% LCL:	11.15	5959.80	9.12	1805.41	21.21	8117.41	*44.07	*63.99
95% UCL:	42.19	22864.53	41.21	9879.26	82.13	32391.59	*59.15	*78.32

NOTE: FLAGGED VALUES INDICATE CALCULATIONS OBTAINED USING RATIO ESTIMATORS

¹Preliminary data.

Appendix 2a. Summary of Atlantic salmon recreational catch and effort data for Labrador (Newfoundland Region), 1953-90.

NEWFOUNDLAND REGION (LABRADOR)

YEAR	EFFORT ROD DAYS	GRILSE <63 CM	SALMON >63 CM	TOTAL CATCH	CPUE	PERCENT GRILSE
1953	.	.	.	.	.	.
1954	100	350	150	500	5.00	.
1955	198	125	8	133	0.67	98
1956	101	20	0	20	0.20	100
1957	342	1022	49	1071	3.13	29
1958	366	849	20	869	2.37	98
1959	500	823	37	860	1.72	96
1960	399	558	39	597	1.50	95
1961	634	713	126	839	1.32	82
1962	611	764	58	822	1.35	92
1963	694	1372	58	1430	2.06	93
1964	1583	1916	121	2037	1.29	92
1965	1826	1544	236	1780	0.97	89
1966	2280	1978	362	2340	1.03	81
1967	1436	1085	195	1280	0.89	91
1968	1821	2131	309	2440	1.34	78
1969	1619	1612	120	1732	1.07	95
1970	2750	2447	241	2688	0.98	87
1971	2639	3007	239	3246	1.23	91
1972	2808	2524	344	2868	1.02	90
1973	5228	6061	577	6638	1.27	81
1974	2779	1761	512	2273	0.82	92
1975	2029	2903	173	3076	1.52	91
1976	3259	3228	520	3748	1.15	85
1977	3316	2932	693	3625	1.09	82
1978	3835	2118	584	2702	0.70	83
1979	3184	3217	490	3707	1.16	81
1980	2472	2862	552	3414	1.38	85
1981	1845	3493	300	3793	2.06	91
1982	3121	2833	541	3374	1.08	87
1983	3128	2372	298	2670	0.85	90
1984	3131	1948	325	2273	0.73	88
1985	2702	2009	194	2203	0.82	91
1986	3051	2393	283	2676	0.88	88
1987	3761	3479	418	3897	1.04	85
1988	4504	3931	459	4390	0.97	88
1989	4282	3511	408	3919	0.92	91
1990	3852	2243	259	2502	0.65	93

MEANS, 95% CONFIDENCE LIMITS, N'S:

74-83	2896.8	2771.9	466.3	3238.2	1.12	87
$\bar{X}+95\%CL$	+441.4	+383.8	+113.3	+381.1	+0.23	+3.16
N	10	10	10	10	10	10
84-89	3571.8	2878.5	347.8	3226.3	0.90	89
$\bar{X}+95\%CL$	+761.3	+905.9	+104.2	+1000.3	+0.11	+2.21
N	6	6	6	6	6	6

PERCENT GRILSE IS CALCULATED BY SMOLT CLASS.

IN THE ABOVE TABLE A PERIOD INDICATES NO DATA FOR THAT YEAR.

* NOT ALLOWED TO RETAIN LARGE SALMON IN INSULAR NEWFOUNDLAND.

Appendix 2b. Summary of Atlantic salmon recreational catch and effort data for insular Newfoundland (Newfoundland Region), 1953-90.

NEWFOUNDLAND REGION (INSULAR)

YEAR	EFFORT ROD DAYS	GRILSE <63 CM	SALMON >63 CM	TOTAL CATCH	CPUE	PERCENT GRILSE
1953	27955	7519	707	8226	0.29	.
1954	16974	3071	559	3630	0.21	93
1955	11183	4704	394	5098	0.46	89
1956	33532	7660	609	8269	0.25	89
1957	17514	7927	690	8617	0.49	92
1958	16593	9178	876	10054	0.61	90
1959	17570	7972	713	8685	0.49	93
1960	17530	6732	634	7366	0.42	93
1961	13730	4476	302	4778	0.35	96
1962	21641	9201	711	9912	0.46	86
1963	26824	10122	551	10673	0.40	94
1964	34886	15435	846	16281	0.47	92
1965	34083	11895	548	12443	0.37	97
1966	34073	13361	384	13745	0.40	97
1967	38067	9391	178	9569	0.25	99
1968	40004	16244	372	16616	0.42	96
1969	40347	16181	289	16470	0.41	98
1970	38933	15485	180	15665	0.40	99
1971	38417	12933	218	13151	0.34	99
1972	33487	12656	142	12798	0.38	99
1973	46180	19286	164	19450	0.42	99
1974	67894	15518	171	15689	0.23	99
1975	60191	16059	245	16304	0.27	98
1976	64853	16402	320	16722	0.26	98
1977	69057	21375	1186	22561	0.33	93
1978	63599	19723	616	20339	0.32	97
1979	50199	17849	379	18228	0.36	98
1980	66625	23373	720	24093	0.36	96
1981	77884	30428	552	30980	0.40	98
1982	85200	25987	531	26518	0.31	98
1983	82167	21616	695	22311	0.27	97
1984	79740	24831	47	24878	0.31	100
1985	82783	26527	*	26527	0.32	100
1986	79009	24182	*	24182	0.31	100
1987	47809	13013	*	13013	0.27	100
1988	73566	23960	*	23960	0.33	100
1989	53862	11525	*	11525	0.21	100
1990	64494	17409	*	17409	0.27	100

MEANS, 95% CONFIDENCE LIMITS, N'S:

74-83	68766.9	20833.0	541.5	21374.5	0.31	97
$\bar{X}+95\%CL$	± 7534.9	± 3429.0	± 210.2	± 3529.2	± 0.04	± 1.03
N	10	10	10	10	10	10
84-89	73792.0	22205.0	47.0	22214.4	0.30	100
$\bar{X}+95\%CL$	± 14436.0	± 7517.6	.	± 7524.0	± 0.05	± 0.12
N	5	5	1	5	5	5

1987 DATA NOT INCLUDED IN MEAN.

PERCENT GRILSE IS CALCULATED BY SMOLT CLASS.

IN THE ABOVE TABLE A PERIOD INDICATES NO DATA FOR THAT YEAR.

* NOT ALLOWED TO RETAIN LARGE SALMON IN INSULAR NEWFOUNDLAND.

Appendix 2c. Summary of Atlantic salmon recreational catch and effort data for the entire Newfoundland Region, 1953-90.

NEWFOUNDLAND REGION (TOTAL)

YEAR	EFFORT ROD DAYS	GRILSE <63 CM	SALMON >63 CM	TOTAL CATCH	CPUE	PERCENT GRILSE
1953	27955	7519	707	8226	0.29	.
1954	17074	3421	709	4130	0.24	91
1955	11381	4829	402	5231	0.46	89
1956	33633	7680	609	8289	0.25	89
1957	17856	8949	739	9688	0.54	91
1958	16959	10027	896	10923	0.64	91
1959	18070	8795	750	9545	0.53	93
1960	17929	7290	673	7963	0.44	93
1961	14364	5189	428	5617	0.39	94
1962	22252	9965	769	10734	0.48	87
1963	27518	11494	609	12103	0.44	94
1964	36469	17351	967	18318	0.50	92
1965	35909	13439	784	14223	0.40	96
1966	36353	15339	746	16085	0.44	95
1967	39503	10476	373	10849	0.27	98
1968	41825	18375	681	19056	0.46	94
1969	41966	17793	409	18202	0.43	98
1970	41683	17932	421	18353	0.44	98
1971	41056	15940	457	16397	0.40	98
1972	36295	15180	486	15666	0.43	97
1973	51408	25347	741	26088	0.51	95
1974	70673	17279	683	17962	0.25	97
1975	62220	18962	418	19380	0.31	98
1976	68112	19630	840	20470	0.30	96
1977	72373	24307	1879	26186	0.36	91
1978	67434	21841	1200	23041	0.34	95
1979	53383	21066	869	21935	0.41	96
1980	69097	26235	1272	27507	0.40	94
1981	79729	33921	852	34773	0.44	97
1982	88321	28820	1072	29892	0.34	97
1983	85295	23988	993	24981	0.29	97
1984	82871	26779	372	27151	0.33	98
1985	85485	28536	194	28730	0.34	99
1986	82060	26575	283	26858	0.33	99
1987	51570	16492	418	16910	0.33	98
1988	78070	27891	459	28350	0.36	97
1989	58144	15036	408	15444	0.27	99
1990	68346	19652	259	19911	0.29	98

MEANS, 95% CONFIDENCE LIMITS, N'S:

74-83	71663.7	23604.9	1007.8	24612.7	0.34	96
$\bar{X}+95\%CL$	+7503.8	+3601.4	+281.6	+3698.0	+0.04	+1.23
N	10	10	10	10	10	10
84-89	77326.0	24963.4	343.2	25306.6	0.33	99
$\bar{X}+95\%CL$	+13717.9	+6962.8	+130.7	+6915.0	+0.04	+0.77
N	5	5	5	5	5	5

1987 DATA NOT INCLUDED IN MEAN.

PERCENT GRILSE IS CALCULATED BY SMOLT CLASS.

IN THE ABOVE TABLE A PERIOD INDICATES NO DATA FOR THAT YEAR.

* NOT ALLOWED TO RETAIN LARGE SALMON IN INSULAR NEWFOUNDLAND.

Appendix 2d. Summary of Atlantic salmon recreational catch and effort data for Salmon Fishing Area 1, 1964-90.

SALMON FISHING AREA :01

YEAR	EFFORT ROD DAYS	GRILSE <63 CM	SALMON >63 CM	TOTAL CATCH	CPUE	PERCENT GRILSE
1953	.	.	.	.	.	.
1954	.	.	.	.	.	.
1955	.	.	.	.	.	.
1956	.	.	.	.	.	.
1957	.	.	.	.	.	.
1958	.	.	.	.	.	.
1959	.	.	.	.	.	.
1960	.	.	.	.	.	.
1961	.	.	.	.	.	.
1962	.	.	.	.	.	.
1963	.	.	.	.	.	.
1964	44	18	3	21	0.48	.
1965	278	57	75	132	0.47	19
1966	397	367	252	619	1.56	18
1967	468	119	106	225	0.48	78
1968	748	192	222	414	0.55	35
1969	.	.	.	.	.	100
1970	420	275	129	404	0.96	.
1971	523	171	82	253	0.48	77
1972	690	450	170	620	0.90	50
1973	700	533	128	661	0.94	78
1974	469	101	268	369	0.79	67
1975	245	379	117	496	2.02	46
1976	928	891	368	1259	1.36	51
1977	809	688	533	1221	1.51	63
1978	694	875	432	1307	1.88	61
1979	1101	595	323	918	0.83	73
1980	711	677	231	908	1.28	72
1981	414	660	195	855	2.07	78
1982	742	784	363	1147	1.55	65
1983	694	468	136	604	0.87	85
1984	832	681	212	893	1.07	69
1985	946	642	135	777	0.82	83
1986	568	369	125	494	0.87	84
1987	955	817	135	952	1.00	73
1988	1408	915	136	1051	0.75	86
1989	998	857	98	955	0.96	90
1990	678	272	70	342	0.50	92

MEANS, 95% CONFIDENCE LIMITS, N'S:

74-83	680.7	611.8	296.6	908.4	1.33	67.58
$\bar{X}+95\%CL$	+179.2	+172.8	+94.8	+237.6	+0.31	+6.82
N	10	10	10	10	10	10
84-89	951.2	713.5	140.2	853.7	0.90	82.23
$\bar{X}+95\%CL$	+286.2	+208.2	+39.9	+207.6	+0.14	+8.08
N	6	6	6	6	6	6

PERCENT GRILSE IS CALCULATED BY SMOLT CLASS.

IN THE ABOVE TABLE A PERIOD INDICATES NO DATA FOR THAT YEAR.

* NOT ALLOWED TO RETAIN LARGE SALMON IN INSULAR NEWFOUNDLAND.

Appendix 2e. Summary of Atlantic salmon recreational fishery catch and effort data for Salmon Fishing Area 2, 1954-90.

SALMON FISHING AREA :02

YEAR	EFFORT ROD DAYS	GRILSE <63 CM	SALMON >63 CM	TOTAL CATCH	CPUE	PERCENT GRILSE
1953	.	.	.	.	.	.
1954	100	350	150	500	5.00	.
1955	198	125	8	133	0.67	98
1956	101	20	0	20	0.20	100
1957	342	1022	49	1071	3.13	29
1958	366	849	20	869	2.37	98
1959	500	823	37	860	1.72	96
1960	399	558	39	597	1.50	95
1961	634	713	126	839	1.32	82
1962	611	764	58	822	1.35	92
1963	694	1372	58	1430	2.06	93
1964	1539	1898	118	2016	1.31	92
1965	1548	1487	161	1648	1.06	92
1966	1883	1611	110	1721	0.91	93
1967	968	966	89	1055	1.09	95
1968	1073	1939	87	2026	1.89	92
1969	1619	1612	120	1732	1.07	94
1970	2330	2172	112	2284	0.98	94
1971	2116	2836	157	2993	1.41	93
1972	2118	2074	174	2248	1.06	94
1973	4528	5528	449	5977	1.32	82
1974	2310	1660	244	1904	0.82	96
1975	1784	2524	56	2580	1.45	97
1976	2331	2337	152	2489	1.07	94
1977	2507	2244	160	2404	0.96	94
1978	3141	1243	152	1395	0.44	94
1979	2083	2622	167	2789	1.34	88
1980	1761	2185	321	2506	1.42	89
1981	1431	2833	105	2938	2.05	95
1982	2379	2049	178	2227	0.94	94
1983	2434	1904	162	2066	0.85	93
1984	2299	1267	113	1380	0.60	94
1985	1756	1367	59	1426	0.81	96
1986	2483	2024	158	2182	0.88	90
1987	2806	2662	283	2945	1.05	88
1988	3096	3016	323	3339	1.08	89
1989	3284	2654	310	2964	0.90	91
1990	3174	1971	189	2160	0.68	93

MEANS, 95% CONFIDENCE LIMITS, N'S:

74-83	2216.1	2160.1	169.7	2329.8	1.05	93.70
$\bar{X}+95\%CL$	+342.6	+337.8	+51.4	+323.5	+0.30	+1.86
N	10	10	10	10	10	10
84-89	2620.7	2165.0	207.7	2372.7	0.91	90.76
$\bar{X}+95\%CL$	+588.1	+767.4	+117.8	+881.6	+0.18	+2.71
N	6	6	6	6	6	6

PERCENT GRILSE IS CALCULATED BY SMOLT CLASS.

IN THE ABOVE TABLE A PERIOD INDICATES NO DATA FOR THAT YEAR.

* NOT ALLOWED TO RETAIN LARGE SALMON IN INSULAR NEWFOUNDLAND.

Appendix 2f. Summary of Atlantic salmon recreational fishery catch and effort data for Salmon Fishing Area 3, 1953-90.

SALMON FISHING AREA :03

YEAR	EFFORT ROD DAYS	GRILSE <63 CM	SALMON >63 CM	TOTAL CATCH	CPUE	PERCENT GRILSE
1953	77	58	8	66	0.86	.
1954	134	33	0	33	0.25	100
1955	36	11	0	11	0.31	100
1956	164	70	0	70	0.43	100
1957	68	47	0	47	0.69	100
1958	49	23	0	23	0.47	100
1959	82	14	0	14	0.17	100
1960	45	23	0	23	0.51	100
1961	160	58	1	59	0.37	96
1962	186	92	0	92	0.49	100
1963	353	190	0	190	0.54	100
1964	653	368	0	368	0.56	100
1965	889	677	4	681	0.77	99
1966	2298	1190	21	1211	0.53	97
1967	1725	459	2	461	0.27	100
1968	1801	1243	27	1270	0.71	94
1969	2118	945	45	990	0.47	97
1970	1207	784	1	785	0.65	100
1971	1175	742	11	753	0.64	99
1972	1195	498	0	498	0.42	100
1973	1667	1188	2	1190	0.71	100
1974	1890	839	4	843	0.45	100
1975	1948	1107	0	1107	0.57	100
1976	2284	947	1	948	0.42	100
1977	2249	1530	4	1534	0.68	100
1978	2030	758	1	759	0.37	100
1979	2514	2040	0	2040	0.81	100
1980	2585	1743	37	1780	0.69	98
1981	3113	2358	3	2361	0.76	100
1982	3907	2634	88	2722	0.70	96
1983	4075	1617	2	1619	0.40	100
1984	2248	1001	0	1001	0.45	100
1985	2355	1310	*	1310	0.56	100
1986	1430	772	*	772	0.54	100
1987	1121	563	*	563	0.50	100
1988	2979	1756	*	1756	0.59	100
1989	1672	738	*	738	0.44	100
1990	3159	1718	*	1718	0.54	100

MEANS, 95% CONFIDENCE LIMITS, N'S:

74-83	2659.5	1557.3	14.0	1571.3	0.59	99.08
$\bar{X}+95\%CL$	+564.1	+465.0	+20.2	+477.4	+0.12	+1.18
N	10	10	10	10	10	10
84-89	2136.8	1115.4	0.0	1115.4	0.52	100.00
$\bar{X}+95\%CL$	+756.5	+527.4	.	+527.4	+0.09	+0.00
N	5	5	1	5	5	5

1987 DATA NOT INCLUDED IN MEAN.

PERCENT GRILSE IS CALCULATED BY SMOLT CLASS.

IN THE ABOVE TABLE A PERIOD INDICATES NO DATA FOR THAT YEAR.

* NOT ALLOWED TO RETAIN LARGE SALMON IN INSULAR NEWFOUNDLAND.

Appendix 2g. Summary of Atlantic salmon recreational fishery catch and effort data for Salmon Fishing Area 4, 1953-90.

SALMON FISHING AREA :04

YEAR	EFFORT ROD DAYS	GRILSE <63 CM	SALMON >63 CM	TOTAL CATCH	CPUE	PERCENT GRILSE
1953	8630	2984	501	3485	0.40	.
1954	7344	1172	428	1600	0.22	87
1955	5125	2367	249	2616	0.51	82
1956	10672	3892	458	4350	0.41	84
1957	8789	4423	527	4950	0.56	88
1958	5888	4364	637	5001	0.85	87
1959	6321	3700	520	4220	0.67	89
1960	7051	3441	509	3950	0.56	88
1961	5277	2118	162	2280	0.43	96
1962	8842	4397	482	4879	0.55	81
1963	10910	3710	332	4042	0.37	93
1964	15608	7237	680	7917	0.51	85
1965	13749	4233	318	4551	0.33	96
1966	15249	6433	194	6627	0.43	96
1967	13915	4163	63	4226	0.30	99
1968	15318	5938	201	6139	0.40	95
1969	13807	4024	114	4138	0.30	98
1970	15759	4849	47	4896	0.31	99
1971	11379	3783	58	3841	0.34	99
1972	10778	3444	24	3468	0.32	99
1973	14544	6710	49	6759	0.46	99
1974	22038	5373	82	5455	0.25	99
1975	22384	5943	166	6109	0.27	97
1976	24787	6683	188	6871	0.28	97
1977	28117	8396	1086	9482	0.34	86
1978	24131	8774	502	9276	0.38	94
1979	21496	8026	327	8353	0.39	96
1980	25172	9414	507	9921	0.39	94
1981	32282	13536	361	13897	0.43	96
1982	32929	9973	258	10231	0.31	98
1983	26649	8954	297	9251	0.35	97
1984	29633	9900	15	9915	0.33	100
1985	34329	12190	*	12190	0.36	100
1986	31650	9293	*	9293	0.29	100
1987	18564	5453	*	5453	0.29	100
1988	27413	9854	*	9854	0.36	100
1989	17767	3786	*	3786	0.21	100
1990	23533	5661	*	5661	0.24	100

MEANS, 95% CONFIDENCE LIMITS, N'S:

74-83	25998.5	8507.2	377.4	8884.6	0.34	95.64
$\bar{X}+95\%CL$	+2891.9	+1660.6	+203.1	+1727.1	+0.04	+2.46
N	10	10	10	10	10	10
84-89	28158.4	9004.6	15.0	9007.6	0.32	99.97
$\bar{X}+95\%CL$	+7877.0	+3876.4	.	+3877.8	+0.06	+0.09
N	5	5	1	5	5	5

1987 DATA NOT INCLUDED IN MEAN.

PERCENT GRILSE IS CALCULATED BY SMOLT CLASS.

IN THE ABOVE TABLE A PERIOD INDICATES NO DATA FOR THAT YEAR.

* NOT ALLOWED TO RETAIN LARGE SALMON IN INSULAR NEWFOUNDLAND.

Appendix 2h. Summary of Atlantic salmon recreational fishery catch and effort data for Salmon Fishing Area 5, 1953-90.

SALMON FISHING AREA :05

YEAR	EFFORT ROD DAYS	GRILSE <63 CM	SALMON >63 CM	TOTAL CATCH	CPUE	PERCENT GRILSE
1953	6209	1099	37	1136	0.18	.
1954	3302	499	29	528	0.16	97
1955	1764	815	35	850	0.48	93
1956	12072	1077	62	1139	0.09	93
1957	2326	822	44	866	0.37	96
1958	2719	1384	40	1424	0.52	95
1959	3063	1125	43	1168	0.38	97
1960	2580	767	14	781	0.30	99
1961	2185	409	36	445	0.20	96
1962	2639	973	62	1035	0.39	87
1963	4519	1546	61	1607	0.36	94
1964	4877	2376	63	2439	0.50	96
1965	5231	1803	33	1836	0.35	99
1966	4281	1431	35	1466	0.34	98
1967	3754	1569	25	1594	0.42	98
1968	3732	2226	44	2270	0.61	97
1969	5769	2605	27	2632	0.46	99
1970	3189	2226	35	2261	0.71	99
1971	5963	1680	38	1718	0.29	98
1972	2015	1895	20	1915	0.95	99
1973	3894	2112	12	2124	0.55	99
1974	9335	1637	21	1658	0.18	99
1975	7527	1988	23	2011	0.27	99
1976	6975	1898	65	1963	0.28	97
1977	10572	4616	44	4660	0.44	98
1978	9108	2858	28	2886	0.32	99
1979	3926	1331	20	1351	0.34	99
1980	8155	2702	29	2731	0.33	98
1981	8863	3488	35	3523	0.40	99
1982	9935	2433	53	2486	0.25	99
1983	10195	2357	170	2527	0.25	93
1984	12403	2703	1	2704	0.22	100
1985	11613	3484	*	3484	0.30	100
1986	11510	4053	*	4053	0.35	100
1987	5267	1664	*	1664	0.32	100
1988	10497	4166	*	4166	0.40	100
1989	6617	1417	*	1417	0.21	100
1990	7999	2414	*	2414	0.30	100

MEANS, 95% CONFIDENCE LIMITS, N'S:

74-83	8459.1	2530.8	48.8	2579.6	0.30	98.09
$\bar{X} \pm 95\% \text{CL}$	± 1405.1	± 690.0	± 32.2	± 691.5	± 0.06	± 1.35
N	10	10	10	10	10	10

84-89	10528.0	3164.6	1.0	3164.8	0.30	99.99
$\bar{X} \pm 95\% \text{CL}$	± 2841.9	± 1410.4	.	± 1410.3	± 0.10	± 0.02
N	5	5	1	5	5	5

1987 DATA NOT INCLUDED IN MEAN.

PERCENT GRILSE IS CALCULATED BY SMOLT CLASS.

IN THE ABOVE TABLE A PERIOD INDICATES NO DATA FOR THAT YEAR.

* NOT ALLOWED TO RETAIN LARGE SALMON IN INSULAR NEWFOUNDLAND.

Appendix 2i. Summary of Atlantic salmon recreational fishery catch and effort data for Salmon Fishing Area 6, 1953-90.

SALMON FISHING AREA :06

YEAR	EFFORT ROD DAYS	GRILSE <63 CM	SALMON >63 CM	TOTAL CATCH	CPUE	PERCENT GRILSE
1953	6513	118	0	118	0.02	0
1954	2515	44	0	44	0.02	100
1955	628	92	0	92	0.15	100
1956	4402	92	2	94	0.02	98
1957	805	87	0	87	0.11	100
1958	592	115	0	115	0.19	100
1959	535	55	0	55	0.10	100
1960	547	54	0	54	0.10	100
1961	512	19	0	19	0.04	100
1962	575	53	0	53	0.09	100
1963	837	93	1	94	0.11	98
1964	978	92	0	92	0.09	100
1965	871	85	3	88	0.10	97
1966	935	90	0	90	0.10	100
1967	1480	89	0	89	0.06	100
1968	1126	120	0	120	0.11	100
1969	917	106	0	106	0.12	100
1970	650	84	3	87	0.13	97
1971	710	55	1	56	0.08	99
1972	1345	119	0	119	0.09	100
1973	1683	250	0	250	0.15	100
1974	2685	303	1	304	0.11	100
1975	1851	94	1	95	0.05	100
1976	2864	247	2	249	0.09	98
1977	1869	401	19	420	0.22	93
1978	2237	296	7	303	0.14	98
1979	1766	244	2	246	0.14	99
1980	2807	320	14	334	0.12	95
1981	3406	605	29	634	0.19	92
1982	3031	288	17	305	0.10	97
1983	3684	296	10	306	0.08	97
1984	3218	312	5	317	0.10	98
1985	2256	429	*	429	0.19	100
1986	2596	445	*	445	0.17	100
1987	1306	137	*	137	0.10	100
1988	3392	429	*	429	0.13	100
1989	2959	246	*	246	0.08	100
1990	3089	334	*	334	0.11	100

MEANS, 95% CONFIDENCE LIMITS, N'S:

74-83	2620.0	309.4	10.2	319.6	0.12	96.76
$\bar{X}+95\%CL$	+479.8	+92.8	+6.8	+98.6	+0.03	+1.99
N	10	10	10	10	10	10

84-89	2884.2	372.2	5.0	373.2	0.13	99.69
$\bar{X}+95\%CL$	+573.2	+109.8	.	+108.8	+0.05	+0.89
N	5	5	1	5	5	5

1987 DATA NOT INCLUDED IN MEAN.

PERCENT GRILSE IS CALCULATED BY SMOLT CLASS.

IN THE ABOVE TABLE A PERIOD INDICATES NO DATA FOR THAT YEAR.

* NOT ALLOWED TO RETAIN LARGE SALMON IN INSULAR NEWFOUNDLAND.

Appendix 2j. Summary of Atlantic salmon recreational fishery catch and effort data for Salmon Fishing Area 7, 1953-90.

SALMON FISHING AREA :07

YEAR	EFFORT ROD DAYS	GRILSE <63 CM	SALMON >63 CM	TOTAL CATCH	CPUE	PERCENT GRILSE
1953	244	43	0	43	0.18	0
1954	41	5	0	5	0.12	100
1955	7	0	0	0	0.00	100
1956	307	27	1	28	0.09	0
1957	59	24	1	25	0.42	96
1958	72	19	0	19	0.26	100
1959	134	13	0	13	0.10	100
1960	128	25	1	26	0.20	93
1961	54	7	2	9	0.17	93
1962	.	.	.	.	.	100
1963	275	36	0	36	0.13	0
1964	660	59	0	59	0.09	100
1965	762	165	1	166	0.22	98
1966	647	97	0	97	0.15	100
1967	997	78	0	78	0.08	100
1968	829	31	1	32	0.04	99
1969	1216	33	0	33	0.03	100
1970	1103	20	1	21	0.02	97
1971	1295	40	0	40	0.03	100
1972	875	61	0	61	0.07	100
1973	1167	131	0	131	0.11	100
1974	2019	133	2	135	0.07	98
1975	1436	40	0	40	0.03	100
1976	1128	30	0	30	0.03	100
1977	1775	78	1	79	0.04	97
1978	1786	99	1	100	0.06	99
1979	1332	125	0	125	0.09	100
1980	1546	102	1	103	0.07	99
1981	1348	123	2	125	0.09	98
1982	1621	155	10	165	0.10	92
1983	1804	139	34	173	0.10	82
1984	1381	96	4	100	0.07	97
1985	1635	112	*	112	0.07	100
1986	700	102	*	102	0.15	100
1987	632	28	*	28	0.04	100
1988	1645	128	*	128	0.08	100
1989	1226	66	*	66	0.05	100
1990	827	49	*	49	0.06	100

MEANS, 95% CONFIDENCE LIMITS, N'S:

74-83	1579.5	102.4	5.1	107.5	0.07	95.22
$\bar{X}+95\%CL$	+194.7	+29.9	+7.6	+34.1	+0.02	+6.18
N	10	10	10	10	10	10

84-89	1317.4	100.8	4.0	101.6	0.08	99.21
$\bar{X}+95\%CL$	+481.6	+28.5	.	+28.3	+0.03	+2.00
N	5	5	1	5	5	5

1987 DATA NOT INCLUDED IN MEAN.

PERCENT GRILSE IS CALCULATED BY SMOLT CLASS.

IN THE ABOVE TABLE A PERIOD INDICATES NO DATA FOR THAT YEAR.

* NOT ALLOWED TO RETAIN LARGE SALMON IN INSULAR NEWFOUNDLAND.

Appendix 2k. Summary of Atlantic salmon recreational fishery catch and effort data for Salmon Fishing Area 8, 1953-90.

SALMON FISHING AREA :08

YEAR	EFFORT ROD DAYS	GRILSE <63 CM	SALMON >63 CM	TOTAL CATCH	CPUE	PERCENT GRILSE
1953	50	6	0	6	0.12	0
1954	.	.	.	.	.	100
1955	.	.	.	.	.	.
1956	.	.	.	.	.	.
1957	.	.	.	.	.	.
1958	.	.	.	.	.	.
1959	.	.	.	.	.	.
1960	.	.	.	.	.	.
1961	.	.	.	.	.	.
1962	.	.	.	.	.	.
1963	.	.	.	.	.	.
1964	.	.	.	.	.	.
1965	17	44	6	50	2.94	.
1966	100	32	2	34	0.34	96
1967	.	.	.	.	.	100
1968	166	22	0	22	0.13	0
1969	16	12	0	12	0.75	100
1970	.	.	.	.	.	100
1971	290	25	9	34	0.12	.
1972	270	28	0	28	0.10	100
1973	410	94	4	98	0.24	88
1974	659	51	0	51	0.08	100
1975	527	87	0	87	0.17	100
1976	514	80	0	80	0.16	100
1977	530	81	0	81	0.15	100
1978	269	44	0	44	0.16	100
1979	331	100	0	100	0.30	100
1980	316	120	0	120	0.38	100
1981	384	77	0	77	0.20	100
1982	538	85	9	94	0.17	90
1983	414	41	5	46	0.11	94
1984	357	79	0	79	0.22	100
1985	611	103	*	103	0.17	100
1986	696	138	*	138	0.20	100
1987	268	43	*	43	0.16	100
1988	474	79	*	79	0.17	100
1989	330	99	*	99	0.30	100
1990	349	86	*	86	0.25	100

MEANS, 95% CONFIDENCE LIMITS, N'S:

74-83	448.2	76.6	1.4	78.0	0.17	98.32
$\bar{X}+95\%CL$	+88.7	+17.9	+2.2	+17.7	+0.06	+2.65
N	10	10	10	10	10	10
84-89	493.6	99.6	0.0	99.6	0.20	100.00
$\bar{X}+95\%CL$	+196.9	+30.0	.	+30.0	+0.05	+0.00
N	5	5	1	5	5	5

1987 DATA NOT INCLUDED IN MEAN.

PERCENT GRILSE IS CALCULATED BY SMOLT CLASS.

IN THE ABOVE TABLE A PERIOD INDICATES NO DATA FOR THAT YEAR.

* NOT ALLOWED TO RETAIN LARGE SALMON IN INSULAR NEWFOUNDLAND.

Appendix 21. Summary of Atlantic salmon recreational fishery catch and effort data for Salmon Fishing Area 9, 1953-90.

SALMON FISHING AREA :09

YEAR	EFFORT ROD DAYS	GRILSE <63 CM	SALMON ≥63 CM	TOTAL CATCH	CPUE	PERCENT GRILSE
1953	3012	1954	44	1998	0.66	.
1954	1712	617	32	649	0.38	98
1955	1701	673	36	709	0.42	94
1956	2411	1319	22	1341	0.56	97
1957	2602	1355	48	1403	0.54	96
1958	3094	1350	51	1401	0.45	96
1959	3557	1447	52	1499	0.42	96
1960	4223	937	46	983	0.23	97
1961	2681	705	17	722	0.27	98
1962	3685	1002	38	1040	0.28	95
1963	4311	1620	48	1668	0.39	95
1964	6044	1295	23	1318	0.22	99
1965	5214	1852	76	1928	0.37	94
1966	3416	822	13	835	0.24	99
1967	7421	900	17	917	0.12	98
1968	5264	1105	1	1106	0.21	100
1969	6976	1422	9	1431	0.21	99
1970	7701	1893	12	1905	0.25	99
1971	6704	1620	19	1639	0.24	99
1972	5633	1139	8	1147	0.20	100
1973	7660	2160	20	2180	0.28	98
1974	9162	1494	9	1503	0.16	100
1975	10046	1872	6	1878	0.19	100
1976	8809	1623	12	1635	0.19	99
1977	8766	1080	9	1089	0.12	99
1978	7224	1303	17	1320	0.18	98
1979	5859	1704	15	1719	0.29	99
1980	6446	2379	61	2440	0.38	97
1981	6343	1862	52	1914	0.30	98
1982	8574	1825	33	1858	0.22	98
1983	10754	2303	71	2374	0.22	96
1984	8754	2264	5	2269	0.26	100
1985	9385	1750	*	1750	0.19	100
1986	8807	2298	*	2298	0.26	100
1987	5994	867	*	867	0.14	100
1988	7157	1373	*	1373	0.19	100
1989	7039	1315	*	1315	0.19	100
1990	8240	1866	*	1866	0.23	100

MEANS, 95% CONFIDENCE LIMITS, N'S:

74-83	8198.3	1744.5	28.5	1773.0	0.22	98.38
$\bar{X}+95\%CL$	+1183.8	+288.8	+17.3	+302.8	+0.05	+0.91
N	10	10	10	10	10	10
84-89	8228.4	1800.0	5.0	1801.0	0.22	99.94
$\bar{X}+95\%CL$	+1318.6	+583.5	.	+585.0	+0.05	+0.15
N	5	5	1	5	5	5

1987 DATA NOT INCLUDED IN MEAN.

PERCENT GRILSE IS CALCULATED BY SMOLT CLASS.

IN THE ABOVE TABLE A PERIOD INDICATES NO DATA FOR THAT YEAR.

* NOT ALLOWED TO RETAIN LARGE SALMON IN INSULAR NEWFOUNDLAND.

Appendix 2m. Summary of Atlantic salmon recreational catch and effort data for Salmon Fishing Area 10, 1953-90.

SALMON FISHING AREA :10

YEAR	EFFORT ROD DAYS	GRILSE <63 CM	SALMON >63 CM	TOTAL CATCH	CPUE	PERCENT GRILSE
1953	2216	712	44	756	0.34	.
1954	1486	356	37	393	0.26	95
1955	1584	306	29	335	0.21	92
1956	2814	425	14	439	0.16	96
1957	2064	484	30	514	0.25	93
1958	3046	1043	65	1108	0.36	88
1959	2525	657	33	690	0.27	97
1960	2197	511	23	534	0.24	97
1961	1507	236	2	238	0.16	100
1962	3658	679	68	747	0.20	78
1963	3785	1058	38	1096	0.29	95
1964	3507	1408	18	1426	0.41	98
1965	4591	875	43	918	0.20	97
1966	4334	820	22	842	0.19	98
1967	4942	333	4	337	0.07	100
1968	6641	1387	6	1393	0.21	98
1969	3800	979	29	1008	0.27	98
1970	3899	601	7	608	0.16	99
1971	4796	928	17	945	0.20	97
1972	5841	567	4	571	0.10	100
1973	8714	1785	42	1827	0.21	93
1974	10987	1212	14	1226	0.11	99
1975	5999	427	9	436	0.07	99
1976	8811	730	10	740	0.08	98
1977	7213	1097	5	1102	0.15	99
1978	8764	1595	42	1637	0.19	96
1979	6405	849	8	857	0.13	100
1980	9588	1524	27	1551	0.16	97
1981	9309	1317	29	1346	0.14	98
1982	9331	1256	10	1266	0.14	99
1983	9173	1140	79	1219	0.13	94
1984	6361	1457	2	1459	0.23	100
1985	6887	1326	*	1326	0.19	100
1986	6387	1535	*	1535	0.24	100
1987	3348	429	*	429	0.13	100
1988	5198	1142	*	1142	0.22	100
1989	4709	898	*	898	0.19	100
1990	4778	835	*	835	0.17	100

MEANS, 95% CONFIDENCE LIMITS, N'S:

74-83	8558.0	1114.7	23.3	1138.0	0.13	98.06
$\bar{X}+95\%CL$	+1108.2	+256.9	+16.4	+263.9	+0.02	+1.38
N	10	10	10	10	10	10

84-89	5908.4	1271.6	2.0	1272.0	0.22	99.96
$\bar{X}+95\%CL$	+1133.7	+318.4	.	+318.9	+0.03	+0.10
N	5	5	1	5	5	5

1987 DATA NOT INCLUDED IN MEAN.

PERCENT GRILSE IS CALCULATED BY SMOLT CLASS.

IN THE ABOVE TABLE A PERIOD INDICATES NO DATA FOR THAT YEAR.

* NOT ALLOWED TO RETAIN LARGE SALMON IN INSULAR NEWFOUNDLAND.

Appendix 2n. Summary of Atlantic salmon recreational catch and effort data for Salmon Fishing Area 11, 1953-90.

SALMON FISHING AREA :11

YEAR	EFFORT ROD DAYS	GRILSE <63 CM	SALMON >63 CM	TOTAL CATCH	CPUE	PERCENT GRILSE
1953	1004	545	73	618	0.62	.
1954	440	345	33	378	0.86	94
1955	338	440	45	485	1.43	88
1956	690	758	50	808	1.17	90
1957	801	685	40	725	0.91	95
1958	1133	880	83	963	0.85	89
1959	1353	961	65	1026	0.76	93
1960	759	974	41	1015	1.34	96
1961	1354	924	82	1006	0.74	92
1962	2056	2005	61	2066	1.00	94
1963	1834	1869	71	1940	1.06	97
1964	2559	2600	62	2662	1.04	97
1965	2759	2161	64	2225	0.81	98
1966	2813	2446	97	2543	0.90	96
1967	3833	1800	67	1867	0.49	97
1968	5127	4172	92	4264	0.83	95
1969	5728	6055	65	6120	1.07	98
1970	5425	5028	74	5102	0.94	99
1971	6105	4060	65	4125	0.68	99
1972	5535	4905	86	4991	0.90	98
1973	6441	4856	35	4891	0.76	99
1974	9119	4476	38	4514	0.50	99
1975	8473	4501	40	4541	0.54	99
1976	8681	4164	42	4206	0.48	99
1977	7966	4096	18	4114	0.52	100
1978	8050	3996	18	4014	0.50	100
1979	6570	3430	7	3437	0.52	100
1980	10010	5069	44	5113	0.51	99
1981	12836	7062	41	7103	0.55	99
1982	15334	7338	53	7391	0.48	99
1983	15419	4769	27	4796	0.31	100
1984	15385	7019	15	7034	0.46	100
1985	13712	5823	*	5823	0.42	100
1986	15233	5546	*	5546	0.36	100
1987	11309	3829	*	3829	0.34	100
1988	14811	5033	*	5033	0.34	100
1989	11543	2960	*	2960	0.26	100
1990	12520	4446	*	4446	0.36	100

MEANS, 95% CONFIDENCE LIMITS, N'S:

74-83	10245.8	4890.1	32.8	4922.9	0.48	99.33
$\bar{X}+95\%CL$	+2259.7	+928.7	+10.4	+936.1	+0.07	+0.21
N	10	10	10	10	10	10
84-89	14136.8	5276.2	15.0	5279.2	0.37	99.94
$\bar{X}+95\%CL$	+1975.2	+1845.1	.	+1850.6	+0.09	+0.16
N	5	5	1	5	5	5

1987 DATA NOT INCLUDED IN MEAN.

PERCENT GRILSE IS CALCULATED BY SMOLT CLASS.

IN THE ABOVE TABLE A PERIOD INDICATES NO DATA FOR THAT YEAR.

* NOT ALLOWED TO RETAIN LARGE SALMON IN INSULAR NEWFOUNDLAND.