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Canadian Atlantic Fisheries
Scientific Advisory Committee

Comité scientifique consultatif des
pêches canadiennes dans l'Atlantique

CAFSAC Research Document 87/4

CSCPCA Document de recherche 87/4

**Status of Atlantic salmon stocks, Gulf Region,
Newfoundland and Labrador, 1986**

by

J.L. Peppar and C.C. Mullins
Science Branch, Gulf Region
Department of Fisheries and Oceans
Corner Brook, Newfoundland
A2H 6Z6

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ABSTRACT

Commercial landings of 1SW and MSW salmon exceeded levels recorded in 1985 and 5- and 10-year means (only exceptions being 1SW salmon landings in Statistical Area M and MSW salmon landings in Statistical Area O[50]). Harvests of 1SW and MSW salmon, hooked and released and caught, in most recreational fisheries exceeded 1985 values. The majority of the 1SW salmon catches and MSW salmon hook and releases, though, were below 5-, 10-, and 15-year means. Adult salmon escapements at counting fences and fishways in 1986 were dramatically above 1985, reversing some declining trends apparent over the past few years. Smolt counts at counting fences in 1986 were also above 1985; smolt escapement from Western Arm Brook was the second highest recorded.

Overall increases observed in commercial landings, recreational harvests and hook and releases, and adult counts in selected rivers in the Gulf Region, Newfoundland and Labrador, in 1986, suggest that abundances of salmon, particularly 1SW salmon, were above 1985. Based on high 1SW salmon levels observed in 1986, a greater abundance of MSW salmon should be observed in 1987.

RESUME

Les débarquements commerciaux de saumon LHM et PHM ont dépassé les valeurs enregistrées en 1985 et les moyennes de 5 et 10 ans (les seules exceptions étant les débarquements de saumons LHM dans la zone statistique M et de saumons PHM dans la zone statistique O [50]). La récolte de saumons LHM et PHM, capturés et libérés et capturés et conservés, a été supérieure à celle de 1985 dans la plupart des endroits où se pratique la pêche sportive. Cependant, la majorité des prises de saumons LHM (capturés et conservés) et de saumons PHM (capturés et libérés) ont été inférieures aux moyennes de 5, 10 et 15 ans. Les échappements de saumons adultes (échelles à poissons, clôtures de dénombrement) ont connu en 1986 une hausse spectaculaire par rapport à 1985, inversant ainsi une tendance à la baisse qui existait depuis quelques années. Le nombre de saumoneaux enregistrés au moyen des clôtures de dénombrement était lui aussi supérieur aux valeurs enregistrées en 1985; les échappements de saumoneaux de Western Arm Brook étaient les deuxièmes en importance depuis qu'on procède à ce type de relevé.

Les augmentations globales observées en 1986 dans les débarquements commerciaux, dans les prises de la pêche sportive, et dans les dénombrements d'adultes dans certaines rivières de la région du Golfe, de Terre-Neuve et du Labrador indiquent que l'abondance du saumon, et surtout du saumon LHM, est supérieure à celle de 1985. D'après les nombres élevés de saumons LHM observés en 1986, le nombre de saumons PHM devrait augmenter en 1987.

INTRODUCTION

This paper presents the status of Atlantic salmon stocks in the Gulf Region portions of Newfoundland and Labrador. The Gulf Region extends from Burgeo, on the southwest coast, to Cape Bauld, on the northern tip of the Great Northern Peninsula, and included all of the west coast of the Island and southern Labrador (Table 1; Figs. 1, 2).

The Gulf Region of Newfoundland and Labrador contains three Management Zones (12, 13 and 14) and is comprised of seven Statistical Areas (J₂, K, L, M, N, A[01], and O[50]), and fourteen Statistical Sections (38-50, 01) (Figs. 1, 2; Table 1).

There are presently 51 scheduled salmon rivers in this Region, from those in Statistical Area J₂ in the south to those in Statistical Area O(50) in the north (Table 2). River escapements are being monitored on six rivers, through fishways on Torrent and Lomond rivers, and fish counting fences on Western Arm, Bound, North and Hughes Brooks (Fig. 3).

Harvest statistics for the commercial and recreational fisheries, and fishway and counting fence counts are examined in relation to historical data and 1986 management strategies.

Management actions in 1986 included the following:

- Commercial fishing season in Zone 14 was reduced, to June 12-October 15 (season had opened June 5 and closed December 31 in previous years); season in Zone 13 remained June 5-July 10, as in 1984 and 1985; season in Zone 12 remained closed, as in 1984 and 1985.
- It remained illegal to retain MSW salmon (salmon > 63 cm) in the recreational fishery (except in Labrador), hook and release was allowed; a daily bag limit of four was placed on the number of fish which could be hooked and released; the daily bag limit remained at two 1SW salmon (salmon < 63 cm) (except in Labrador where MSW salmon retention was allowed); when one or other of these limits was reached, the angler had to cease fishing for the day; a season limit of 15 was placed on the number of fish which could be retained.
- Most recreational fishing seasons were similar to those allowed in 1985.
- It remained illegal to retain or be in the possession of salmon caught by non-salmon commercial gears; seasonal and area variation orders were used, as required, to minimize catches of salmon in non-salmon commercial gears.

METHODS

Effort and harvest statistics from the 1986 recreational fisheries were compiled from the field-collected data ('weekly angling reports' submitted by field personnel of Protection and Regulations Branch) in the manner previously described (Peppar 1984; Peppar and Mullins 1985). These data were then added to historical catch statistics assembled from the internal report 'Atlantic Salmon Angled Catch and Effort Data, Newfoundland and Labrador, 1953-1985' compiled by Science Branch personnel, Newfoundland Region.

Estimates of MSW salmon caught and released are indicated for those rivers where such data were provided by Protection and Regulations Branch staff.

Landings of salmon from the 1986 commercial fisheries were derived and compiled from original purchase slips forwarded from the buyers and from supplementary 'B' purchase slips forwarded from Protection and Regulations Branch field staff. We received these slips via Economic Services, Corner Brook, who coordinated their return from the various locations throughout the Region. After coding, verifying and compiling the data, all slips were forwarded to Economic Services, Moncton, for key punching and further analyses.

Landings were compiled by 'community' (i.e., place where landed) within a Statistical Section, then summed to the higher orders of Section, Area and Management Zone. All of the landing information received from the buyers had been sized ('small' = < 2.7 kg; 'large' = > 2.7 kg) and both weights and numbers of fish indicated on almost all of the slips. All buyers and weigh masters were contacted before the season started, and the importance of sized landings and numbers stressed; most complied. Landings reported via the supplementary 'B' slips were sized; however, numbers were usually not provided, just total weight values. Numbers were derived through the methodology used by Economic Services, Moncton, for the 1984 and 1985 commercial statistics. When numbers of salmon were unknown, values of 3 lbs and 8 lbs, for 1SW and MSW salmon, respectively, were used (weights:gutted and head on). A conversion factor of X1.1 was used to convert the gutted/head on weights back to round weights. All weights were provided in pounds and had to be converted to metric.

The historical commercial landings were compiled from: Moores and Dawe 1980; Reddin and Short 1981; Short and Reddin 1981a; Short and Reddin 1981b; Moores, Veitch and Ash 1984; Ash 1984 (preceding for data prior to and including 1982); personal communication, M. O'Connell (for 1983 data); Economic Services, Moncton (for 1984 and 1985 data).

Data from the fish counting fences and fishways have been compiled from field-collected data, all of which have now been coded, verified and stored in computer files. General methods employed at these structures have followed those as described by Peppar in Chadwick et al. 1985.

RESULTS

Fisheries statistics

Commercial landings

Commercial landings of salmon in 1986 (preliminary values) for the Gulf Region portions of Newfoundland and Labrador were the highest recorded since 1983, i.e., subsequent to closure of the commercial salmon fishery in Management Zone 12 (Statistical Area J₂). Landings amounted to 66,891 salmon (145.4 t) and were comprised of 77% 1SW salmon (51,216 fish) and 23% MSW salmon (15,675 fish) (Table 3).

Landings of 1SW salmon were 126% greater than mean landings recorded in 1984-85. The largest contributor to this total increase for the Region was Management Zone 13, where landings in Statistical Areas K and L were dramatically above previous years (Tables 3 and 5). A higher than average landing was also recorded for Management Zone 14 (Table 6).

All Statistical Areas recorded 1SW salmon landings above 1985, 1981-85, and 1976-85 means, except Area M where landings were below 1985 and 5- and 10-year means (Tables 7-13).

Landings of MSW salmon were 93% greater than 1984-85 means. The largest contributor to this total increase for the Region was Management Zone 13, where the MSW salmon landings were the highest recorded since 1977 (Tables 3 and 5). The MSW salmon landings in Management Zone 14 were also dramatically above 1985, and the 5-year mean and almost equal to the 10-year mean (Table 6).

All Statistical Areas recorded MSW salmon landings above 1985, 1981-85, and 1976-85 means, except Area O(50) where landings were above the 5-year mean, but slightly below the 10-year mean (Tables 7-13).

The potential 'fishing power' of the commercial salmon fishery in 1986 was down slightly from 1985 (an approximate 5% reduction in the number of licenses from the level in 1985). The number of licenses for this Region changed most markedly from 1984 to 1985, when the number of licenses dropped from about 456 to 386 (Licensing, Corner Brook, personal communication).

Recreational harvests

The recreational harvest of 1SW salmon (14,340 fish) in 1986 (preliminary values) for the Gulf Region portions of Newfoundland and Labrador was 26% greater than 1985, but 13-15% less than 5-, 10- and 15-year means (Table 14). Effort in 1986 was estimated at 47,974 rod-days, 17% above 1985 and 5-9% above 5-, 10- and 15-year means (Table 14).

An estimated 823 MSW salmon were hooked and released in 1986, almost 3X the number recorded in 1985 (Table 14). A total of 184 MSW salmon were

caught in 1986 (Statistical Area 0[50] only), 84% higher than 1985 (Table 14). The combined MSW salmon total (i.e., hooked and released + harvested = 1,007 fish) was above the 5-year mean, but down from the past 10- and 15-year means (Table 14).

Harvests of 1SW salmon were above those recorded in 1985 in Management Zones 13 and 14, but below in Zone 12; 1SW salmon harvests were below 5- and 10-year means, but above 15-year means in Zones 12 and 14 (Tables 15-17).

Harvests of 1SW salmon were above 1985 catches in five of the seven Statistical Areas (catches were down in J₂ and 0[50]) (Tables 18-24). In Areas M and A(01), 1SW salmon catches were above 5-, 10- and 15-year means (Tables 21 and 23). In other Areas, 1986 catches of 1SW salmon were below means, except in Area J₂ where the 1986 harvest was similar to the 10-year, and above the 15-year mean (Tables 18-20, 22-24).

Numbers of MSW salmon hooked and released in 1986 were above 1985 levels in all Management Zones, especially in Zones 13 and 14 where numbers hooked and released were 2-3X greater than those recorded in 1985 (Tables 15-17). In Zones 12 and 14, numbers of MSW salmon hooked and released + caught (in Zone 14 only) in 1986 were below 5-year mean catches in these Zones. In Zone 13, the number of MSW salmon hooked and released in 1986 exceeded both 5- and 10-year mean catches in this Zone (Tables 15-17).

Numbers of MSW salmon hooked and released in 1986 were similar to or exceeded levels recorded in 1985 in all Statistical Areas, especially Areas K, L and M where numbers hooked and released were 2-24X above those recorded in 1985 (Tables 18-24). The largest increase was recorded in Area L, where the number of MSW salmon hooked and released in 1986 exceeded 5-, 10- and 15-year mean catches (Table 20). In Areas K and M, the levels recorded in 1986 were similar to the 5-year mean catches, but below 10- and 15-year means (Tables 19 and 21).

The harvest of MSW salmon in 1986 (Area 0[50] only) was above 1985, but below past 5-, 10- and 15-year means (Table 24).

Effort expended in the recreational fisheries in the Region in 1986 was the highest recorded since 1981, one of the highest number of rod-days ever recorded (since 1953, only three years have recorded higher effort than this year's - 1970, 1976 and 1981). Effort in 1986 was up 26% in Management Zone 13 and up 12% in Management Zone 14, over that recorded in 1985; it was down by 12% in Management Zone 12.

Escapement indicators

Management Zone 14

Western Arm Brook - counting fence (Statistical Area N)

The smolt run recorded at the Western Arm Brook counting fence in 1986 was the second largest ever recorded at this structure (since the fence was

established in 1971). A total of 17,719 smolts were enumerated at this fence, 32% greater than that recorded in 1985 and 25% and 43% above 5- and 10-year means, respectively (Table 25).

The adult salmon return to the upstream trap of the Western Arm Brook fence in 1986 totalled 252 1SW salmon (no MSW salmon were captured) (Table 25). The 1986 count was the highest recorded since 1983, 55% above that recorded in 1985, but 44% and 53% below 5- and 10-year means, respectively (Table 25).

Torrent River - fishway (Statistical Area M)

Returns to the Torrent River fishway in 1986 totalled 2,906 salmon and were comprised of 97% 1SW salmon (2,815 fish) and 3% MSW salmon (91 fish) (Table 25). This return was the largest ever recorded at this structure (since records were started in 1971), and reversed the declining trend apparent since 1982 (Table 25). The 1986 return was 84% above 1985 and 33% above the 5-year mean return (Table 25).

The major contributor to this record return in 1986 was the 1SW salmon component of the return, 81% above that recorded in 1985 and 47% above the 5-year mean (Table 25). The MSW salmon component of the return, although 3X that recorded in 1985, was the second lowest return of MSW salmon recorded since 1981 and was 3X less than the 5-year mean (Table 25).

Lomond River - fishway (Statistical Area M)

Returns to the Lomond River fishway in 1986 totalled 386 salmon and were comprised of 92% 1SW salmon (354 fish) and 8% MSW salmon (32 fish) (Table 25). This return was the second largest recorded at this structure (since records were started in 1971) (Table 25). The 1986 return was 89% above 1985, and 41% above the 5-year mean (Table 25).

The 1SW salmon component of the return was 86% above 1985, and 43% above the 5-year mean (Table 25). The MSW salmon component of the return in 1986 was 2X greater than 1985 and 19% above the 5-year mean, the second largest return of MSW salmon to the fishway since 1981 (Table 25).

Management Zone 13

Hughes Brook - counting fence (Statistical Area L)

The smolt run recorded at the Hughes Brook counting fence in 1986 was the largest recorded at this structure since the fence was established in 1984. A total of 601 smolts were enumerated, 10X the number recorded in 1985 and almost 4X the 2-year mean catch (1984-85) (Table 25).

The adult salmon return in 1986 totalled 65 fish and was comprised of 97% 1SW salmon (63 fish) and 3% MSW salmon (2 fish) (Table 25). The 1986 count was 3X the 1985 and 23% above the 2-year mean (Table 25).

Stock predictions (1986-87)

A regression of the MSW salmon angling catch (hook and release) in Statistical Area K on the 1SW salmon catch in the same area the year earlier predicted a 1986 harvest of 496 MSW salmon; a total of 430 MSW salmon were recorded as hooked and released in 1986 (Table 19). The same regression predicts a 'harvest' in 1987 of 671 MSW salmon, which would exceed past 5-, 10- and 15-year mean catches for the Area (Table 19).

$$1960-85 \quad n = 25 \quad r = 0.57 \quad P < 0.01 \quad Y = -35.38 + 0.19X \\ Y.(1986) = 496$$

$$1960-86 \quad n = 26 \quad r = 0.60 \quad P < 0.01 \quad Y = -48.78 + 0.19X \\ Y.(1987) = 671 \quad (0 - 1,954)$$

DISCUSSION

Strategies applied in 1986 in the management of Atlantic salmon and its fisheries in the Gulf Region, Newfoundland and Labrador, were basically the same as those implemented in 1985. With the exceptions of a reduced commercial salmon fishing season in Management Zone 14 (later opening and earlier closing), minor changes to some angling seasons, and a daily bag limit being placed on the number of fish which could be hooked and released in the recreational fisheries, seasons and other limitations placed on the fisheries were much the same as those in 1985.

Changes made in 1986 would appear to be modifications made for reasons other than to affect subsequent efforts and harvests of this year's returning stocks; adjusting seasons to coincide with other areas of the Province (the earlier closing of Zone 14 commercial season), adjusting seasons to protect migrating kelts from exploitation (the later opening of Zone 14 commercial season), and protecting or enhancing other species and their fisheries (some of the changes made to angling seasons, effect on trout stocks and fisheries). The overall increase in recreational fisheries efforts in 1986 was not the result of further season extensions (over the two-week extension applied to seasons on most rivers in 1985).

The overall increases observed in commercial landings, recreational harvests and hook and release, and adult counts in selected rivers in the Gulf Region, Newfoundland and Labrador, in 1986 suggest that abundances of salmon, particularly 1SW salmon, were up over 1985. Based on the high 1SW salmon levels observed in 1986, abundances of MSW salmon in the Region in 1987 should improve over that observed this year.

REFERENCES

- Ash, E.G.M. 1984. Atlantic salmon commercial catch statistics, Newfoundland and Labrador, 1982. Can. Data Rep. Fish. Aquat. Sci. 478: 115 p.
- Chadwick, E.M.P., D.R. Alexander, R.W. Gray, T.G. Lutzac, J.L. Peppar and R.G. Randall. 1985. 1983 Research of anadromous fishes, Gulf Region. Can. Tech. Rep. Fish. Aquat. Sci. 1420: 69 p.
- Moore, R.B. and E.G. Dawe. 1980. Atlantic salmon commercial catch data, Newfoundland and Labrador, 1979. Can. Data Rep. Fish. Aquat. Sci. 221: 95 p.
- Moore, R.B., A.W. Veitch and E.G.M. Ash. 1984. Atlantic salmon commercial catch statistics, Newfoundland and Labrador, 1980 and 1981. Can. Data Rep. Fish. Aquat. Sci. 466: 213 p.
- Peppar, J.L. 1984. Assessment of Atlantic salmon stocks in Statistical Areas K and L, Western Newfoundland, 1983. CAFSAC Res. Doc. 84/19: 36 p.
- Peppar, J.L. and C.C. Mullins. 1985. Status of Atlantic salmon stocks in Statistical Areas K and L, Western Newfoundland, 1984. CAFSAC Res. Doc. 85/86: 20 p.
- Reddin, D.G. and P.B. Short. 1981. The 1976 Newfoundland and Labrador Atlantic salmon commercial landings. Can. Tech. Rep. Fish. Aquat. Sci. 1007: 105 p.
- Short, P.B. and D.G. Reddin. 1981a. Newfoundland and Labrador Atlantic salmon commercial catch data - 1977. Can. Data Rep. Fish. Aquat. Sci. 282: 103 p.
- _____. 1981b. Newfoundland and Labrador Atlantic salmon commercial catch data - 1978. Can. Data Rep. Fish. Aquat. Sci. 283: 114 p.

Table 1. Boundaries of Management Zones, Statistical Areas and Statistical Sections, Gulf Region, Newfoundland and Labrador.

Management Zone	Statistical Area	Statistical Section	Boundary
12	J ₂	38	Burgeo to Rose Blanche Point (commercial fishery)
12	J ₂	38	Cinq Cerf Brook to Rose Blanche Point (recreational fishery)
12	J ₂	39	Rose Blanche Point to Cape Ray
13	K	40	Cape Ray to Sandy Point
13	K	41	Sandy Point to Cape St. George
13	L	42	Cape St. George to Long Point
13	L	43	Long Point to Bluff Head
13	L	44	Bluff Head to Cape St. Gregory
14	M	45	Cape St. Gregory to Martins Point
14	M	46	Martins Point to Daniels Harbour
14	M	47	Daniels Harbour to Point Riche
14	N	48	Point Riche to Ferrole Point
14	N	49	Ferrole Point to Cape Norman
14	A	01	Cape Norman to Cape Bauld
14	O	50	Blanc Sablon to Cape Charles

Table 2. Scheduled Atlantic salmon rivers, Gulf Region, Newfoundland and Labrador.

Management Zone 12		Management Zone 13		Management Zone 14	
Statistical Area J2	Drainage area (km ²)	Statistical Area K	Drainage area (km ²)	Statistical Area M	Drainage area (km ²)
La Poile River	588	Bear Cove Brook	30	Trout River	254
Farmers Brook	89	Little Codroy River	224	Lomond River	470
Garia Brook	228	Grand Codroy River	956	Deer Arm Brook	126
Northwest River	119	Highlands River	183	Western Brook	192
Grandys Brook	273	Crabbes Brook	551	Parsons Pond River	388
Isle aux Morts River	214	Barachois Brook	241	Portland Creek	985
Grand Bay River	134	Robinsons River	439	River of Ponds	861
Southwest Brook	49	Fischells Brook	360	Little Brook Pond	76
		Flat Bay Brook	635	Torrent River	619
		Little Barachois Brook	354	Big East River	136
		Southwest & Bottom Brook	814		
		Harrys River	816		
		Statistical Area L		Statistical Area N	
		Fox Island River	194	Castors River	544
		Serpentine River	433	St. Geneviève River	318
		Cooks Brook	101	Western Arm Brook	149
		Humber River	7,679	Eastern Arm Brook	43
		Hughes Brook	132	Eddies Cove Brook	90
		Goose Arm Brook	212	Big Brook	212
				Watts Bight Brook	95
				Statistical Area A(01)	
				Pensons Brook	65
				Parker River	46
				Bartlett's River	40
				Upper Brook	39
				East River	61
				Statistical Area O(50)	
				Forteau River	389
				L'Anse-A-Loup River	130
				Pinware River	2,486

Table 14. Recreational catch of Atlantic salmon in Gulf Region, Newfoundland and Labrador, 1953-1986.

Year	Effort (rod-days)	1SW (< 63 cm)	MSW (> 63 cm)	Total catch	CUE	Percent 1SW
1953	15,106	6,078	1,767	7,845	0.52	77
1954	11,614	3,999	1,342	5,341	0.46	75
1955	13,883	5,119	1,316	6,435	0.46	80
1956	19,869	6,751	1,953	8,704	0.44	78
1957	16,075	9,869	2,567	12,436	0.77	79
1958	18,202	6,837	2,630	9,467	0.52	72
1959	19,008	10,146	2,072	12,218	0.64	83
1960	18,489	9,004	1,403	10,407	0.56	87
1961	22,791	9,381	2,134	11,515	0.51	81
1962	27,775	13,565	1,911	15,476	0.56	88
1963	34,587	17,818	3,424	21,242	0.61	84
1964	37,969	20,553	3,645	24,198	0.64	85
1965	34,239	17,732	3,113	20,845	0.61	85
1966	34,745	16,876	2,813	19,689	0.57	86
1967	36,531	14,370	2,786	17,156	0.47	84
1968	38,049	15,009	1,872	16,881	0.44	89
1969	43,931	20,027	2,294	22,321	0.51	90
1970	48,649	16,686	2,275	18,961	0.39	88
1971	39,752	14,751	1,636	16,387	0.41	90
1972	38,205	12,316	1,319	13,635	0.36	90
1973	45,439	17,776	2,192	19,968	0.44	89
1974	43,266	11,812	1,335	13,147	0.33	90
1975	45,022	18,460	1,150	19,610	0.44	94
1976	54,974	20,590	1,041	21,631	0.39	95
1977	46,837	14,763	2,163	16,926	0.36	87
1978	35,563	9,493	1,132	10,625	0.30	89
1979	34,699	14,372	301	14,673	0.42	98
1980	40,287	13,470	1,539	15,009	0.37	90
1981	48,120	18,074	1,037	19,111	0.40	95
1982	47,669	17,280	787	18,067	0.38	96
1983	45,022	12,852	859	13,711	0.30	94
1984	46,389	15,642	649	16,291	0.35	96
1985	41,103	11,212	(315) 100	11,312	---	---
1986	47,974	14,156	(823) 184	14,340	---	---
<u>1980-84</u>						
X	45,497.40	15,463.60	974.20	16,437.80	0.36	94.20
S.D.	3,152.90	2,288.02	345.33	2,196.52	0.04	2.49
n	5	5	5	5	5	5
<u>1975-84</u>						
X	44,458.20	15,499.60	1,065.80	16,965.40	0.37	93.40
S.D.	6,110.90	3,223.46	507.70	3,253.35	0.05	3.53
n	10	10	10	10	10	10
<u>1970-84</u>						
X	43,992.87	15,222.47	1,294.33	16,516.80	0.38	92.07
S.D.	5,438.20	2,967.05	581.17	3,057.72	0.04	3.47
n	15	15	15	15	15	15

Table 15. Recreational catch of Atlantic salmon in Management Zone 12, Gulf Region, Newfoundland and Labrador, 1953-1986.

Year	Effort (rod-days)	1SW (< 63 cm)	MSW (> 63 cm)	Total catch	CUE	Percent 1SW
1953	511	271	81	352	0.69	77
1954	396	173	37	210	0.53	82
1955	151	146	11	157	1.04	93
1956	703	283	18	301	0.43	94
1957	857	625	18	643	0.75	97
1958	1,712	436	28	464	0.27	94
1959	939	473	96	569	0.61	83
1960	1,551	657	22	679	0.44	97
1961	1,298	592	103	695	0.54	85
1962	1,494	930	67	997	0.67	93
1963	2,224	1,083	69	1,152	0.52	94
1964	1,843	956	75	1,031	0.56	93
1965	2,254	1,143	201	1,344	0.60	85
1966	1,554	995	66	1,061	0.68	94
1967	2,041	680	67	747	0.37	91
1968	2,519	938	79	1,017	0.40	92
1969	2,184	1,144	89	1,233	0.56	93
1970	1,388	895	80	975	0.70	92
1971	1,528	522	21	543	0.36	96
1972	1,598	1,053	21	1,074	0.67	98
1973	1,704	765	26	791	0.46	97
1974	1,671	763	15	778	0.47	98
1975	1,330	570	20	590	0.44	97
1976	1,010	328	5	333	0.33	99
1977	1,378	682	49	731	0.53	93
1978	1,395	390	22	412	0.30	95
1979	1,882	884	10	894	0.48	99
1980	2,279	876	29	905	0.40	97
1981	2,210	1,194	17	1,211	0.55	99
1982	3,031	1,680	15	1,695	0.56	99
1983	2,759	715	50	765	0.28	94
1984	3,743	2,077	68	2,145	0.57	97
1985	3,914	1,192	(30) ---	1,192	---	---
1986	3,448	938	(33) ---	938	---	---
<u>1980-84</u>						
\bar{X}	2,804.40	1,308.60	35.80	1,344.20	0.47	97.20
S.D.	625.25	565.86	22.75	572.38	0.13	2.05
n	5	5	5	5	5	5
<u>1975-84</u>						
\bar{X}	2,101.70	939.60	28.50	968.10	0.44	96.90
S.D.	875.05	562.06	20.46	571.06	0.11	2.23
n	10	10	10	10	10	10
<u>1970-84</u>						
\bar{X}	1,927.07	892.93	29.87	922.80	0.47	96.67
S.D.	749.76	467.63	21.86	475.37	0.13	2.26
n	15	15	15	15	15	15

Table 16. Recreational catch of Atlantic salmon in Management Zone 13, Gulf Region, Newfoundland and Labrador, 1953-1986.

Year	Effort (rod-days)	1SW (< 63 cm)	MSW (> 63 cm)	Total catch	CUE	Percent 1SW
1953	12,115	4,507	1,296	5,803	0.48	78
1954	8,589	2,572	866	3,438	0.40	75
1955	8,253	3,660	810	4,470	0.54	82
1956	16,130	4,606	1,449	6,055	0.38	76
1957	12,244	6,781	1,914	8,695	0.71	78
1958	11,765	5,091	1,961	7,052	0.60	72
1959	13,305	4,871	1,307	6,178	0.46	79
1960	12,439	6,094	927	7,021	0.56	87
1961	14,785	5,977	1,227	7,204	0.49	83
1962	18,227	9,424	1,469	10,893	0.60	87
1963	22,261	12,660	2,539	15,199	0.68	83
1964	26,647	14,346	2,528	16,874	0.63	85
1965	22,914	10,515	1,929	12,444	0.54	84
1966	21,969	8,076	1,883	9,959	0.45	81
1967	22,219	8,109	1,844	9,953	0.45	81
1968	22,321	8,365	1,149	9,514	0.43	88
1969	28,830	11,147	1,624	12,771	0.44	87
1970	34,460	9,739	1,643	11,382	0.33	86
1971	29,028	9,522	1,045	10,567	0.36	90
1972	27,614	8,401	1,103	9,504	0.34	88
1973	30,955	10,268	1,392	11,660	0.38	88
1974	29,313	7,189	916	8,105	0.28	89
1975	32,253	12,003	886	12,889	0.40	93
1976	32,922	10,383	626	11,009	0.33	94
1977	24,474	6,712	1,049	7,761	0.32	86
1978	19,686	5,289	855	6,144	0.31	86
1979	16,383	6,009	113	6,122	0.37	98
1980	21,313	7,913	993	8,906	0.42	89
1981	23,839	9,300	663	9,963	0.42	93
1982	25,246	9,566	585	10,151	0.40	94
1983	25,473	6,337	610	6,947	0.27	91
1984	22,152	7,771	309	8,080	0.36	96
1985	20,137	5,302	(257) ---	5,302	---	---
1986	25,334	7,297	(692) ---	7,297	---	---
<u>1980-84</u>						
\bar{X}	23,604.60	8,177.40	632.00	8,809.40	0.37	92.60
S.D.	1,844.01	1,304.85	244.08	1,336.09	0.06	2.70
n	5	5	5	5	5	5
<u>1975-84</u>						
\bar{X}	24,374.10	8,128.30	668.90	8,797.20	0.36	92.00
S.D.	5,137.57	2,146.80	294.81	2,212.24	0.05	4.00
n	10	10	10	10	10	10
<u>1970-84</u>						
\bar{X}	26,340.73	8,426.80	852.53	9,279.33	0.35	90.73
S.D.	5,217.55	1,893.86	390.89	2,062.37	0.05	3.79
n	15	15	15	15	15	15

Table 17. Recreational catch of Atlantic salmon in Management Zone 14, Gulf Region, Newfoundland and Labrador, 1953-1986.

Year	Effort (rod-days)	1SW (< 63 cm)	MSW (> 63 cm)	Total catch	CUE	Percent 1SW
1953	2,480	1,300	390	1,690	0.68	77
1954	2,629	1,254	439	1,693	0.64	74
1955	5,479	1,313	495	1,808	0.33	73
1956	3,036	1,862	486	2,348	0.77	79
1957	2,974	2,463	635	3,098	1.04	80
1958	4,725	1,310	641	1,951	0.41	67
1959	4,764	4,802	669	5,471	1.15	88
1960	4,499	2,253	454	2,707	0.60	83
1961	6,708	2,812	804	3,616	0.54	78
1962	8,054	3,211	375	3,586	0.45	90
1963	10,102	4,075	816	4,891	0.48	83
1964	9,479	5,251	1,042	6,293	0.66	83
1965	9,071	6,074	983	7,056	0.78	86
1966	11,222	7,805	864	8,669	0.77	90
1967	12,271	5,581	875	6,456	0.53	86
1968	13,209	5,706	644	6,350	0.48	90
1969	12,917	7,736	581	8,317	0.64	93
1970	12,801	6,052	552	6,604	0.52	92
1971	9,196	4,707	570	5,277	0.57	89
1972	8,993	2,862	195	3,057	0.34	94
1973	12,780	6,743	774	7,517	0.59	90
1974	12,282	3,860	404	4,264	0.35	91
1975	11,439	5,887	244	6,131	0.54	96
1976	21,042	9,879	410	10,289	0.49	96
1977	20,985	7,369	1,065	8,434	0.40	87
1978	14,482	3,814	255	4,069	0.28	94
1979	16,434	7,479	178	7,657	0.47	97
1980	16,695	4,681	517	5,198	0.31	90
1981	22,071	7,580	357	7,937	0.36	96
1982	19,392	6,034	187	6,221	0.32	97
1983	19,549	5,800	199	5,999	0.31	97
1984	20,494	5,794	272	6,066	0.30	96
1985	17,052	4,718	(28) 100	4,818	---	---
1986	19,192	5,921	(98) 184	6,105	---	---
<u>1980-84</u>						
X	19,640.20	5,977.80	306.40	6,284.20	0.32	95.20
S.D.	1,960.99	1,038.90	135.91	1,005.55	0.02	2.95
n	5	5	5	5	5	5
<u>1975-84</u>						
X	18,258.30	6,431.70	368.40	6,807.80	0.38	94.60
S.D.	3,402.70	1,711.26	267.64	1,794.82	0.09	3.41
n	10	10	10	10	10	10
<u>1970-84</u>						
X	15,909.00	5,902.73	411.93	6,319.80	0.41	93.47
S.D.	4,511.08	1,787.47	251.63	1,867.97	0.11	3.36
n	15	15	15	15	15	15

Table 18. Recreational catch of Atlantic salmon in Statistical Area J2, Gulf Region, Newfoundland and Labrador, 1953-1986.

Year	Effort (rod-days)	1SW (< 63 cm)	MSW (> 63 cm)	Total catch	CUE	Percent 1SW
1953	511	271	81	352	.69	77
1954	396	173	37	210	.53	82
1955	151	146	11	157	1.04	93
1956	703	283	18	301	.43	94
1957	857	625	18	643	.75	97
1958	1,712	436	28	464	.27	94
1959	939	473	96	569	.61	83
1960	1,551	657	22	679	.44	97
1961	1,298	592	103	695	.54	85
1962	1,494	930	67	997	.67	93
1963	2,224	1,083	69	1,152	.52	94
1964	1,843	956	75	1,031	.56	93
1965	2,254	1,143	201	1,344	.60	85
1966	1,554	995	66	1,061	.68	94
1967	2,041	680	67	747	.37	91
1968	2,519	938	79	1,017	.40	92
1969	2,184	1,144	89	1,233	.56	93
1970	1,388	895	80	975	.70	92
1971	1,528	522	21	543	.36	96
1972	1,598	1,053	21	1,074	.67	98
1973	1,704	765	26	791	.46	97
1974	1,671	763	15	778	.47	98
1975	1,330	570	20	590	.44	97
1976	1,010	328	5	333	.33	99
1977	1,378	682	49	731	.53	93
1978	1,395	390	22	412	.30	95
1979	1,882	884	10	894	.48	99
1980	2,279	876	29	905	.40	97
1981	2,210	1,194	17	1,211	.55	99
1982	3,031	1,680	15	1,695	.56	99
1983	2,759	715	50	765	.28	94
1984	3,743	2,077	68	2,145	.57	97
1985	3,914	1,192	(30) ---	1,192	---	---
1986	3,448	938	(33) ---	938	---	---
<u>1980-84</u>						
\bar{X}	2,804.40	1,308.40	35.80	1,344.20	0.47	97.20
S.D.	625.25	565.91	22.75	572.38	0.13	2.05
n	5	5	5	5	5	5
<u>1975-84</u>						
\bar{X}	2,101.70	939.60	28.50	968.10	0.44	96.90
S.D.	875.05	562.06	20.46	571.06	0.11	2.23
n	10	10	10	10	10	10
<u>1970-84</u>						
\bar{X}	1,927.07	892.93	29.87	922.80	0.47	96.67
S.D.	749.76	467.63	21.86	475.37	0.13	2.26
n	15	15	15	15	15	15

Table 19. Recreational catch of Atlantic salmon in Statistical Area K, Gulf Region, Newfoundland and Labrador, 1953-1986.

Year	Effort (rod-days)	1SW (< 63 cm)	MSW (> 63 cm)	Total catch	CUE	Percent 1SW
1953	8,040	3,118	1,066	4,184	0.52	75
1954	3,994	1,578	670	2,248	0.56	70
1955	5,696	2,126	617	2,743	0.48	78
1956	8,213	3,187	1,166	4,353	0.53	73
1957	8,720	4,580	1,621	6,201	0.71	74
1958	7,699	3,172	1,551	4,723	0.61	67
1959	8,824	2,664	928	3,592	0.41	74
1960	8,054	3,935	603	4,538	0.56	87
1961	10,244	3,930	967	4,897	0.48	80
1962	12,834	6,485	1,133	7,618	0.59	85
1963	15,743	8,420	2,240	10,660	0.68	79
1964	16,849	8,956	1,878	10,834	0.64	83
1965	14,721	6,127	1,544	7,671	0.52	80
1966	11,977	3,648	1,450	5,098	0.43	72
1967	15,534	5,608	1,577	7,185	0.46	78
1968	15,114	5,615	987	6,602	0.44	85
1969	16,025	6,987	1,082	8,069	0.50	87
1970	19,612	6,153	1,049	7,202	0.37	85
1971	18,103	5,339	660	5,999	0.33	89
1972	15,803	4,218	871	5,089	0.32	83
1973	19,017	6,430	1,020	7,450	0.39	86
1974	18,946	4,322	744	5,066	0.27	85
1975	21,678	5,771	756	6,527	0.30	88
1976	20,964	5,121	554	5,675	0.27	90
1977	17,209	4,355	994	5,349	0.31	81
1978	11,084	2,327	597	2,924	0.26	80
1979	7,751	2,572	84	2,656	0.34	97
1980	12,316	4,213	673	4,886	0.40	86
1981	14,311	4,911	500	5,411	0.38	91
1982	15,417	5,045	469	5,514	0.36	91
1983	16,480	3,075	554	3,629	0.22	85
1984	14,783	4,847	262	5,109	0.35	95
1985	12,779	2,871	(246) ---	2,871	---	---
1986	16,575	3,841	(430) ---	3,841	---	---
<u>1980-84</u>						
X	14,661.40	4,418.20	491.60	4,909.80	0.34	87.47
S.D.	1,542.46	816.38	150.08	757.79	0.07	4.79
n	5	5	5	5	5	5
<u>1975-84</u>						
X	15,199.30	4,223.70	544.30	4,768.00	0.32	88.40
S.D.	4,250.76	1,173.65	250.73	1,269.85	0.06	5.54
n	10	10	10	10	10	10
<u>1970-84</u>						
X	16,231.60	4,579.93	652.47	5,232.40	0.32	89.60
S.D.	3,812.73	1,205.26	271.41	1,365.45	0.05	4.10
n	15	15	15	15	15	15

Table 20. Recreational catch of Atlantic salmon in Statistical Area L, Gulf Region, Newfoundland and Labrador, 1953-1986.

Year	Effort (rod-days)	1SW (< 63 cm)	MSW (> 63 cm)	Total catch	CUE	Percent 1SW
1953	4,075	1,389	230	1,619	0.40	86
1954	4,595	994	196	1,190	0.26	84
1955	2,557	1,534	193	1,727	0.68	89
1956	7,917	1,419	283	1,702	0.21	83
1957	3,524	2,201	293	2,494	0.71	88
1958	4,066	1,919	410	2,329	0.57	82
1959	4,481	2,207	379	2,586	0.58	85
1960	4,385	2,159	324	2,483	0.57	87
1961	4,541	2,047	260	2,307	0.51	89
1962	5,393	2,939	336	3,275	0.61	90
1963	6,518	4,240	299	4,539	0.70	93
1964	9,798	5,390	650	6,040	0.62	89
1965	8,193	4,388	385	4,773	0.58	92
1966	9,992	4,428	433	4,861	0.49	91
1967	6,685	2,501	267	2,768	0.41	90
1968	7,207	2,750	162	2,912	0.40	94
1969	12,805	5,160	542	5,702	0.45	91
1970	14,848	3,586	594	4,180	0.28	86
1971	10,925	4,183	385	4,568	0.42	92
1972	11,811	4,183	232	4,415	0.37	95
1973	11,938	3,838	372	4,210	0.35	91
1974	10,367	2,867	172	3,039	0.29	94
1975	10,575	6,232	130	6,362	0.60	98
1976	11,958	5,262	72	5,334	0.45	99
1977	7,265	2,357	55	2,412	0.33	98
1978	8,602	2,962	258	3,220	0.37	92
1979	8,632	3,437	29	3,466	0.40	99
1980	8,997	3,700	320	4,020	0.45	92
1981	9,528	4,389	163	4,552	0.48	96
1982	9,829	4,521	126	4,647	0.47	97
1983	8,993	3,262	56	3,318	0.37	98
1984	7,369	2,924	47	2,971	0.40	98
1985	7,358	2,431	(11) ---	2,431	---	---
1986	8,759	3,456	(262) ---	3,456	---	---
<u>1980-84</u>						
\bar{X}	8,943.20	3,759.20	142.40	3,901.60	0.43	95.00
S.D.	950.01	693.77	110.45	741.50	0.05	3.76
n	5	5	5	5	5	5
<u>1975-84</u>						
\bar{X}	9,174.80	3,904.60	125.60	4,030.20	0.43	96.70
S.D.	1,408.51	1,192.22	97.15	1,202.43	0.08	2.63
n	10	10	10	10	10	10
<u>1970-84</u>						
\bar{X}	10,109.13	3,846.87	200.73	4,047.60	0.40	96.20
S.D.	2,000.27	1,002.86	160.61	1,017.08	0.08	2.49
n	15	15	15	15	15	15

Table 21. Recreational catch of Atlantic salmon in Statistical Area M, Gulf Region, Newfoundland and Labrador, 1953-1986.

Year	Effort (rod-days)	1SW (< 63 cm)	MSW (> 63 cm)	Total catch	CUE	Percent 1SW
1953	2,348	1,199	386	1,585	0.68	76
1954	2,409	1,079	310	1,389	0.58	78
1955	2,224	1,073	236	1,309	0.59	82
1956	2,569	1,616	269	1,885	0.73	86
1957	2,438	2,041	319	2,360	0.97	87
1958	4,074	2,517	573	3,090	0.76	82
1959	4,115	2,226	560	2,786	0.68	80
1960	3,810	1,676	397	2,073	0.54	81
1961	5,936	2,142	681	2,823	0.48	76
1962	6,946	2,119	298	2,417	0.35	88
1963	7,139	2,720	594	3,314	0.46	82
1964	5,726	2,896	570	3,466	0.61	84
1965	4,897	3,444	532	3,976	0.81	87
1966	6,122	3,395	441	3,836	0.63	89
1967	6,558	2,411	342	2,753	0.42	88
1968	6,784	1,781	178	1,959	0.29	91
1969	6,741	2,940	226	3,166	0.47	93
1970	6,044	1,532	126	1,658	0.27	92
1971	4,818	1,739	200	1,939	0.40	90
1972	4,969	1,085	81	1,166	0.23	93
1973	6,122	2,634	194	2,828	0.46	93
1974	5,672	1,300	98	1,398	0.25	93
1975	5,458	2,056	74	2,130	0.39	97
1976	12,781	4,275	66	4,341	0.34	98
1977	12,350	3,151	454	3,605	0.29	87
1978	8,718	1,800	59	1,859	0.21	97
1979	9,805	3,171	46	3,217	0.33	99
1980	10,202	2,016	148	2,164	0.21	93
1981	13,767	3,224	98	3,322	0.24	97
1982	11,267	2,554	53	2,607	0.23	98
1983	10,832	1,721	51	1,772	0.16	97
1984	11,483	2,996	84	3,080	0.27	97
1985	9,423	2,213	(26) ---	2,213	---	---
1986	10,197	3,076	(94) ---	3,076	---	---
<u>1980-84</u>						
\bar{X}	11,510.20	2,502.20	86.80	2,589.00	0.22	96.40
S.D.	1,353.18	635.25	39.70	637.73	0.04	1.95
n	5	5	5	5	5	5
<u>1975-84</u>						
\bar{X}	10,666.30	2,696.40	113.30	2,809.70	0.27	96.00
S.D.	2,353.63	812.42	123.45	841.92	0.07	3.53
n	10	10	10	10	10	10
<u>1970-84</u>						
\bar{X}	8,952.53	2,350.27	122.13	2,472.40	0.29	94.73
S.D.	3,155.75	885.04	104.01	904.45	0.08	3.45
n	15	15	15	15	15	15

Table 22. Recreational catch of Atlantic salmon in Statistical Area N, Gulf Region, Newfoundland and Labrador, 1953-1986.

Year	Effort (rod-days)	1SW (< 63 cm)	MSW (> 63 cm)	Total catch	CUE	Percent 1SW
1953	132	101	4	105	0.80	96
1954	153	49	1	50	0.33	98
1955	170	85	15	100	0.59	85
1956	161	89	20	109	0.68	82
1957	192	194	28	222	1.16	87
1958	189	199	18	217	1.15	92
1959	255	159	14	173	0.68	92
1960	307	167	4	171	0.56	98
1961	282	199	9	208	0.74	96
1962	590	603	12	615	1.04	98
1963	1,375	908	83	991	0.72	92
1964	1,794	1,449	137	1,586	0.88	91
1965	1,757	1,771	60	1,831	1.04	97
1966	1,985	1,977	72	2,049	1.03	97
1967	2,125	2,011	139	2,150	1.01	94
1968	2,215	2,223	110	2,333	1.05	95
1969	1,957	2,748	82	2,830	1.45	97
1970	3,094	2,913	105	3,018	0.98	97
1971	1,549	2,018	123	2,141	1.38	94
1972	1,502	1,332	34	1,366	0.91	98
1973	2,903	2,648	148	2,796	0.96	95
1974	3,210	1,789	15	1,804	0.56	99
1975	3,344	2,716	16	2,732	0.82	99
1976	3,533	3,014	34	3,048	0.86	99
1977	3,376	2,413	18	2,431	0.72	99
1978	2,687	1,350	13	1,363	0.51	99
1979	3,818	3,281	13	3,294	0.86	99
1980	3,380	1,651	32	1,683	0.50	98
1981	4,324	2,511	31	2,542	0.59	99
1982	4,324	2,156	54	2,210	0.51	98
1983	4,320	1,947	16	1,963	0.45	99
1984	4,633	1,753	3	1,756	0.38	99
1985	3,444	1,325	(2) ---	1,325	---	---
1986	3,848	1,638	(4) ---	1,638	---	---
<u>1980-84</u>						
\bar{X}	4,196.00	2,003.60	27.20	2,030.80	0.49	98.60
S.D.	475.65	343.15	19.15	351.61	0.08	0.55
n	5	5	5	5	5	5
<u>1975-84</u>						
\bar{X}	3,773.90	2,269.20	23.00	2,302.20	0.62	98.80
S.D.	612.93	603.24	14.72	622.37	0.18	0.42
n	10	10	10	10	10	10
<u>1970-84</u>						
\bar{X}	3,333.13	2,232.80	43.67	2,276.47	0.73	98.07
S.D.	930.34	608.13	44.78	620.08	0.27	1.58
n	15	15	15	15	15	15

Table 23. Recreational catch of Atlantic salmon in Statistical Area A(01), Gulf Region, Newfoundland and Labrador, 1953-1986.

Year	Effort (rod-days)	1SW (< 63 cm)	MSW (> 63 cm)	Total catch	CUE	Percent 1SW
1953	---	---	---	---	---	---
1954	---	---	---	---	---	---
1955	---	---	---	---	---	---
1956	---	---	---	---	---	---
1957	---	---	---	---	---	---
1958	187	12	0	12	0.06	100
1959	133	31	0	31	0.23	100
1960	138	25	1	26	0.19	96
1961	19	4	2	6	0.32	67
1962	182	3	0	3	0.02	100
1963	979	26	0	26	0.03	100
1964	753	72	0	72	0.10	100
1965	821	58	0	58	0.07	100
1966	776	94	7	101	0.13	93
1967	1,687	38	0	38	0.02	100
1968	1,977	57	0	57	0.03	100
1969	2,192	21	0	21	0.01	100
1970	1,105	41	0	41	0.04	100
1971	570	23	0	23	0.04	100
1972	165	22	0	22	0.13	100
1973	712	30	0	30	0.04	100
1974	687	31	0	31	0.05	100
1975	457	46	0	46	0.10	100
1976	832	92	0	92	0.11	100
1977	1,341	143	0	143	0.11	100
1978	664	91	0	91	0.14	100
1979	662	126	0	126	0.19	100
1980	637	76	0	76	0.12	100
1981	627	147	8	155	0.25	95
1982	522	53	0	53	0.10	100
1983	868	132	2	134	0.15	99
1984	381	58	0	58	0.15	100
1985	521	88	(0) ---	88	---	---
1986	504	135	(0) ---	135	---	---
<u>1980-84</u>						
\bar{X}	607.00	93.20	2.00	95.20	0.15	98.80
S.D.	178.69	43.45	3.46	46.41	0.06	2.17
n	5	5	5	5	5	5
<u>1975-84</u>						
\bar{X}	699.10	96.40	1.00	97.40	0.14	99.40
S.D.	271.02	38.35	2.54	39.79	0.05	1.58
n	10	10	10	10	10	10
<u>1970-84</u>						
\bar{X}	682.00	74.07	0.67	74.73	0.11	99.60
S.D.	283.30	45.07	2.09	46.21	0.06	1.30
n	15	15	15	15	15	15

Table 24. Recreational catch of Atlantic salmon in Statistical Area 0(50), Gulf Region, Newfoundland and Labrador, 1953-1986.

Year	Effort (rod-days)	1SW (< 63 cm)	MSW (> 63 cm)	Total catch	CUE	Percent 1SW
1953	---	---	---	---	---	---
1954	67	126	128	254	3.79	53
1955	456	155	244	399	0.88	39
1956	306	157	197	354	1.16	44
1957	344	228	288	516	1.50	44
1958	275	526	50	576	2.09	91
1959	261	497	95	592	2.27	84
1960	244	385	52	437	1.79	88
1961	471	467	112	579	1.23	81
1962	336	486	65	551	1.64	88
1963	609	421	139	560	0.92	75
1964	1,206	834	335	1,169	0.97	71
1965	1,596	801	391	1,192	0.75	67
1966	2,339	1,337	344	1,681	0.72	80
1967	1,901	1,121	394	1,515	0.80	74
1968	2,233	1,645	356	2,001	0.90	82
1969	2,027	1,265	273	1,538	0.76	82
1970	2,558	1,566	321	1,887	0.74	83
1971	2,259	927	247	1,174	0.52	79
1972	2,357	423	80	503	0.21	84
1973	3,043	1,431	432	1,863	0.61	77
1974	2,713	740	291	1,031	0.38	72
1975	2,180	1,069	154	1,223	0.56	87
1976	3,896	2,498	310	2,808	0.72	89
1977	3,918	1,662	593	2,255	0.58	74
1978	2,413	573	183	756	0.31	76
1979	2,149	901	119	1,020	0.47	88
1980	2,476	938	337	1,275	0.51	74
1981	3,353	1,698	220	1,918	0.57	89
1982	3,279	1,271	80	1,351	0.41	94
1983	3,529	2,000	130	2,130	0.60	94
1984	3,997	987	185	1,172	0.29	84
1985	3,664	1,092	(0) 100	1,192	0.33	92
1986	4,643	1,072	(0) 184	1,256	0.27	85
<u>1980-84</u>						
\bar{X}	3,326.80	1,378.80	190.40	1,569.20	0.48	87.00
S.D.	551.56	460.22	97.77	426.64	0.13	8.37
n	5	5	5	5	5	5
<u>1975-84</u>						
\bar{X}	3,119.00	1,359.70	231.10	1,590.80	0.50	84.90
S.D.	745.06	591.60	150.75	650.74	0.13	7.68
n	10	10	10	10	10	10
<u>1970-84</u>						
\bar{X}	2,941.33	1,245.60	245.47	1,491.07	0.50	82.93
S.D.	672.31	563.85	140.55	626.45	0.15	7.27
n	15	15	15	15	15	15

Table 25. Counts of Atlantic salmon from downstream and upstream traps of counting fences (Western Arm Brook, 1971-86; Hughes Brook, 1984-86) and fishways (Torrent River, 1971-86; Lonond River, 1971-86), Gulf Region, Newfoundland and Labrador.

Management Zone 13																
Statistical Area L																
Hughes Brook fence																
Year	Downstream			Upstream			Torrent River fishway			Lonond River fishway			Downstream		Upstream	
	Smolts	KeIt	1SW	MSW	Total*	1SW	MSW	Total	1SW	MSW	Total	Smolts	KeIt	1SW	MSW	Total
1971	5,735	185	427	---	427	54	4	58	6	0	6	---	---	---	---	---
1972	11,905	211	205	9	214	64	3	67	30	15	45	---	---	---	---	---
1973	8,484	95	351	30	381	96	12	108	108	110	218	---	---	---	---	---
1974	11,854	302	299	4	303	38	3	41	41	33	74	---	---	---	---	---
1975	9,600	203	393	1	394	191	25	216	1	0	1	---	---	---	---	---
1976	6,232	201	420	0	420	341	47	388	132	11	143	---	---	---	---	---
1977	9,899	327	341	3	344	789	33	822	192	11	203	---	---	---	---	---
1978	13,071	210	285	1	286	971	21	992	117	12	129	---	---	---	---	---
1979	8,349	1	1,578	0	1,578	1,984	39	2,023	195	1	196	---	---	---	---	---
1980	15,665	899	430	3	433	792	63	855	301	19	320	---	---	---	---	---
1981	13,981	168	447	1	448	2,101	97	2,198	110	50	160	---	---	---	---	---
1982	12,477	300	387	3	390	2,112	523	2,635	275	16	291	---	---	---	---	---
1983	10,552	207	1,141	4	1,145	2,007	442	2,449	220	7	227	---	---	---	---	---
1984	20,653	719	117	0	117	1,805	288	2,093	440	47	487	253	0	90	3	93
1985	13,417	111	162	1	163	1,553	30	1,583	190	14	204	60	0	13	0	13
1986	17,719	168	252	0	252	2,815	90	2,906	354	32	386	601	0	63**	2	65
<hr/>																
1981-85																
Mean	14,216.00	301.00	450.80	1.80	452.60	1,915.60	276.00	2,191.60	247.00	26.80	273.80	156.50	0	51.50	1.50	53.00
S.D.	3,826.80	243.59	410.88	1.64	412.27	237.18	212.88	400.94	123.27	20.12	128.22	136.47	0	54.45	2.12	56.57
n	5	5	5	5	5	5	5	5	5	5	5	2	2	2	2	2
<hr/>																
1976-85																
Mean	12,429.60	314.30	530.80	1.60	532.40	1,445.50	158.30	1,603.80	217.20	18.80	236.00	136.47	0	54.45	2.12	56.57
S.D.	4,039.78	279.31	462.22	1.51	462.32	660.23	188.79	786.74	100.37	16.41	106.85	136.47	0	54.45	2.12	56.57
n	10	10	10	10	10	10	10	10	10	10	10	2	2	2	2	2

* Adult transfers to Torrent River, 1972-76; 56, 203, 83, 223 and 100 fish, respectively.

** 10 fish used for enhancement (eggs to incubation box).

MANAGEMENT ZONES FOR
NEWFOUNDLAND AND LABRADOR

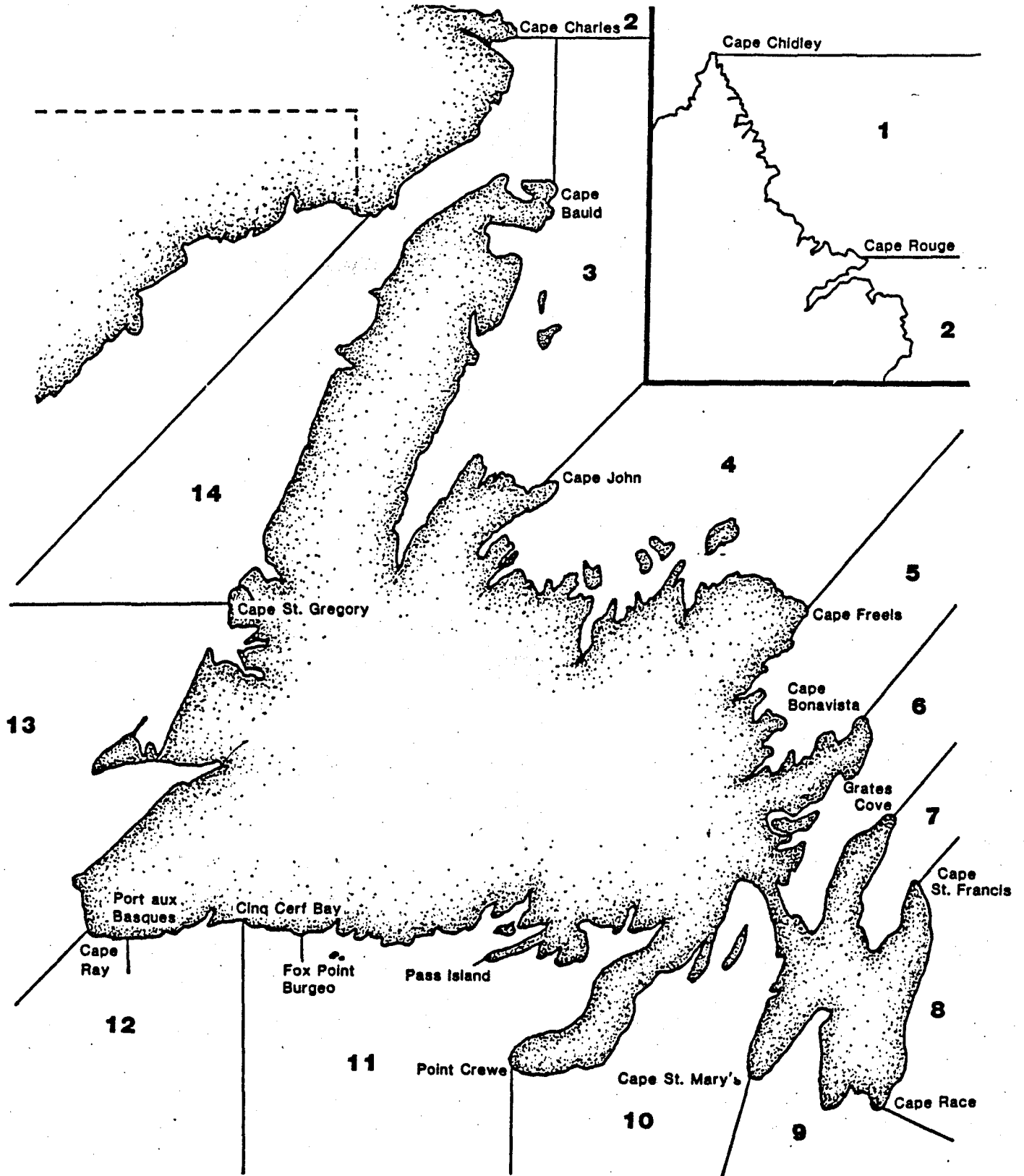


Fig 1 Boundaries of Management Zones 12, 13 and 14, Gulf Region, Newfoundland and Labrador.

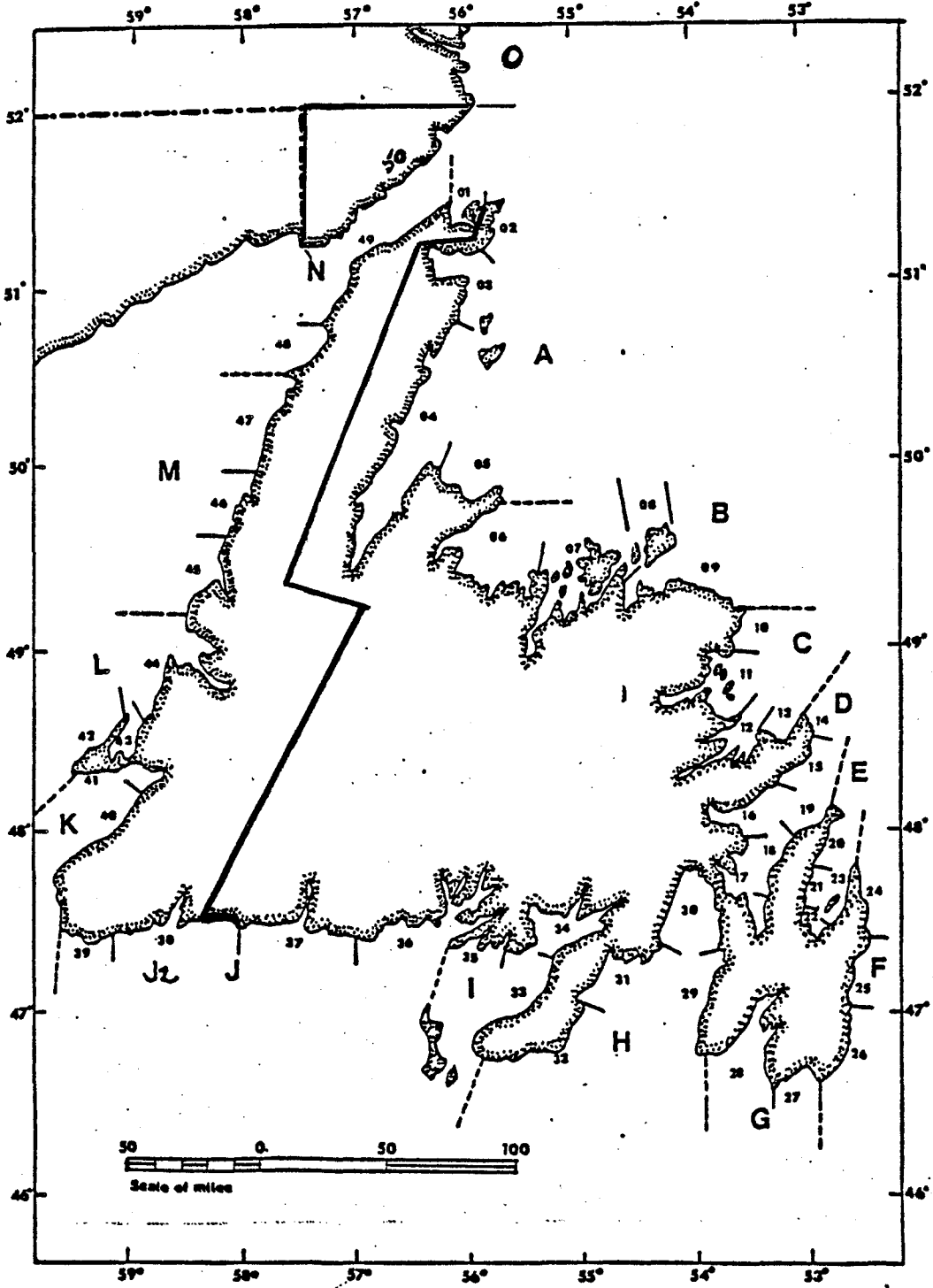


Fig 2 Boundaries of Statistical Areas J2, K, L, M, N, A(01) and O(50) (dotted lines) and Sections 38-50 and 01 (solid lines), Gulf Region, Newfoundland and Labrador.

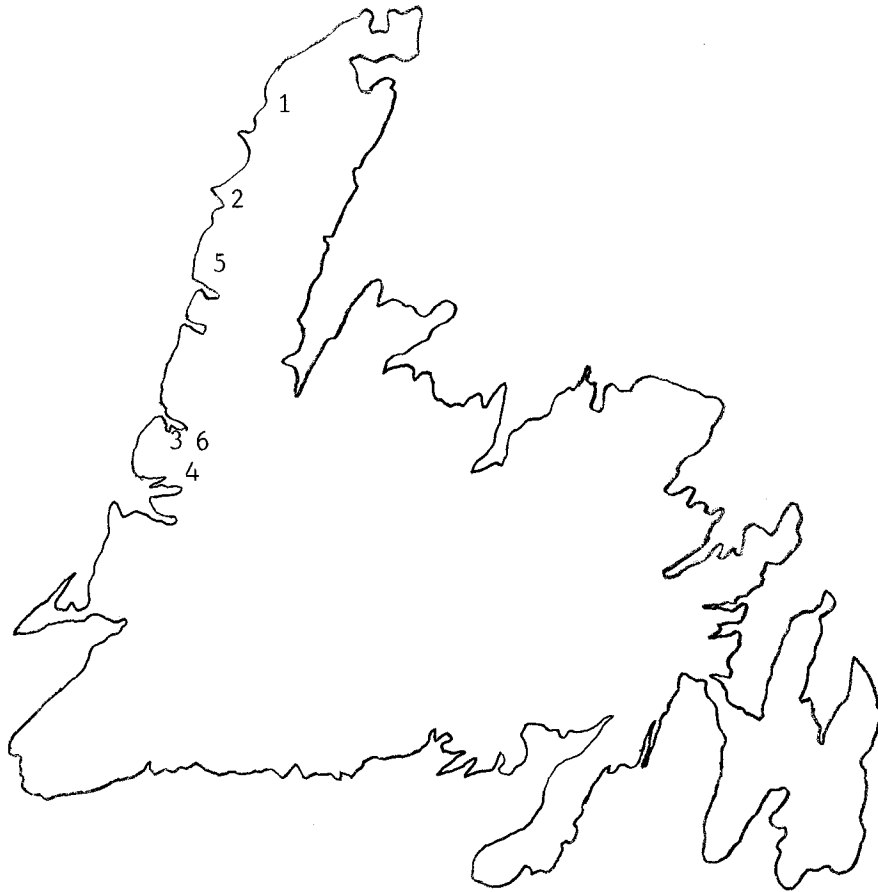


Fig 3 Location of major fishways and counting fences, Gulf Region, Western Newfoundland.

<u>Location</u>	<u>Facility</u>	<u>Coordinates (river)</u>
1. Western Arm Brook (St. Barbe Bay)	Counting Fence	51° 11' 25" N, 56° 45' 58" W
2. Torrent River (Hawkes Bay)	Fishway	50° 36' 47" N, 57° 10' 14" W
3. Lomond River (East Arm, Bonne Bay)	Fishway	49° 25' 50" N, 57° 44' 00" W
4. Hughes Brook (Humber Arm)	Counting Fence	48° 59' 15" N, 57° 54' 30" W
5. Bound Brook (Bellburns)	Counting Fence	50° 20' 10" N, 57° 32' 12" W
6. North Brook (Humber R., Deer Lake)	Counting Fence	