Fisheries and Oceans Canada | Pêches et Océans Canada

Canadian Stock Assessment Secretariat
Research Document 99/81

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Secrétariat canadien pour l'évaluation des stocks
Document de recherche 99/81

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Status of Atlantic Salmon (*Salmo salar* L.) Stocks of the Newfoundland Region, 1998

by

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ISSN 1480-4883
Ottawa, 1999
Canada

Abstract

The commercial Atlantic salmon fishery moratorium implemented in insular Newfoundland in 1992 entered its seventh year in 1998. The Labrador commercial fishery also closed in 1998. In the absence of an in-river assessment program, it was not possible to determine the status of salmon stocks in Labrador in 1998, nor was it possible to determine the impacts of the closure of the commercial fishery on returns to rivers. On the northeast and east coasts of insular Newfoundland (SFAs 4 and 5), total returns of small salmon in 1998 increased over those of 1997 in six out of seven monitored rivers; two rivers showed increases in 1998 in relation to the 1992-96 mean, while the remainder, with the exception of one, were similar or recorded slight declines. Available data suggest an overall decline in total returns of small salmon in SFAs 12 and 13 (which includes Bay St. George) in 1998 compared to 1997. On the south coast (SFAs 9-11) total returns of small salmon in 1998 increased over 1997 in two out of five rivers, were similar in two and decreased in one; three rivers decreased in relation to the 1992-96 mean while the remaining two were similar. Total returns of small salmon in 1998 increased over 1997 and the 1992-96 mean in two out of three monitored rivers in SFA 14A (northwest coast). Total returns of large salmon to most rivers in 1998 exceeded the mean for 1992-96 and several rivers had the highest or among the highest returns on record. Smolt production in 1998 decreased at all six counting facilities, with the declines ranging from 6% to 31%. Unless there is an improvement in marine survival rates, it is likely that returns of small salmon to rivers in insular Newfoundland in 1999 will, in general, be slightly lower than in 1998. Based on estimates of spawning stock size in previous years for Labrador, population sizes are not expected to increase in 1999 without an improvement in natural survival rates.

Résumé

Le moratoire sur la pêche commerciale du saumon de l'Atlantique mis en œuvre dans la partie insulaire de Terre-Neuve en 1992 est entré dans sa septième année en 1998. La pêche commerciale au Labrador a également été fermée en 1998. En l'absence de programme d'évaluation en cours d'eau, il n'a pas été possible de déterminer l'état des stocks de saumons au Labrador en 1998 ou les incidences de la fermeture de la pêche commerciale sur les remontées. Sur les côtes nord-est et est de la partie insulaire de Terre-Neuve (ZPS 4 et 5), les remontées totales de petits saumons en 1998 ont dépassé celles de 1997 dans six des sept cours d'eau observés; deux cours d'eau ont enregistré des hausses en 1998 par rapport à la moyenne de 1992-1996, tandis que les autres, à une exception près, ont été stables ou ont enregistré de faibles déclins. Les données disponibles indiquent un déclin général dans les remontées totales de petits saumons dans les ZPS 12 et 13 (qui comprennent la baie Saint-George) en 1998 comparativement à 1997. Sur la côte sud (ZPS 9-11), les remontées totales de petits saumons en 1998 ont dépassé celles de 1997 dans deux des cinq cours d'eau, ont été stables dans deux et ont baissé dans un; trois cours d'eau ont connu une baisse par rapport à la moyenne de 1992-1996, tandis que les deux autres ont été stables. Les remontées totales de petits saumons en 1998 ont dépassé celles de 1997 et la moyenne de 1992-1996 dans deux des trois cours d'eau observés dans la ZPS 14A (côte nord-ouest). Les remontées totales de grands saumons dans la plupart des cours d'eau en 1998 ont dépassé la moyenne de 1992-1996, et plusieurs cours d'eau ont connu les remontées les plus hautes ou parmi les plus hautes jamais enregistrées. La production de saumoneaux a diminué en 1998 selon les six installations de comptage, les baisses variant de 6 à 31 %. À moins d'amélioration des taux de survie en mer, il est probable que les remontées de petits saumons dans les cours d'eau de la partie insulaire de Terre-Neuve en 1999 seront, en général, légèrement inférieures à celles de 1998. D'après les estimations de la taille des stocks reproducteurs effectuées les années précédentes au Labrador, les effectifs de la population ne devraient pas s'accroître en 1999 sans amélioration des taux de survie dans la nature.

Introduction

This paper presents the general status of Atlantic salmon stocks of the Newfoundland Region (Fig. 1) in 1998. Catch and effort data from the recreational fishery and counts at fishways and counting fences are examined in relation to historic data and management measures in effect in 1998.

Management measures, past and present

The moratorium on the commercial Atlantic salmon fishery in insular Newfoundland continued in 1998. The implementation of the moratorium in 1992, which was accompanied by a commercial license retirement program, followed a major management plan introduced in 1984 (O'Connell *et al.* 1992a; May 1993; Mullins and Caines MS 1994), elements of which were continued into the quota years of 1990 and 1991 and the moratorium years. The commercial fishery in Labrador also closed in 1998, with a license retirement program. These regulations continue a long standing history of management programs designed to prevent stock declines and to allow populations to rebuild (May 1993).

The moratorium placed on the Northern Cod Fishery in 1992, which should have eliminated by-catch of Atlantic salmon in cod fishing gear in Salmon Fishing Areas (SFAs) 1-9, continued in 1998. There was a small inshore index cod fishery in this area in September-October, which is outside the main migration period of June-early September for most Atlantic salmon destined for insular Newfoundland rivers. A moratorium was placed on cod fishing in SFAs 10-14A in August 1993. In 1997, the cod fishery in SFAs 10 and 11 opened for the first time since 1993 with a TAC of 10,000 t; the quota was increased to 20,000 t in 1998. This fishery opened in May and continued through the summer into autumn. There was a cod TAC of 3,000 t for NAFO areas 4RS and 3PN that affected SFAs 12-14A from June through autumn in 1998.

A quota on the number of fish that could be retained in the recreational fishery was introduced in each SFA in 1992 and 1993. The quota was assigned for each SFA as a whole as opposed to individual river quotas. Only hook-and-release fishing was permitted after the quota was caught in each SFA. Quotas were eliminated in 1994. The seasonal bag limit for the retention of small salmon was lowered from eight to six fish in 1994, three to be caught prior to July 31 and three after that date. The split season applied to all of insular Newfoundland, and beginning in 1996, was extended to include SFA 14B of Labrador. Hook-and-release fishing only was permitted after the bag limit of three was reached in each time period. These measures remained in effect in 1995-97. Also, there was a daily bag limit of two fish. As in previous years, the retention of large salmon ($\geq$ 63 cm) was not permitted in insular Newfoundland. Prior to 1997, the retention of large salmon was permitted in all of Labrador, but beginning in 1997 this was not permitted in SFA 14B. The daily maximum number of fish that could be hooked and released was four. Angling ceased for the day when both the retention and hook-and-release limits were reached and ended for the season when six fish were retained. Returns of small salmon to

many rivers in insular Newfoundland in 1997 were substantially lower than expected (Dempson *et al.* MS 1998; O'Connell *et al.* (MS 1998a). As a result of this and uncertainties regarding levels of future returns, the management plan for 1998 was much more conservative than for previous years. The season bag limit for the retention of small salmon in insular Newfoundland and SFA 14B of Labrador was reduced to one, pending the results of an in-season review. As a result of the findings of the in-season review, anglers were allowed to additionally retain three small salmon from July 4 until the end of the angling season. In SFAs 1 and 2 of Labrador in 1998, anglers were allowed to retain four fish, which included one large salmon, and there was no in-season review. There was a daily hook-and-release limit of two fish in 1998. Beginning on July 8, 1998 only the use of barbless hooks was permitted.

On a river-specific basis, Colinet River in SFA 9 was opened to hook-and-release fishing for the entire season in 1998, for the second year after many years of complete closure. Several rivers in SFA 13 were restricted to hook-and-release fishing only for the entire season. Main River (Sop's Arm) in SFA 3 was managed by a quota and Northwest Branch tributary was open to hook-and-release fishing only; also certain areas were closed to all angling. Other rivers managed under quota in 1998 included Serpentine River, Fox Island River, and Adies Lake (upper Humber River) in SFA 13, and Lomond River, Watson's Brook, and Pincent's Brook in SFA 14A. There was no First People's food fishery at Conne River in 1998; there was a fishery in 1997, the first in several years. For Exploits River (SFA 4) in 1998, retention of catch was permitted during June 20-August 16 below Grand Falls, followed by hook-and-release fishing only. The main stem of the Exploits River between Grand Falls and Red Indian Lake and all tributaries flowing into Red Indian Lake were open to hook-and-release fishing for the entire season. Retention and hook-and-release dates for tributaries between Grand Falls and Red Indian Lake were the same as for below Grand Falls. The main stem of the Exploits River from Stoney Brook to Grand Falls was closed to all angling for the entire season. Special management measures went into effect for Terra Nova River in 1998. Hook-and-release fishing only was permitted on the entire river from June 20 to July 10. From July 11 to September 7, only hook-and-release fishing was permitted in the following areas: from 25 metres below to 25 metres above the Old Mill Bench; from 800 metres below Grant's Falls upstream to Second Steady; from 25 metres below the upper fishway, downstream to 800 metres below the upper fishway; all tributaries above Terra Nova Lake dam. An area from 25 metres above the upper fishway to 25 metres below the upper fishway was closed to all angling for the entire season. From July 11 to September 7, all areas not closed or restricted to hook-and-release fishing opened for retention of catch. Northwest River (Terra Nova National Park) and two nearby rivers, Southwest River and Salmon River, in SFA 5, were closed to all angling in 1998. Other rivers or parts of rivers closed for the entire season included: Northeast Brook (Trepassey) and Rocky River (SFA 9); Highlands River, Harry's River above Home Pool, streams flowing into Adies Lake, Cook's Brook, and North Brook (Deer Lake) (SFA 13); Western Brook, Ten Mile Feeder (St. Genevieve River), and West River (SFA 14A). As was the case for the period 1995-97, there were fall hook-and-release fisheries (September 8-27) in Gander River (SFA 4) and in Humber River (SFA 13) in 1998.

More details on openings and closures throughout the season on a river-specific basis, including times when rivers were closed due to high water temperatures and low water levels, are presented in Table 1.

For the five-year period immediately preceding the commercial salmon fishery moratorium, the average number of recreational fishery licenses sold in Newfoundland and Labrador was 24493. Maximum license sales prior to the moratorium were recorded in 1988 (26445). By comparison, sales during the moratorium years were 25718 (1992), 26508 (1993), 22596 (1994), 21840 (1995), 26038 (1996), 21175 (1997), and 16735 (1998).

Methods

Recreational fishery catch and effort data and fishway and counting fence data were added to that presented in O'Connell *et al.* (MS 1998a) and Reddin *et al.* (MS 1998). Prior to 1997, recreational fishery data were compiled as described by Ash and O'Connell (1987a,b) and Mullins and Claytor (1989). Catch statistics for both retained and released small salmon were used in 1992-96. Information for released large salmon has been available since 1985 for SFAs 12 and 13. Recreational fishing effort was presented as rod days, defined as any day or part of a day on which an angler fishes.

Angling data were provided by Department of Fisheries and Oceans (DFO) River Guardians for all of insular Newfoundland and Labrador prior to 1997. This information continues to be available for SFAs 1 and 2 of Labrador and is used in the present report. Angling data for insular Newfoundland and SFA 14B of Labrador in 1997 and 1998 were derived from the License Stub Return System (see O'Connell *et al.* (MS 1998b) for a description of the methodology). The information for 1998 is preliminary at this stage. The License Stub Return System for collecting recreational fishery data represents a complete departure from the previous DFO River Guardian method. Details of a comparison of stub data with DFO River Guardian data, for rivers in insular Newfoundland for 1994-96, are provided in O'Connell *et al.* (MS 1998b). Overall, estimates of released small and large salmon from the stub were substantially higher than estimates from River Guardians, while the two methods were closer with respect to estimates of small salmon retained. This has to be kept in mind when comparing catches in 1997 and 1998 with previous years. There is evidence that effort expenditure was under-reported by the stub method and hence this information will not be used in the present document for both 1997 and 1998. Analyses are currently being carried out to adjust for under-reporting. Effort information was available for all years for SFAs 1 and 2 of Labrador (River Guardian data).

Recreational fishery catch and effort information and counts of salmon at counting facilities in 1998 were compared to two pre-salmon moratorium means (1984-89 and 1986-91). The 1984-89 mean corresponds to years under major management changes in the commercial fishery in the Newfoundland Region (O'Connell *et al.* 1992a). The

commercial fishery in both insular Newfoundland and Labrador in 1990 and 1991 was controlled by a quota in each SFA (O'Connell *et al.* MS 1992b). The mix of management measures in effect during 1984-89 on the one hand and the imposition of commercial quotas in 1990 and 1991 on the other, should be kept in mind when making evaluations based on the 1986-91 mean. Recreational fishery data in 1998 for insular Newfoundland were compared to the moratorium mean for 1992-96 (1997 data were derived from the License Stub System, as seen above, and hence were not included in means). Counts of adult salmon were compared to the mean for 1992-97. For SFA 14B of Labrador and all SFAs of Labrador combined, the moratorium mean used for angling data was for the years 1992-95 (no River Guardian data were available for SFA 14B in 1996, hence information from the License Stub Return System was used). Along the same lines, information for SFAs 12 and 13 were incomplete in 1996, hence data from the License Stub were used for these SFAs, and the moratorium mean used for comparisons for all SFAs of insular Newfoundland combined was 1992-95. The mean for 1992-97 was used for SFAs 1 and 2 of Labrador, since River Guardian data were available for all years.

Total river returns of small salmon (which typically are counts at counting facilities plus angling removals below counting facilities plus an adjustment for hook-and-release mortality) in 1998, were assessed against mean returns for the moratorium period 1992-96 (in contrast to the 1992-97 mean for counts alone as seen above). This conformed to pre-defined criteria outlined in the Management Plan for 1998, which evaluated in-season and annual status of stocks in terms of total returns. In this context, the low returns in 1997 were presumed as possibly being anomalous. References for river-specific methodologies used for the calculation of total river returns of small and large can be found in CSAS (1999).

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

Results and Discussion

Smolt-to-adult survival

The smolt-to-adult survival (repeat spawners included) of 5.3% for Campbellton River in 1998 (adult year) increased over the record low observed 1997 but remained the second lowest of the time series (Table 2). A survival of 5.0% was observed for Northeast Brook (Trepassey) (SFA 9) in 1998, an improvement over that of 1997 (when the second lowest value of the time series was recorded), but low compared to the record high of 1996. Rocky River (SFA 9) recorded a survival of 2.4%, the lowest since 1991. Conne River (SFA 11) had the second lowest survival (2.9%) on record in 1998 while Highlands River (SFA 13) had the lowest recorded (1.4%). Survival for Western Arm Brook (SFA 14A) in 1998 (7.5%) increased over the low value observed in 1997 and approached some of the higher values observed during the moratorium years.

Fig. 2 shows graphically the trends in sea survival for the rivers mentioned above. Survival adjusted for commercial exploitation (from Dempson *et al.* MS 1998) is also shown for Conne River, Northeast Brook (Trepassey), and Western Arm Brook. During the moratorium years, estimates of sea survival from smolts to adult small or one-sea-winter (1SW) salmon are believed to represent natural survival rates. Despite major changes to fisheries and corresponding reductions in marine exploitation, sea survival rates were still less than 10%, a level achieved in both Conne River and Northeast Brook (Trepassey) during periods when commercial and by-catch fisheries were in operation. These rivers experienced their lowest survival rates during the period of time that the Newfoundland commercial salmon fishery was closed. Ocean survival for both of these stocks was falling throughout the late 1980s and early 1990s; adjusted sea survival rates only serve to highlight the differences even more.

Recreational fishery and counts at counting facilities

Recreational catches of small and large salmon for Labrador (SFAs 1, 2, and 14B combined) for insular Newfoundland (SFAs 3-14A combined) are presented in Appendix 1a-b. Combined data for Labrador are a blend of information from the License Stub Return System (SFA 14B) and from River Guardians (SFAs 1 and 2). Data for insular Newfoundland were also rolled into four subdivisions, Northern Peninsula East and Eastern (SFAs 3-8), South (SFAs 9-11), Southwest (SFAs 12-13), and Northern Peninsula West (SFA 14A) and are shown in Appendix 1c-f. Data for each individual SFA are shown in Appendix 1g-u. Catches for all years prior to 1992 represent retained fish only. There was no estimate of released fish during the period of retention of catch in 1992, which could impact on comparisons. Calculation of catch per unit of effort (CPUE) is in terms of small and large retained and released fish combined. For insular Newfoundland, Northern Peninsula East and Eastern, South, and individual SFAs 3-11, 1987 was not included in the means because in that year drought conditions resulted in the closure of most rivers to angling for the greater part of the season.

Labrador

Entire Labrador (SFAs 1, 2, and 14B)

The total catches of small and large salmon (retained plus released fish) in all of Labrador in 1998 increased over that of 1997 and 1992-95 mean (Fig. 3). The number of small salmon retained in 1998 increased slightly over 1997, was similar to the 1992-95 mean, but remained below the 1984-89 and 1986-91 means. The retained catch of large salmon in 1998 also increased over 1997 but was below all means. It should be remembered that there was no retention of large salmon in SFA 14B in 1996-98.

SFA 1

Total catches of small and large salmon in 1998 increased over 1997 and were similar to the 1992-97 means (Fig. 4). The number of small salmon retained in 1998

decreased slightly from 1997 and the 1992-97 mean but was well below the 1984-89 and 1986-91 means. The number of large salmon retained in 1998 was slightly higher than in 1997 but was below the means. However CPUE in 1998 increased over 1997 and the means (Appendix 1g).

SFA 2

Total catches of small and large salmon in 1998 increased over 1997 and the 1992-97 means (Fig. 5). The number of small salmon retained in 1998 decreased slightly from that observed in 1997, was similar to the 1992-97 mean, but decreased from the 1984-89 and 1986-91 means. The number of large salmon retained in 1998 increased over 1997 and the means. CPUE was similar to the 1984-89 mean and increased over the 1986-91 and 1992-97 means (Appendix 1h).

SFA 14B

The total catch of small salmon in 1998 increased over 1997 and the 1992-95 mean (Fig. 6). The total catch of large salmon decreased from 1997 and was similar to the 1992-95 mean. The number of small salmon retained in 1998 increased over 1997, was similar to the 1992-95 mean, but below the 1984-89 and 1986-91 means.

Insular Newfoundland

Entire Insular Newfoundland (SFAs 3-14A)

Recreational fishery

The total catch of small salmon in the recreational fishery in all of insular Newfoundland in 1998, decreased from 1997 and was below the 1992-96 mean (Fig. 7). The number of small salmon retained in 1998 was the lowest in the time series.

Northern Peninsula East and Eastern (SFAs 3-8)

Recreational fishery

The total catch of small salmon in 1998 increased over 1997 but was below the 1992-96 mean (Fig. 8). The number of small salmon retained was among the lowest recorded and below the means.

Counting facilities

SFA 3: A counting fence was operated for the third year in Northwest Branch tributary of Main River (Sop's Arm). Counts of small (Table 3) and large (Table 4) salmon in both 1997 and 1998 were partial.

SFA 4: Counts of small (Table 3) and large (Table 4) salmon are available for fishways located in the Exploits River (Bishop's Falls) and Salmon Brook (tributary of Gander River) and counting fences in Gander River and Campbellton River. Counts of small and large (second highest on record) salmon for Exploits River in 1998 increased over 1997 and the 1984-89, 1986-91, and 1992-97 means. Counts of small and large (second highest on record) salmon for Campbellton River in 1998 increased over 1997 and the 1992-97 means. The count of small salmon at the Gander River counting fence in 1998 increased over 1997 and the 1986-91 mean and was similar to the 1992-97 mean; the count of large salmon was the second highest on record. Counts of small and large (highest recorded) salmon at the Salmon Brook fishway in 1998 increased over 1997 and the means.

SFA 5: Counts of small (Table 3) and large (Table 4) salmon are available from fishways in Middle Brook and Terra Nova River (upper and lower) and counting fences in Northwest River, Terra Nova National Park (since 1995), and Indian Bay Brook (operated for the first time in 1997). The count of small salmon in Indian Bay Brook in 1998 doubled that of 1997 while the count of large salmon declined slightly. Counts of small (highest count recorded in 1981) and large (highest count recorded in 1987) salmon at Middle Brook in 1998 were both the second highest on record, increasing over 1997 and the means. At the lower Terra Nova River fishway, the count of small salmon in 1998 increased over 1997 and the 1984-89 and 1986-91 means but decreased slightly from the 1992-97 mean; the count of large salmon decreased from 1997 and the 1992-97 mean and increased over 1984-89 and 1986-91 means. The counts of small and large salmon for the lower Terra Nova River in 1993 were incomplete due to fish bypassing the fishway. This was caused by the washout of the diversion dam above the fishway and unusually high water levels. However, since counts in 1993 were the highest ever recorded for small salmon (and highest up to that year for large salmon), they were included in the 1992-97 means. The count of small salmon at the upper Terra Nova River fishway in 1998 increased over 1997 and the means; the count of large salmon decreased from 1997 and the 1992-97 mean but increased over 1984-89 and 1986-91 means. The count of small salmon in Northwest River in 1998 increased over 1997 while that of large salmon declined. Counts for 1997 were partial.

A swim-through survey of the first two pools below the impassable falls (approximately 6 km from the estuary) in Southwest Brook was conducted by one person on August 9, 1998. On August 19, a swim-through survey was conducted of the entire river below the falls. The water level was low during the initial survey; 2 small salmon were seen in the pool directly below the falls, and 81 (unsized) were observed in the second pool immediately below the first pool. During the second survey, water level was much higher and only 7 small salmon were observed. Five were seen in the second pool and 2 were observed about 300 m downstream from the second pool. It is not possible to provide an estimate of the entire population since there was no means of estimating the number of fish in the pool immediately below the falls. This pool is too wide and deep to obtain a realistic estimate of the number of fish present. It is important to note that there are very few pools in the section of the river between the falls and the mouth and the pool

below the falls is an important one for salmon to stage until spawning. It would appear that the nearly the entire population was in this pool at the time of the second survey.

South (SFAs 9-11)

Recreational fishery

The total catch of small salmon in 1998 decreased from 1997 and was below the mean for 1992-96 (Fig. 9). The number of small salmon retained in 1998 was the lowest of the time series.

Counting facilities

SFA 9: Counts of small (Table 3) and large (Table 4) salmon are available from a counting fence in Northeast Brook (Trepassey) and a fishway in Rocky River. The count of small salmon in Northeast Brook (Trepassey) in 1998 increased over 1997 and the 1992-97 mean but decreased from the 1984-89 and 1986-91 means; the count of large salmon increased over 1997 but remained below the means. The count of small salmon in Rocky River in 1998 decreased slightly from 1997 but increased over the means; the count of large salmon increased over 1997 and the means.

SFA 10: Counts of small (Table 3) and large (Table 4) salmon are provided by a fishway located in Northeast River (Placentia). The count of small salmon in 1998 increased over 1997 and the 1984-89 and 1986-91 means but was slightly below the 1992-97 mean; the count of large salmon was the highest on record.

SFA 11: Counts of small (Table 3) and large (Table 4) salmon are available from counting fences in Conne River and Little River. Counts of small and large salmon for Conne River in 1998 increased over 1997 and the 1992-97 mean but decreased from the 1984-89 and 1986-91 means. Counts of small and large salmon for Little River in 1998 decreased from 1997, were similar to the mean for 1992-97, but increased substantially over the means for 1984-89 and 1986-91.

Southwest (SFAs 12-13)

Recreational fishery

The total catch of small salmon in 1998 decreased from 1997 and the 1992-96 mean (Fig. 10). The number of small salmon retained decreased from 1997 and the means and was the lowest on record. The number of large salmon released in 1998 decreased from the record high in 1997, but remained above the means.

Counting facilities

SFA 13: Counts of small (Table 3) and large (Table 4) salmon are available from counting fences in Highlands River and Pinchgut Brook and population estimates derived from mark-recapture studies are available for Humber River (Mullins and Caines MS 1999). Counts of small and large salmon in Highlands River in 1998 decreased from 1997 and the 1992-97 mean, being most pronounced for small salmon. The count of small salmon in Pinchgut Brook in 1998 was similar to 1997 and the 1992-97 mean; the count of large salmon decreased slightly from the record high of 1997. Estimated population size of small salmon for Humber River in 1998 decreased from 1997 and the 1992-97 mean; the estimate for large salmon was the highest on record.

Northern Peninsula West (SFA 14A)

Recreational fishery

The total catch of small and large salmon in 1998 increased slightly over 1997, but was below the 1992-96 mean (Fig. 11). The number of small salmon retained was the lowest on record. The number of large salmon released decreased slightly from 1997, was below the 1992-96 mean, but remained above the 1984-89 and 1986-91 means.

Counting facilities

Counts of small (Table 3) and large (Table 4) salmon are available from fishways located in Lomond River and Torrent River and a counting fence in Western Arm Brook. The count of small salmon in Lomond River in 1998 decreased from 1997 and the 1992-97 mean and increased over the 1984-89 and 1986-91 means; the count of large salmon was the highest on record. The counts of small salmon for Torrent River and Western Arm Brook (highest recorded) in 1998 increased over 1997 and the means; the count for large salmon for each river was the highest on record.

Total returns

Total returns of small and large salmon to rivers in insular Newfoundland are presented in Tables 5 and 6. The information contained in Tables 5-7 is also presented graphically below. Since the closure of the commercial salmon fishery in 1992, returns of small and large salmon to rivers are assumed to be total population sizes.

Northern Peninsula East and Eastern (SFAs 3-8)

SFA 4

Total returns of small salmon to Exploits, Campbellton, and Gander rivers in 1998 (Fig. 12) increased substantially over those of 1997 (Table 7). Compared to 1996, Campbellton River remained similar while Exploits River and Gander River showed

decreases. Compared to the 1992-96 means, Exploits River showed an increase, Campbellton River remained the same, while Gander River had a slight decrease.

Total returns of large salmon to Exploits, Campbellton, and Gander rivers in 1998 (Fig. 13) showed substantial increases over 1997 and the 1992-96 means (Table 8). Returns were similar to 1996 for Exploits River, decreased for Campbellton River, but increased markedly for Gander River.

The proportion of large salmon in total returns in 1998 was the highest of the moratorium years for Exploits River and the second highest for Campbellton and Gander rivers (Table 9 and Fig. 14).

SFA 5

Total returns of small salmon in 1998 (Fig. 15) increased over 1997 in Indian Bay Brook, Middle Brook, and Northwest River, Port Blandford but remained the same for Terra Nova River (Table 7). Compared to 1996 and the 1992-96 means, Middle Brook increased, Northwest River remained similar, while Terra Nova River decreased.

Total returns of large salmon in 1998 (Fig. 16) were similar to 1997 for Indian Bay Brook but decreased for Middle Brook, Terra Nova River, and Northwest River (Table 8). Middle Brook showed an increase over 1996 while Terra Nova River and Northwest River had decreases. Middle Brook increased substantially over the 1992-96 mean, Terra Nova River was similar, and Northwest River decreased.

The proportion of large salmon in total returns (Table 9 and Fig. 17) decreased from 1997 in all four of the above rivers. Compared to 1996, Middle Brook was similar, Terra Nova River increased, and Northwest River decreased. Middle Brook and Terra Nova River increased relative to the 1992-96 mean while Northwest River decreased.

South (SFAs 9-11)

SFA 9

Total returns of small salmon to Northeast Brook (Trepassey) in 1998 (Fig. 18) increased over 1996, 1997, and the 1992-96 mean (Table 7). Returns to Rocky River were similar to 1997 and increased over 1996 and the 1992-96 mean.

Total returns of large salmon to Northeast Brook (Trepassey) in 1998 (Fig. 19) increased over 1997 but decreased from 1996 and the 1992-96 mean (Table 8). Returns to Rocky River increased over 1996, 1996 and the 1992-96 mean.

The proportion of large salmon in total returns to Northeast Brook (Trepassey) in 1998 (Table 9 and Fig. 20) was the lowest of the moratorium years while the reverse was true for Rocky River.

SFA 10

Total returns of small salmon to Northeast River (Placentia) in 1998 (Fig. 21) increased over 1997 but decreased from 1996 (in which year highest returns on record were recorded) and the 1992-96 mean (to a lesser degree) (Table 7).

Total returns of large salmon to Northeast River (Placentia) in 1998 (Fig. 22) were the highest on record (Table 8) as was the proportion of large salmon in total returns (Table 9 and Fig. 23).

SFA 11

Total returns of small salmon to Little River in 1998 (Fig. 24) decreased from 1996 and 1997 but remained above the mean for 1992-96 (Table 7). Returns to Conne River in 1998 decreased from 1996 and 1997 (to a lesser extent) but remained the same as the 1992-96 mean.

Total returns of large salmon to Little River in 1998 (Fig. 25) decreased from 1996 and 1997 but remained above the 1992-96 mean (Table 8). Returns to Conne River were the highest of the moratorium years, but remained below returns recorded prior to the moratorium.

The proportion of large salmon in total returns in 1998 was similar to that of 1996 and 1997 for Little River and slightly higher than the mean for 1992-96 (Table 9 and Fig. 26). The proportion for Conne River was the highest of the moratorium years.

Southwest (SFAs 12-13)

SFA 13

Total returns of small salmon for Highlands and Humber rivers in 1998 (Fig. 27) decreased from 1996, 1997, and the 1992-96 means (Table 7). Returns to Pinchgut Brook were similar to 1996 and 1997 and increased slightly over the 1992-96 mean.

Total returns of large salmon in to Humber River in 1998 (Table 8 and Fig. 28) were the highest on record. Highlands River decreased from 1996 and 1997 but remained similar to the 1992-96 mean. Returns to Pinchgut Brook were similar to 1997 and increased over 1996 and the 1992-96 mean.

The proportions of large salmon in total returns for Highlands and Humber rivers in 1998 were the highest of the moratorium years (Table 9 and Fig. 29). The proportion for Pinchgut Brook was similar to that of 1997 but increased over 1996 and the 1992-96 mean.

Northern Peninsula West (SFA 14A)

Total returns of small salmon to Lomond River in 1998 (Fig. 30) decreased from 1996, 1997, and the 1992-96 mean (Table 7). Returns to Torrent River increased over 1997, decreased from 1996, and remained similar to the 1992-96 mean. Western Arm Brook showed an increase over 1996, 1997, and the 1992-96 mean.

Total returns of large salmon in 1998 (Table 8 and Fig. 31) were the highest on record for all three rivers.

The proportion of large salmon in total returns for Lomond River in 1998 (Table 9 and Fig. 32) was the highest of the moratorium years while proportions for Torrent River and Western Arm Brook were the second highest.

Net marks

The incidence of net-marked fish has been determined for a number of rivers throughout insular Newfoundland since 1994. The results for small and large salmon combined are presented below:

River	1994	1995	1996	1997	1998
Gander River	15.9	8.9	12.2	15.9	2.9
Campbellton River	6.2	5.0	4.3	4.3	5.6
Middle Brook				15.8	11.6
Terra Nova River				2.9	1.2
Conne River	18.6	7.1	6.2	7.2	3.7
Harry's River			0.6	9.3	1.8
Humber River		1.4	2.6	7.6	4.1

The incidence of net marks in 1998 decreased from that of 1997 in all rivers but Campbellton River, where the second highest value to date was recorded. Most notable declines were recorded in Gander and Harry's rivers. Net marks were likely the result of encounters with both legally set gear for other species and illegal gear in the marine environment and with illegal gear in freshwater. It is not possible to estimate the extent of such removals, therefore, total returns considered in the context of being equivalent to total production during the moratorium, have to be regarded as minimum values.

Comments and Conclusions

Returns of small salmon to rivers on the western side of the Northern Peninsula and along the northeast and east coasts in 1998 improved over the unexpected low returns of 1997. For detailed analyses examining possible reasons for the overall low returns of small salmon in 1997, see Dempson *et al.* (MS 1998) and O'Connell *et al.* (MS 1998). Rivers in Bay St. George (SFA 13) on the other hand, had returns of small salmon that were higher than expected in 1997 (O'Connell *et al.* MS 1998; Porter and Bourgeois MS 1998). Returns to these rivers in 1998 decreased from 1997. Returns of small salmon to some rivers on the northwest, northeast, and east coasts in 1998 remained similar to or increased moderately over the mean for 1992-96, in spite of greatly increased spawning escapements beginning with the moratorium in 1992 (Table 10). Returns of small salmon in recent years to Northeast Brook (Trepassey) and Conne River, both south coast rivers, were lower than the average for the five years prior to the moratorium.

Management changes in the recreational fishery, specifically the implementation and changing of quotas in SFAs along with mandatory hook-and-release fishing, and changing daily and seasonal bag limits, have seriously compromised the usefulness of angling data in terms of comparability with the past, especially when used as indices of abundance. Also, there have been variable and prolonged closures of rivers to angling over the years due to low water levels and high water temperatures. Added to this are the confounding elements associated with the derivation of 1997 and 1998 angling data from the License Stub Return System. In the interpretation of trends and drawing of conclusions with respect to abundance, more weight is placed on information obtained from counting facilities than on recreational fishery data.

In spite of increased returns of small salmon in insular Newfoundland in 1998, angling catches overall decreased from 1997, particularly the number of small salmon retained (the lowest of the time series) (Fig. 7). This could be reflective of the comparatively low number of anglers participating in the fishery in 1998; the number of licenses sold in 1998 declined substantially. This in turn could be related to the restrictions placed on the retention of small salmon in the 1998 management plan.

The only means of assessing returns to rivers in Labrador in 1998 is through the use of angling data. There were no counting fences operated in Labrador in 1998. In the absence of corroborating information such as provided by counting fences, angling catch rates used as indices of abundance are questionable. Also, it was not possible to evaluate the benefits to the spawning stock of the closure of the commercial fishery in 1998. Based on previous estimates of spawning stock size for Labrador (Reddin *et al.* MS 1998), population sizes are not expected to increase in 1999 without an improvement in natural survival rates.

Smolt production in 1998 decreased at all counting facilities (Table 2), ranging from 6% for Northeast Brook (Trepassey) to 31% for Conne River. Unless there is an

improvement in marine survival rates, it is likely that returns of small salmon to insular Newfoundland rivers in 1999 will, in general, be slightly lower than in 1998.

Total returns of large salmon to most rivers in 1998 exceeded the mean for 1992-96 and several rivers had the highest or among the highest levels on record.

Acknowledgements

We thank C. E. Bourgeois for providing the counts for Exploits, upper Terra Nova, and Rocky rivers for 1998 and previous years and the smolt data for Rocky River, and T. R. Porter for the information on swim-through surveys of Southwest Brook.

References

Ash, E.G.M., and M. F. O'Connell. 1987a. Atlantic salmon fishery in Newfoundland and Labrador, commercial and recreational, 1984. Can. Data Rep. Fish. Aquat. Sci. 658: v + 294 p.

Ash, E.G.M., and M. F. O'Connell. 1987b. Atlantic salmon fishery in Newfoundland and Labrador, commercial and recreational, 1985. Can. Data Rep. Fish. Aquat. Sci. 672: v + 284 p.

Cochran, W. G. 1977. Sampling techniques. John Wiley & Sons, Inc. 428 p.

CSAS 1999. Atlantic salmon abundance overview for 1997. DFO Science Stock Status Report D2-01.

Dempson, J. B., D. G. Reddin, M. F. O'Connell, J. Helbig, C. E. Bourgeois, C. C. Mullins, T. R. Porter, G. Lilly, J. Carscadden, G. B. Stenson, D. Kulka, and R. Knoechel. MS 1998. Spatial and temporal variation in Atlantic salmon abundance in the Newfoundland-Labrador region with emphasis on factors that may have contributed to low returns in 1997. DFO, CSAS Res. Doc. 98/114.

May, A. W. 1993. A review of management and allocation of the Atlantic salmon resource in Atlantic Canada. p. 220-232. *In*: Mills, D. [ed.] Salmon in the sea and new enhancement strategies. Fishing News Books. 424 p.

Mullins, C. C., and D. Caines. MS 1994. The status of Atlantic salmon stocks in the Gulf of St. Lawrence, western Newfoundland and southern Labrador, 1993. DFO Atlantic Fisheries Res. Doc. 94/83.

Mullins, C. C., and D. Caines. MS 1999. Status of the Atlantic salmon (*Salmo salar* L.) stock of Humber River, Newfoundland, 1998. DFO, CSAS Res. Doc. 99/100.

Mullins, C. C., and R. R. Claytor. 1989. Recreational Atlantic salmon catch, 1987 and 1988, and annual summaries, 1973-1988, for west Newfoundland and south Labrador, Gulf Region. Can. Data Rep. Fish. Aquat. Sci. No. 748. vi + 192 p.

O'Connell, M. F., N. M. Cochrane, E.G.M. Ash, and C. C. Mullins. MS 1998b. An analysis of the license stub return system in the Newfoundland Region, 1994-97. DFO, CSAS Res. Doc. 98/111.

O'Connell, M. F., J. B. Dempson, C. C. Mullins, D. G. Reddin, N. M. Cochrane, and D. Caines. MS 1998a. Status of Atlantic salmon (*Salmo salar*, L.) stocks of insular Newfoundland (SFAs 3-14A), 1997. DFO, CSAS Res. Doc. 98/107.

O'Connell, M. F., J. B. Dempson, T. R. Porter, D. G. Reddin, E.G.M. Ash, and N. M. Cochrane. MS 1992b. Status of Atlantic salmon (*Salmo salar* L.) stocks of the Newfoundland Region, 1991. CAFSAC Res. Doc. 92/22.

O'Connell, M. F., J. B. Dempson, and D. G. Reddin. 1992a. Evaluation of the impacts of major management changes in the Atlantic salmon (*Salmo salar* L.) fisheries of Newfoundland and Labrador, Canada, 1984-1988. ICES J. mar. Sci. 49: 69-87.

Porter, T. R., and C. E. Bourgeois. MS 1998. Status of Atlantic salmon (*Salmo salar* L.) Populations in Crabbes and Robinsons rivers, and Middle Barachois, Fischells and Flat Bay brooks, Bay St. George, Newfoundland, 1997. DFO, CSAS Res. Doc. 98/112.

Reddin, D. G., C. C. Mullins, M. F. O'Connell, and N. M. Cochrane. MS 1998. Status Of Atlantic salmon (*Salmo salar* L.) stocks in Labrador, 1997. DFO, CSAS Res. Doc. 98/118.

Table 1. Opening and closure dates of the Atlantic salmon recreational fishery for each SFA, and variations by river, 1998.

SFA 1 June 20 - September 13

SFA 2 June 20 - September 13

SFA 3 June 20 - September 7

Main River (Sops Arm), June 20 - September 7, catch and retain on the main stem only until a quota of 350 fish is taken, then the main stem will revert to catch and release to the end of the season.
Northwest Branch will be open to catch and release only for the entire season.

Variations:

River	Close dates	Reason for closure
Western Brook (Hare Bay)	August 10 - 13	Low water levels & high water temperatures
Salmon River (Ariege River)	"	"
Easter Brook	"	"
Northeast Brook (Canada Bay)	"	"
Western Brook (Beaver Brook)	"	"
Northwest Brook (Canada Bay)	"	"
Cloud River	"	"
Little Harbour Deep River	"	"
Coney Arm River	"	"
Soufletts River	"	"
Main River (Sop's Arm)	Closed to retention July 17 (hook and release only): Quota taken Closed to all fishing August 10 - 13 Hook and release only August 14 to end of season	
Hampden River	August 10 - 13	Low water levels & high water temperatures
Middle Arm Brook	"	"
Wild Cove Brook	August 5 - 13	"
Western Arm Brook	"	"
Southern Arm Brook	"	"
Baie Verte River	"	"
Woodstock Brook	"	"

SFA 4 June 20 - September 7

Exploits River - below Grand Falls: retention 6/20 - 8/16; hook and release 8/17 - 9/7
above Grand Falls: Main stem from Grand Falls to Millertown Dam hook and release all season
Main Stem from Stoney to Grand Falls closed all season
Tributaries form Grand Falls to Millertown Dam retention 6/20-8/16; hook and release 8/17-9/7

Burlington River	August 5 - 13	Low water levels & high water temperatures
Indian River (Black Brook)	August 10 - 13	"
West River	"	"
South Brook	"	"
Tommy's Arm River	"	"
Northwest Arm Brook	"	"
Western Arm Brook	"	"
Leamington River	"	"
Charles Brook	"	"
Northern Arm River	"	"
Peters River	"	"
Rattling Brook	"	"
Campbellton River	"	"
Dog Bay River	"	"
Gander River (all tributaries except Northwest)	August 6 - 13	"
Gander River (Northwest tributary)	August 10 - 13	"
Ragged Harbour River	"	"
Anchor Brook	"	"
Deadman's Bay River	"	"
Windmill Brook	"	"

SFA 5 June 20 - September 7

Terra Nova River- hook and release 6/20 - 7/10; retention 7/11 - 9/7

Northwest Brook (Indian Bay)	July 30 - Aug 21	Low water levels & high water temperatures
Indian Bay Brook	"	"
Northwest River (Trinity)	"	"
Traverse Brook	"	"
Middle Brook	"	"
Gambo River	"	"
Northwest Brook (Alexander Bay)	"	"
Terra Nova River	"	"

Table 1. Cont'd

SFA 6 June 20 - September 7

Variations:

River	Close dates	Reason for closure
Salmon Cove River	July 30 - Aug 19	Low water levels & high water temperatures
Trouty River	"	"
Popes Harbour River	"	"
Shoal Harbour River	"	"
Deer Harbour River	"	"

SFA 7 June 20 - September 7

Salmon Cove River (CB)	June 29 - July 2	Low water levels & high water temperatures
North River	"	"
South River	"	"

SFA 8 June 20 - September 7

Renews River	June 29 - July 2	Low water levels & high water temperatures

SFA 9 June 6 - 19 hook and release; June 20 - Aug 30 retention.

Colinet River: June 6 - August 30 (hook and release only)

Biscay Bay River	6/29 - 7/2 & 8/7 - 8/19	Low water levels & high water temperatures
Northwest Brook (Trepassey)	6/29 - 7/2 & 8/7 - 8/19	"
Peters River	6/29 - 7/2 & 8/7 - 8/14	"
Salmonier River	6/29 - 7/2	"
Colinet River	6/29 - 7/2 & 8/7 - 8/14	"
North Harbour River	"	"
Little Salmonier River	"	"
Big Barachois River	"	"
Branch River	"	"

SFA 10 June 6 - 19 hook and release; June 20 - Aug 30 retention.

Great Barasway River	6/29 - 7/2 & 8/7 - 8/19	Low water levels & high water temperatures
Southeast River (Placentia)	6/29 - 7/2 & 8/7 - 8/14	"
Northeast River (Placentia)	"	"
Come By Chance River	"	"
North Harbour River	"	"
Watsons Brook	"	"
Black River	"	"
Pipers Hole River	"	"
Nonsuch Brook	6/25-7/2 & 7/16-19 & 7/30-8/14	"
Cape Roger River	"	"
Bay De L'Eau River	"	"
Red Harbour River	"	"
West Brook	6/25-7/2 & 7/16-19 & 7/30-8/19	"
Tides Brook	"	"
Salmonier River (Burin)	"	"
Little St. Lawrence River	"	"
Lawn River	"	"
Taylors Bay River	"	"
Salmonier River (Lamaline)	"	"
Piercey's Brook	"	"

SFA 11 June 6 - 12 hook and release; June 13 - Aug 30 retention.

Grand Bank Brook	6/25-7/2 & 7/16-19 & 7/30-8/19	Low water levels & high water temperatures
Garnish River	"	"
Long Harbour River	6/29-7/6 & 7/16-19 & 7/30-8/14	"
Bay Du Nord River	7/16-22 & 7/30-8/19	"
Simmons Brook	6/25-7/2 & 7/16-22 & 7/30-8/19	"
Southwest Brook	"	"
Old Bay Brook	6/25-7/2 & 7/16-19 & 7/30-8/19	"
Taylors Bay Brook	"	"
Long Reach Brook	6/25 - 7/2 & 7/30 - 8/19	"
Allans Cove Brook	"	"
Bottom Brook	"	"
Hare Bay Rivers	"	"
Grey River	August 7 - 17	"
White Bear River	"	"
Bay De Loup River	"	"
Grandy's River	"	"
Cinq Cerf Brook	"	"
Kings Harbour River	"	"

Table 1. Cont'd

SFA 12 June 6 - 12 hook and release; June 13 - Aug 30 retention.

SFA 13 Bear Cove Brook: June 6 - September 7
Little Codroy & Grand Codroy: June 6 - 16 hook and release, June 20 - August 16 retention
Crabbes, Robinsons, Barachois, Fishells, & Flat Bay brooks: June 6 - September 7 hook and release only
Harry's River (to Home Pool): June 13 - September 7 hook and release only
Fox Island, Serpentine, Humber, Goose Arm, & Hughes: June 6 - September 7 hook and release only
Adies Lake (Humber River): June 6 - July 26 retention
Variations:

River	Close dates	Reason for closure
Little Codroy River	August 6 - 14	Low water levels & high water temperatures
Grand Codroy River	"	"
Crabbes River	"	"
Barachois River	"	"
Robinsons River	"	"
Fishells River	"	"
Flat Bay Brook	"	"
Little Barachois Brook	"	"
South West & Bottom Brook	"	"
Harry's River	"	"
Fox Island River	August 3 hook & release only	Quota taken
	August 6 - 14	Low water levels & high water temperatures
Serpentine River	August 14 hook & release only	Quota taken

SFA 14A June 20 - September 7

Torrent River opened to retention	July 4	750 fish gone through fishway
Castor River	August 5 - 14	Low water levels & high water temperatures
St. Genevieve River	"	"
East River	"	"
Big Brook	"	"
Watsons Brook	"	"
Parker River	"	"
Bartletts River	"	"
East River (Pistolet Bay)	"	"
Upper Brook	"	"
Pinsents Brook	"	"

SFA 14B June 20 - Sept 13

Table 2. Atlantic salmon smolt-to-adult survival (back to the river) for Campbellton River (SFA 4), Northeast Brook, Trepassey, and Rocky River (SFA 9), Conne River (SFA 11), Highlands River (SFA 13), and Western Arm Brook (SFA 14A). Repeat spawners are included in counts.

	Campbellton River			Northeast Brook			Rocky River			Conne River[1]			Highlands River			Western Arm Brook		
Year	Smolts	Sm. sal.	%	Smolts	Sm. sal.	%	Smolts	Sm. sal.	%	Smolts	Sm. sal.	%	Smolts	Sm. sal.	%	Smolts	Sm. sal.	%
(i)	year i	year i + 1	Surv.	year i	year i + 1	Surv.	year i	year i + 1	Surv.	year i	year i + 1	Surv.	year i	year i + 1	Surv.	year i	year i + 1	Surv.
1971																5735	406	7.1
1972																11905	797	6.7
1973																8484	506	6.0
1974																11854	639	5.4
1975																9600	552	5.8
1976																6232	373	6.0
1977																9899	315	3.2
1978																13071	1578	12.1
1979																8349	465	5.6
1980																15665	492	3.1
1981																13981	467	3.3
1982																12477	1141	9.1
1983																10552	235	2.2
1984																20653	467	2.3
1985																13417	527	3.9
1986				1117	91	8.1										17719	437	2.5
1987				1404	97	6.9				74585	7627	10.2				17029	422	2.5
1988				1692	62	3.7				65692	4968	7.6				15321	455	3.0
1989				1708	71	4.2				73724	5368	7.3				11407	444	3.9
1990				1902	99	5.2	8287	211	2.5	56943	2411	4.2				10563	233	2.2
1991				1911	49	2.6	7732	237	3.1	74645	2523	3.4				13453	480	3.6
1992				1674	79	4.7	7813	292	3.7	68208	2703	4.0				15405	947	6.1
1993	31577	2857	9.0	1849	99	5.4	***5115***	158	3.1	55765	1533	2.7	9986	145	1.5	13435	954	7.1
1994	41633	3035	7.3	944	80	8.5	9781	385	3.9	60762	3502	5.8	10503	172	1.6	9284	823	8.9
1995	39715	3208	8.1	792	73	9.2	***7577***	356	4.7	57733 *	4440	7.2	12160	199	1.6	15144	1230	8.1
1996	58369	1975	3.4	1749	50	2.9	***14261***	435	3.1	94088	3200	3.4	12383	398	3.2	14500	509	3.5
1997	62050	3279	5.3	1829	91	5.0	***16900***	410	2.4	100983	2931	2.9	6776	96	1.4	23845	1786	7.5
1998	50441			1727			***12163***			69841			5922			17139		

[1]Includes Native food fishery.

* 5016 removed to Roti Bay.

The 4440 small salmon for Conne River 1996 includes 286 fish from the wild smolt aquaculture experiment.

Table 3. Counts of small salmon from fishways and counting fences in insular Newfoundland 1974-98 by Salmon Fishing Area (SFA). Also shown are means , coefficients of variation , 95% confidence limits (LCL and UCL), and percentage change for 1998 in relation to 1997,1996 and the 1984-89, 1986-91, and 1992-97 means. Partial counts are in parentheses and are not included in statistical calculations. Adusted counts are bold and in italics.

	SFA 3	SFA 4				SFA 5					SFA 9		SFA 10	SFA 11		SFA 13			SFA 14A		
Year	1	2	3	4(a)	4(b)	5	6	7(a)	7(b)	8	9	10	11	12	13	14	15	16	17	18	19
1974		2538		857			(770)		162				223						41	38	382
1975		9218					(1119)		778				(186)						1	191	631
1976		3991							335				294						132	341	520
1977		6148							371										192	789	362
1978		3790		755			1403	810	436				390						117	971	293
1979		6715		(404)			(1350)	569	455				454						195	1984	1578
1980				997			1712	843	420				433			82			301	792	435
1981		(8114)		2459			2414	1115	619				334			127			110	2101	451
1982		(7605)		1425			1281	963	625				86			100			275	2112	394
1983				978			1195	1210	853				233						220	2007	1141
1984		17219		1081			1379	1233	904		89		419						440	1805	120
1985		16652		1663			904	1557	960		124		384						190	1553	***416***
1986		9697		1064			1036	1051	726		158		725		7515				354	2815	***525***
1987		9014		493			914	974	570		91	80	325	64	9687				355	2505	378
1988		8974		1562			772	1737	795		97	313	543	65	7118				437	2075	***251***
1989		7192		596	7743		496	1138	668		62	168	706	102	4469					1369	***455***
1990		6629		***345***	7520		745	1149	(410)		71	401	551	158	4321			12216		2296	***444***
1991		5245		245	6445		562	873	(311)		99	211	353	55	2086			5724		1441	233
1992		12538		1168	***18179***		1182	1443	886		49	237	921	104	1973		222	17571	435	2347	480
1993		21319	4001	1560	25905		1959	(2713)	962		79	292	847	169	2355	137	576	18477	526	4009	947
1994		16168	2857	968	18080		1513	1571	1179		99	158	677	73	1533	145	562	7995	701	3592	954
1995		15691	3035	1600	22002		1139	2258	1298	442	80	385	663	118	3498	172	753	27898	1003	5800	823
1996	579	29726	3208	946	23665		1751	2005	1285	593	73	356	1225	674	4436	199	601	30445	601	6923	1230
1997	(338)	13552	1975	465	10476	1375	1221	1577	979	(408)	50	435	641	399	2678	398	613	14866	783	3659	509
1998	(351)	26333	3275	1295	18742	2636	2405	1780	1332	540	91	423	756	264	2931	96	593	10040	542	4999	1718
$\bar{X}$ 1984-89		11458		1077			917	1282	771		104	187	517	77	7197				355	2020	358
CV		38		45			32	24	19		32	63	33	28	30				29	28	41
95% UCL		16000		1580			1223	1598	924		138	479	695	131	10603				481	2606	513
95% LCL		6916		573			610	965	617		69	-105	339	23	3791				229	1434	202
N		6		6			6	6	6		6	3	6	3	4				5	6	6
$\bar{X}$ 1986-91		7792		718	7236		754	1154	690		96	235	534	89	5866				382	2084	381
CV		22		70	10		27	26	14		35	53	32	48	47				12	28	31
95% UCL		9593		1244	8960		969	1473	841		132	390	711	142	8741				500	2692	504
95% LCL		5991		191	5512		540	835	538		61	79	356	36	2991				264	1475	258
N		6		6	3		6	6	4		6	5	6	5	6				3	6	6
$\bar{X}$ 1992-97		18166	3015	1118	19718		1461	1928	1098		72	311	829	256	2746	210	555	19542	675	4388	824
CV		35	24	38	28		23	26	16		27	33	27	92	39	51	32	43	30	38	35
95% UCL		24914	3918	1565	25458		1816	2446	1285		92	418	1064	504	3861	344	740	28310	887	6138	1126
95% LCL		11418	2112	670	13978		1105	1410	911		51	203	594	9	1630	76	369	10774	462	2639	522
N		6	5	6	6		6	6	6		6	6	6	6	6	5	6	6	6	6	6
% change, 1998 vs:																					
1996	-39	-11	2	37	-21		37	-11	4	-9	25	19	-38	-61	-34	-52	-1	-67	-10	-28	40
1997	4	94	66	178	79	92	97	13	36	32	82	-3	18	-34	9	-76	-3	-32	-31	37	238
$\bar{X}$ 1984-89		130		20			162	39	73		-12	126	46	243	-59				53	147	381
$\bar{X}$ 1986-91		238		80	159		219	54	93		-6	80	42	197	-50				42	140	351
$\bar{X}$ 1992-97		45	9	16	-5		65	-8	21		27	36	-9	3	7	-54	7	-49	-20	14	109

1. Main River (Sop's Arm) counting fence
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14. Highlands River counting fince
15. Pinchgut Brook counting fence
16. Humber River mark-recapture
17. Lomond River fishway
18. Torrent River fishway
19. Western Arm Brook counting fence

Table 4. Counts of large salmon from fishways and counting fences in insular Newfoundland 1974-98 by Salmon Fishing Area (SFA). Also shown are means , coefficients of variation , 95% confidence limits (LCL and UCL) and percentage change for 1998 in relation to 1997, 1996 and the 1984-89, 1986-91, and 1992-97 means. Partial counts are in parentheses and are not included in statistical calculations. Adjusted counts are bold and in italics.

	SFA 3	SFA 4				SFA 5					SFA 9		SFA 10	SFA 11		SFA 13			SFA 14A		
Year	1	2	3	4(a)	4(b)	5	6	7(a)	7(b)	8	9	10	11	12	13	14	15	16	17	18	19
1974		411		9			(77)		121				9						33	3	4
1975		1439					(9)		52				(36)						0	25	1
1976		460							37				56						11	47	0
1977		581							262										11	33	3
1978		303		52			16	20	89				32						12	21	1
1979		277		(6)			(54)	170	30				37						1	39	0
1980				15			91	39	17				34			55			19	63	3
1981		(1695)		33			39	90	28				62			29			50	97	1
1982		(181)		18			20	19	8				36			56			16	523	3
1983				12			75	57	76				22						7	442	4
1984		529		38			57	107	98		33		44						47	288	0
1985		183		26			27	112	60		41		0						14	30	1
1986		355		12			15	140	58		30		39		397				32	92	0
1987		310		9			19	56	38		30	1	16	3	498				11	68	1
1988		147		24			14	206	45		19	6	11	3	418				21	44	1
1989		89		24	473		19	142	51		18	9	15	5	319					60	0
1990		122		***8***	508		13	144	(34)		9	17	25	15	361			855		82	0
1991		99		2	670		14	114	(26)		13	16	8	6	87			401		71	1
1992		314		101	***4162***		43	270	224		10	46	46	21	154		5	2945	80	169	8
1993		627	145	87	1734		87	(470)	173		17	72	65	11	98	78	43	636	34	222	8
1994		916	191	83	1072		90	242	172		15	19	70	11	100	148	47	1030	50	331	31
1995		941	218	125	1121		168	634	260	135	12	39	74	17	107	120	28	2064	95	611	33
1996	49	2053	560	112	1753		161	464	185	203	15	45	123	127	179	142	38	2679	93	507	50
1997	(65)	886	321	119	1883	352	262	527	173	(115)	9	89	185	79	182	157	68	2595	72	666	55
1998	(31)	1953	402	141	3649	336	196	390	143	104	11	130	287	49	294	117	63	3753	126	757	128
$\bar{X}$ 1984-89		269		22			25	127	58		29	5	21	4	408				25	97	1
CV		60		47			65	39	36		31	76	82	31	18				59	99	110
95% UCL		439		33			42	179	80		38	15	39	7	525				43	198	1
95% LCL		99		11			8	75	36		19	-5	3	1	291				7	-4	-0
N		6		6			6	6	6		6	3	6	3	4				5	6	6
$\bar{X}$ 1986-91		187		13	550		16	134	48		20	10	19	6	347				21	70	1
CV		62		68	19		17	36	18		44	69	60	78	41				49	24	110
95% UCL		308		23	811		18	185	62		29	18	31	13	494				47	87	1
95% LCL		66		4	289		13	83	34		11	1	7	0	199				-5	52	-0
N		6		6	3		6	6	4		6	5	6	5	6				3	6	6
$\bar{X}$ 1992-97		956	287	105	1954		135	435	198		13	52	94	44	137	129	38	1992	71	418	31
CV		62	58	16	58		58	35	18		24	48	55	108	29	25	55	48	34	50	65
95% UCL		1574	493	122	3145		217	593	236		16	78	148	95	178	168	60	2989	96	635	52
95% LCL		339	81	87	763		53	276	160		10	25	40	-6	95	90	16	994	45	200	10
N		6	5	6	6		6	6	6		6	6	6	6	6	5	6	6	6	6	6
% change, 1998 vs:																					
1996	-37	-5	-28	26	108		22	-16	-23	-49	-27	189	133	-61	64	-18	66	40	35	49	156
1997	-52	120	25	18	94	-5	-25	-26	-17	-10	22	46	55	-38	62	-25	-7	45	75	14	133
$\bar{X}$ 1984-89		626		536			679	207	145		-61	2338	1278	1236	-28				404	680	25500
$\bar{X}$ 1986-91		944		971	563		1151	192	198		-45	1227	1411	666	-15				491	989	25500
$\bar{X}$ 1992-97		104	40	35	87		45	-10	-28		-15	152	206	11	115	-9	65	88	78	81	315

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Table 5. Total returns of small salmon to rivers in insular Newfoundland 1984-98 by Salmon Fishing Area (SFA). Also shown are means and standard deviations for 1984-89, 1986-91, and 1992-96.

	SFA 4			SFA 5				SFA 9		SFA 10	SFA 11		SFA 13			SFA 14A		
Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1984	19028				1675	1534		89		459						986	1805	235
1985	17555				1283	2012		124		519						393	1623	467
1986	10343				1547	1459		158		879		8302				725	3155	527
1987	9481				1053	1404		91	80	350	64	10155				652	2670	437
1988	9496				1337	2114		97	313	637	65	7627				841	2388	422
1989	7577		7743		626	1377		62	168	809	102	4968				652	1512	455
1990	6995		7740		1070	1518		71	401	699	158	5368			12216	777	2518	444
1991	5659		6745		763	1127		99	211	368	55	2411			5724	731	1591	233
1992	13504		18179		1563	1780		49	237	956	104	2523		222	17571	794	2832	480
1993	22253	4001	26205		2247	3050		79	292	980	169	2703	137	576	18477	816	4215	947
1994	17603	2857	18273		1844	2035		99	158	710	73	1533	145	562	7995	1038	3827	954
1995	16230	3035	22266		1448	2638	498	80	385	774	118	3502	172	753	27898	1365	6168	823
1996	30429	3208	23946		2112	2575	593	73	356	1420	674	4440	199	601	30445	982	7371	1230
1997	15263	1975	10599	1439	1287	1800	466	50	435	723	399	3200	398	613	14866	1307	4033	509
1998	27094	3275	18805	2716	2549	1815	540	91	423	885	264	2931	96	593	10040	721	5249	1718
$\bar{X}$ 1984-89	12247				1254	1650		104	187	609	77	7763				708	2192	424
SD	4792				376	326		33	118	206	22	2148				200	653	99
$\bar{X}$ 1986-91	8259		7409		1066	1500		96	235	624	89	6472				730	2306	420
SD	1799		575		344	329		34	125	222	43	2765				73	640	99
$\bar{X}$ 1992-98	20339	3059	19753		1864	2242	524	74	327	921	257	2976	191	560	18185	1003	4814	952
SD	6429	659	5081		461	509	55	19	102	245	215	898	107	162	8429	253	1551	428

1. Exploits River (Bishop's Falls)
2. Campbellton River
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7. Northwest River, Port Blandford
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9. Rocky River
10. Northeast River, Placentia
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12. Conne River
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15. Humber River
16. Lomond River
17. Torrent River
18. Western Arm Brook

Table 6. Total returns of large salmon to rivers in insular Newfoundland 1984-98 by Salmon Fishing Area (SFA). Also shown are means and standard deviations for 1984-89, 1986-91, and 1992-96.

	SFA 4			SFA 5				SFA 9		SFA 10	SFA 11		SFA 13			SFA 14A		
Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1984	529				57	107		33		44						75	288	0
1985	183				27	112		41		0						14	30	1
1986	355				15	140		30		39		412				37	93	0
1987	310				19	56		30	1	16	3	516				12	68	1
1988	147				14	206		19	6	11	3	420				24	44	1
1989	89		473		19	142		18	9	15	5	320				22	60	0
1990	122		508		13	144		9	17	25	15	372			855	19	82	0
1991	99		670		14	114		13	16	8	6	89			401	21	71	1
1992	314		4162		43	270		10	46	46	21	159		5	2945	86	170	8
1993	627	145	1734		88	472		17	72	65	11	100	78	43	636	38	224	8
1994	916	191	1072		90	246		15	19	70	11	100	148	47	1030	56	332	31
1995	941	218	1121		168	638	135	12	39	74	17	110	120	28	2064	101	615	33
1996	2053	560	1753		161	472	203	15	45	123	127	179	142	38	2679	98	509	50
1997	881	321	1883	353	262	528	182	9	89	185	79	185	157	68	2595	77	674	55
1998	1958	402	3649	336	196	390	104	11	130	287	49	295	117	63	3753	128	766	128
$\bar{X}$ 1984-89	269				25	127		29	5	21	4	417				31	97	1
SD	162				16	50		9	4	17	1	80				23	96	1
$\bar{X}$ 1986-91	187		550		16	134		20	10	19	6	355				23	70	1
SD	115		105		3	49		9	7	11	5	145				8	17	1
$\bar{X}$ 1992-98	1099	306	2196		144	431	156	13	63	121	45	161	127	42	2243	83	470	45
SD	657	155	1218		75	140	45	3	37	87	44	69	29	21	1093	30	231	41

1. Exploits River (Bishop's Falls)
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15. Humber River
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18. Western Arm Brook

Table 7. Percentage change in total returns of small salmon in 1998 in relation to 1996, 1997, and the 1992-96 mean.

Counting Facility	Total Returns Small Salmon* 1998	Percent Change from 1997	1996	1992-96 mean
SFA 4				
Exploits River	27094	78	-11	35
Campbellton River	3275	66	2	-0
Gander River	18805	77	-21	-14
SFA 5				
Indian Bay Brook	2716	89		
Middle Brook	2549	98	21	38
Terra Nova River	1815	1	-30	-25
Northwest River (TNNP)	540	16	-9	-1
SFA 9				
Northeast Brook (Trep.)	91	82	25	20
Rocky River	423	-3	19	48
SFA 10				
Northeast River (Plac.)	885	22	-38	-9
SFA 11				
Little River	264	-34	-61	16
Conne River	2931	-8	-34	-0
SFA 13				
Highlands River	96	-76	-52	-41
Pinchgut Brook	593	-3	-1	9
Humber River	10040	-32	-67	-51
SFA 14A				
Lomond River	721	-45	-27	-28
Torrent River	5249	30	-29	8
Western Arm Brook	1718	238	40	94

*Preliminary

Table 8. Percentage change in total returns of large salmon in 1998 in relation to 1996, 1997, and the 1992-96 mean.

Counting Facility	Total Returns Large Sal.* 1998	Percent Change from 1997	1996	1992-96 mean
SFA 4				
Exploits River	1958	122	-5	102
Campbellton River	402	25	-28	44
Gander River	3649	94	108	85
SFA 5				
Indian Bay Brook	336	-5		
Middle Brook	196	-25	22	78
Terra Nova River	390	-26	-17	-7
Northwest River (TNNP)	104	-43	-49	-38
SFA 9				
Northeast Brook (Trep.)	11	22	-27	-20
Rocky River	130	46	189	194
SFA 10				
Northeast River (Plac.)	287	55	133	280
SFA 11				
Little River	49	-38	-61	31
Conne River	295	59	65	128
SFA 13				
Highlands River	117	-25	-18	-4
Pinchgut Brook	63	-7	66	96
Humber River	3753	45	40	101
SFA 14A				
Lomond River	128	66	31	69
Torrent River	766	14	50	107
Western Arm Brook	128	133	156	392

*Preliminary

Table 9. Proportions of large salmon in total returns to rivers in insular Newfoundland during 1992-98 and mean proportions for 1984-89, 1986-91, and 1992-96.

	Proportion of large salmon									
River Name	1992	1993	1994	1995	1996	1997	1998	84-89 mean	86-91 mean	92-96 mean
SFA 4										
Explotis River (Bishop's Falls)	0.023	0.027	0.049	0.055	0.063	0.055	0.067	0.021	0.022	0.046
Campbellton River	-	0.035	0.063	0.067	0.149	0.140	0.109	-	-	0.078
Gander River	0.186	0.062	0.055	0.048	0.068	0.151	0.163	-	-	0.083
SFA 5										
Indian Bay Brook	-	-	-	-	-	0.197	0.110	-	-	-
Middle Brook	0.027	0.038	0.047	0.104	0.071	0.169	0.071	0.020	0.014	0.056
Terra Nova River	0.132	0.134	0.108	0.195	0.155	0.227	0.177	0.072	0.082	0.148
Northwest River (Port Blandford)	-	-	-	0.213	0.255	0.281	0.161	-	-	0.237
SFA 9										
Northeast Brook (Trepassey)	0.169	0.177	0.132	0.130	0.170	0.153	0.108	0.216	0.171	0.154
Rocky River	0.163	0.198	0.107	0.092	0.112	0.170	0.235	-	0.040	0.134
SFA 10										
Northeast River (Placentia)	0.046	0.062	0.090	0.087	0.080	0.204	0.245	0.033	0.030	0.072
SFA 11										
Little River	0.168	0.061	0.131	0.126	0.159	0.165	0.157	-	0.067	0.141
Conne River	0.059	0.036	0.061	0.030	0.039	0.055	0.091	-	0.052	0.042
SFA 13										
Highlands River	-	0.363	0.505	0.411	0.416	0.283	0.549	-	-	0.428
Pinchgut Brook	0.022	0.069	0.077	0.036	0.059	0.100	0.096	-	-	0.056
Humber River	0.144	0.033	0.114	0.069	0.081	0.149	0.272	-	-	0.084
SFA 14A										
Lomond River	0.098	0.044	0.051	0.069	0.091	0.056	0.151	0.042	0.030	0.071
Torrent River	0.057	0.050	0.080	0.091	0.065	0.143	0.127	0.042	0.029	0.070
Western Arm Brook	0.016	0.008	0.031	0.039	0.039	0.098	0.069	0.001	0.001	0.028

Table 10. Newfoundland Region summary of the conservation egg requirement attained for various rivers during the five-year period prior to the commercial salmon fishing moratorium (1987-91) and the seven years during the moratorium (1992-98).

		Year											
SFA	River	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
4	Exploits River												
	-Lower	65	61	48	47	31	101	157	103	121	210	88	192
	-Middle	9	12	14	12	15	20	23	18	24	43	19	43
	-Upper	97	125	119	88	0.3	2	6	7	12	26	10	6
	Campbellton River							311	239	279	304	200	317
	Gander River			44	38	36	118	128	91	95	124	62	113
5	Indian Bay Brook											106	175
	Middle Brook	90	55	49	74	51	148	238	174	114	250	196	306
	Terra Nova River	14	28	19	19	15	28	53	26	45	36	32	32
	Northwest River									37	55	46	42
9	Northeast Brook, Trepassey	227	213	173	156	249	126	193	239	194	196	135	218
	Rocky River	22	30	17	40	22	28	34	25	56	34	56	54
10	Northeast River, Placentia	166	247	302	269	175	555	527	434	422	736	486	632
11	Conne River*	214	159	103	112	51	51	61	40	81	112	70	83
	Little River**	51	30	61	105	47	45	80	37	56	288	202	50
13	Harrys River						12	37	46	48	52	50	49
	Highlands River							46	77	67	79	105	59
	Humber River				60	27	117	96	40	128	186	115	88
	Crabbes Brook						34	13	41	-	68	95	44
14A	Lomond River	56	70	61	62	64	121	118	142	187	143	161	151
	Torrent River	201	266	225	221	176	314	538	530	1033	1279	797	924
	Western Arm Brook	103	67	142	114	68	151	288	292	286	415	200	625

*Conne River is evaluated against a Management Target which is higher than the corresponding conservation egg requirement.

**Colonization program at Little River. Eggs removed from most adult returns, incubated, and fry subsequently stocked into the system. Conservation requirement achieved includes natural egg deposition and fry stocking egg equivalents.

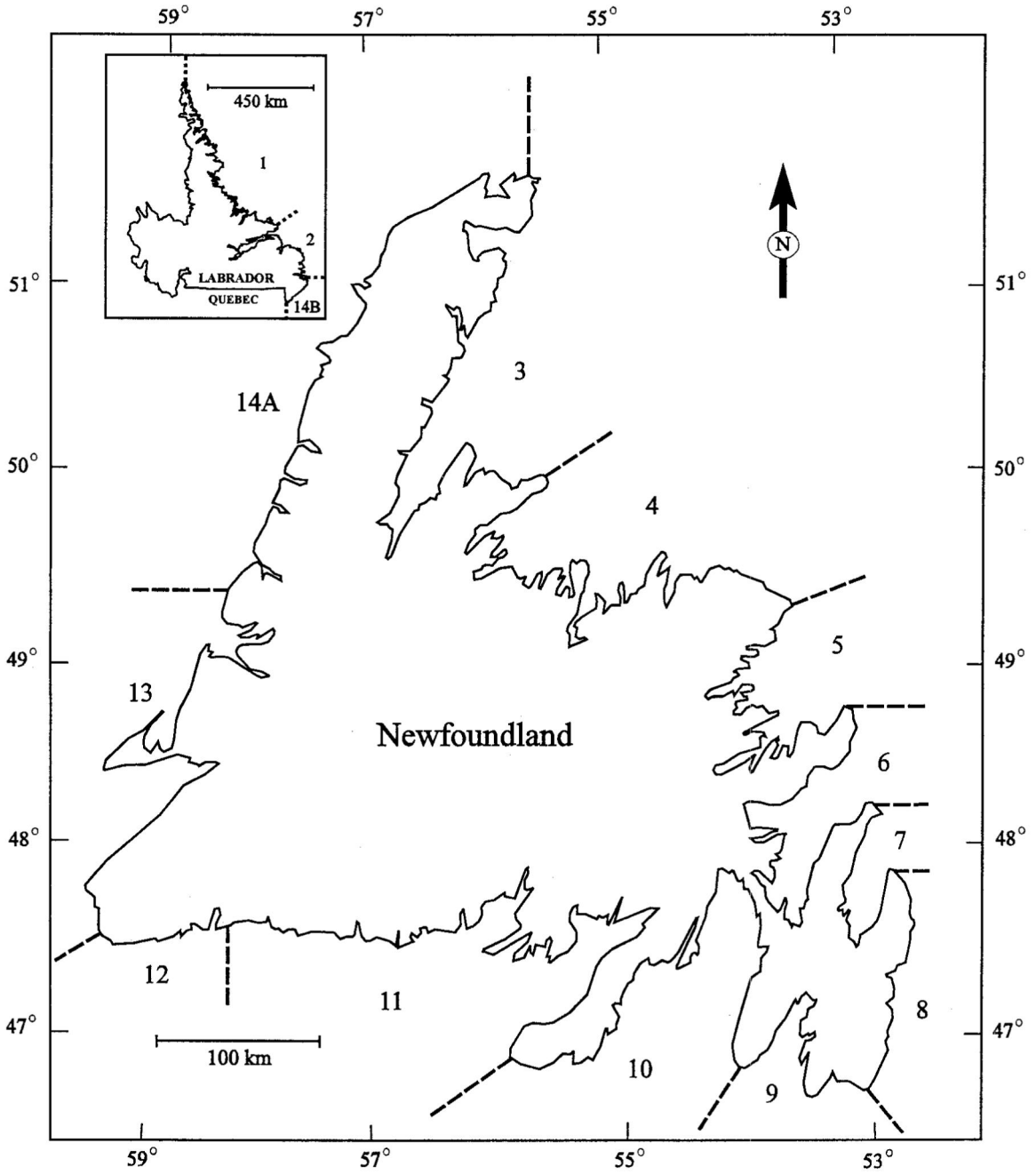

Fig. 1. Map showing the 14 Salmon Fishing Areas of the Newfoundland Region.

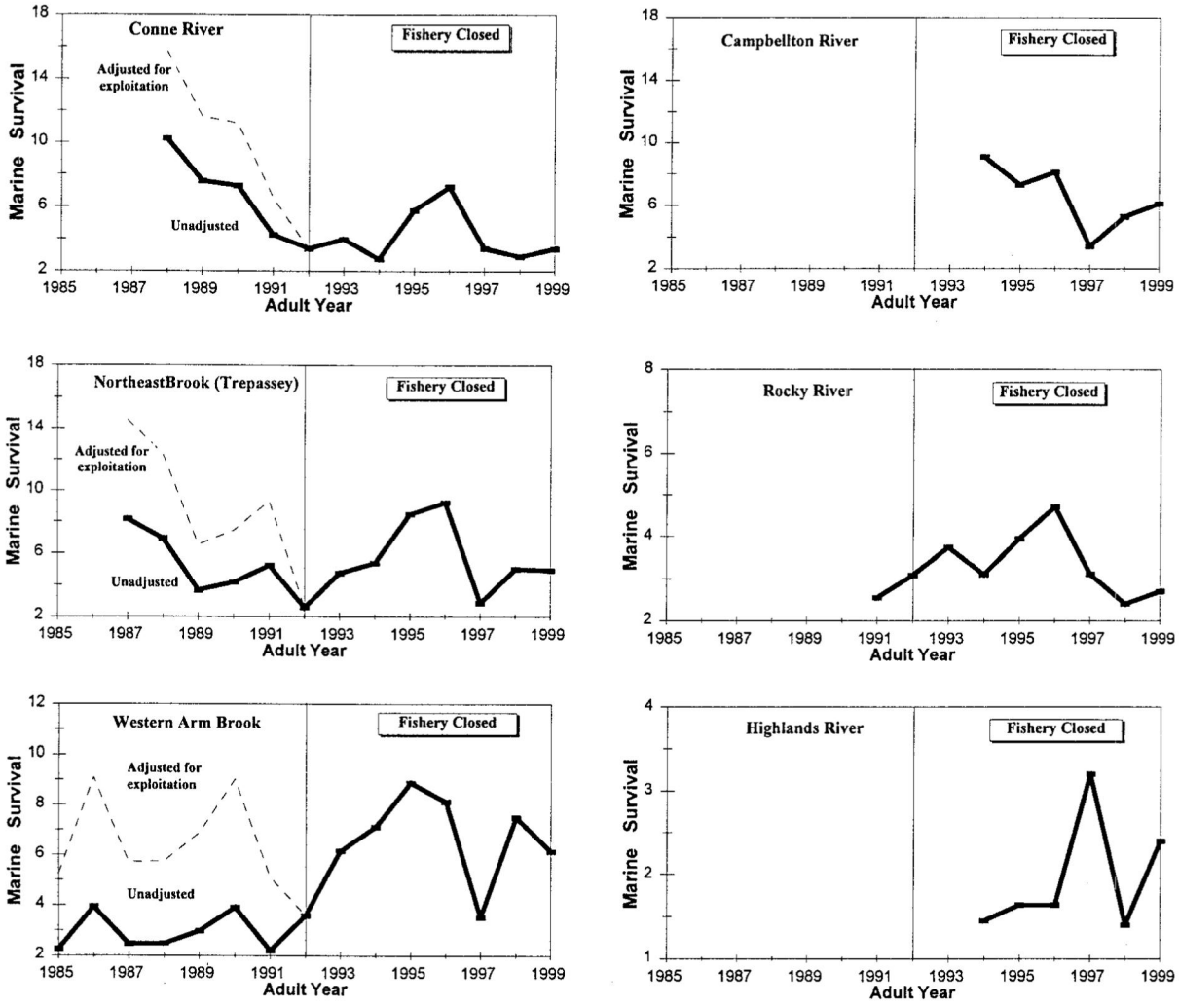

Fig. 2. Estimates of marine survival from smolts in year i to adult small salmon in year i+1. Dashed line represents marine survival adjusted for average marine exploitation rate (from Dempson *et al.* MS 1998).

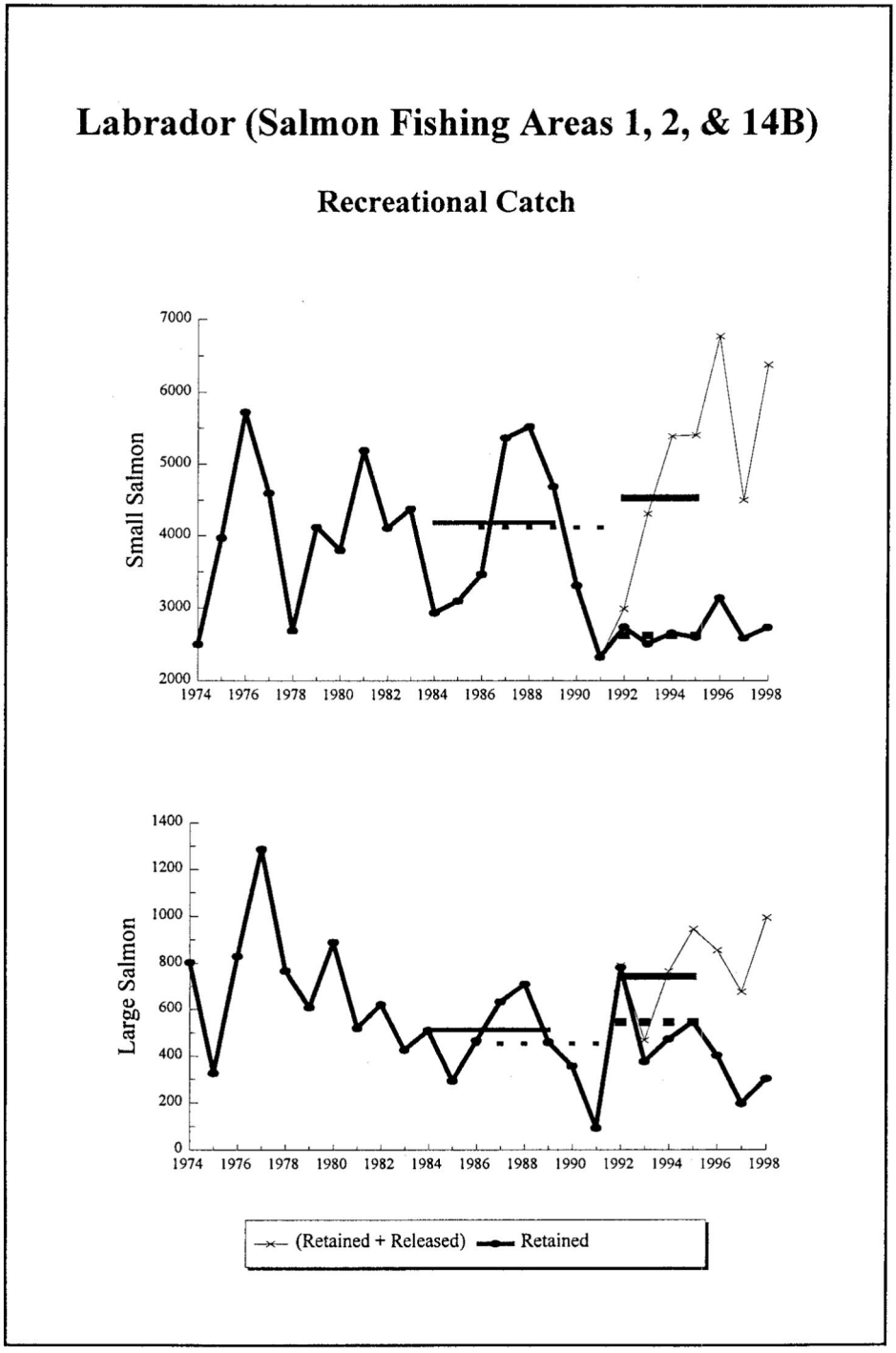

Fig. 3. Recreational catch of small and large salmon (retained, 1974-98; retained plus released, 1992-98), for Labrador (SFAs 1, 2 & 14B). The thin solid horizontal line represents the 1984-89 mean, the thin broken horizontal line the 1986-91 mean, the thick solid line the 1992-95 mean (retained + released) and the thick broken line the 1992-95 mean (retained only). Data for 1996-98 are a combination of license stub return data (SFA 14B) and DFO data (SFA's 1 & 2).

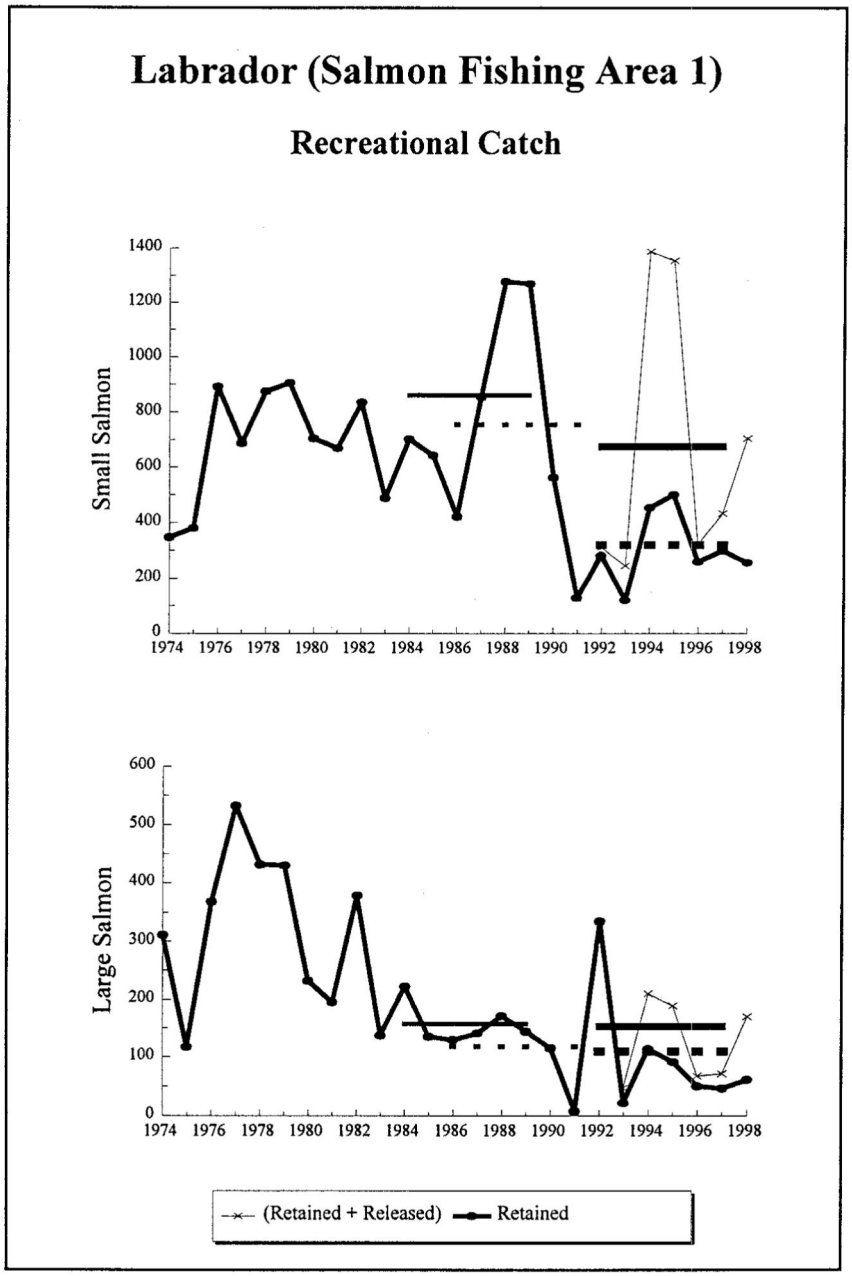

Fig. 4. Recreational catch of small and large salmon (retained, 1974-98; retained plus released, 1992-98), for Labrador (SFA 1). The thin solid horizontal line represents the 1984-89 mean, the thin broken horizontal line the 1986-91 mean, the thick solid line the 1992-97 mean (retained + released) and the thick broken line the 1992-97 mean (retained only).

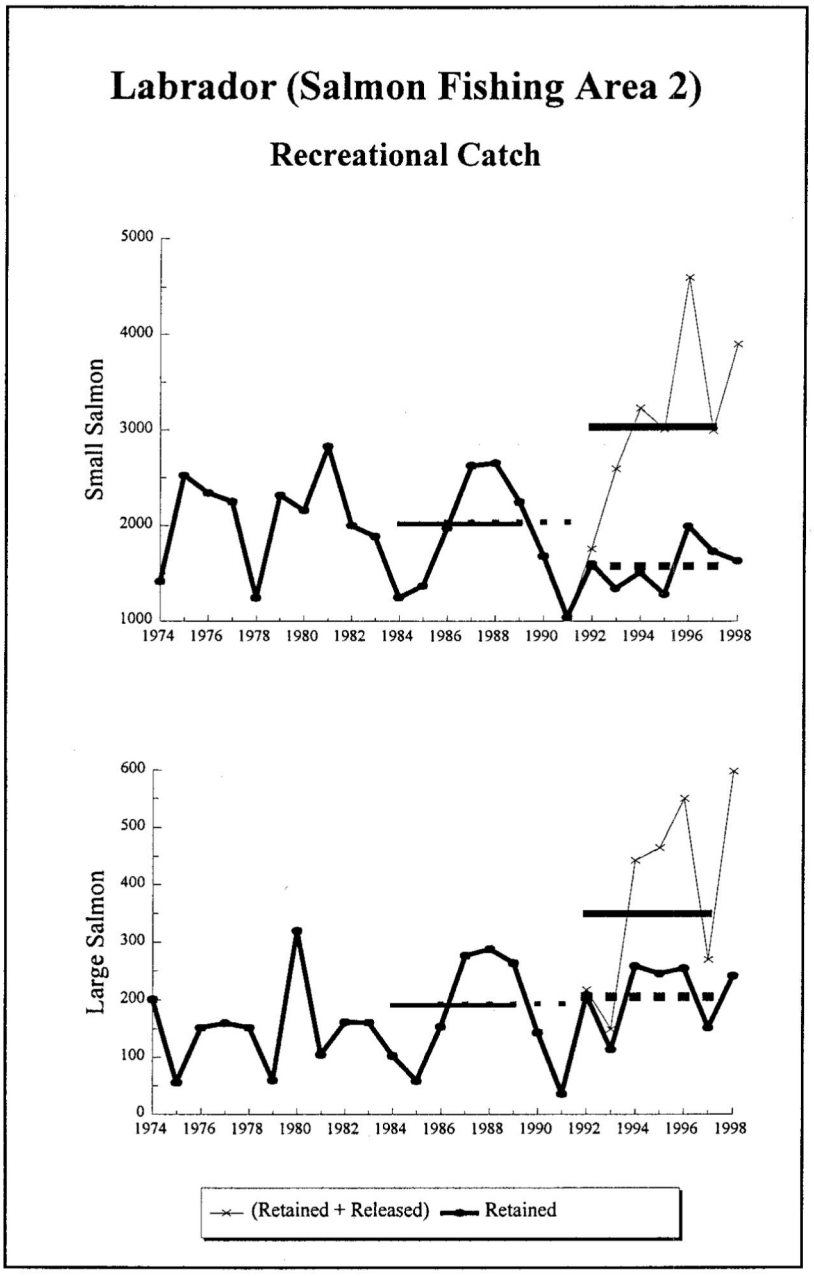

Fig. 5. Recreational catch of small and large salmon (retained, 1974-98; retained plus released, 1992-98), for Labrador (SFA 2). The thin solid horizontal line represents the 1984-89 mean, the thin broken horizontal line the 1986-91 mean, the thick solid line the 1992-97 mean (retained + released) and the thick broken line the 1992-97 mean (retained only).

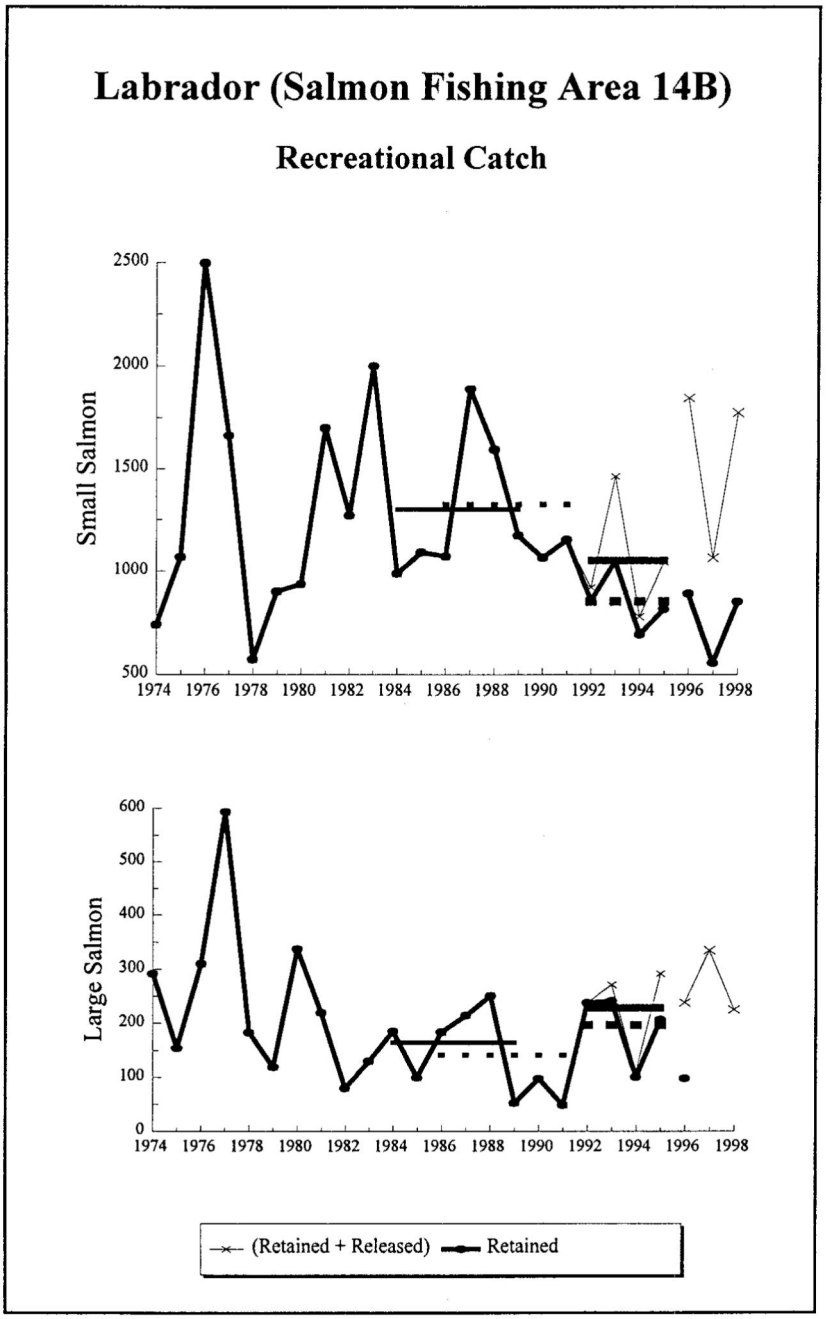

Fig. 6. Recreational catch of small and large salmon (retained, 1974-98; retained plus released, 1992-98), for Labrador (SFA 14B). The thin solid horizontal line represents the 1984-89 mean, the thin broken horizontal line the 1986-91 mean, the thick solid line the 1992-95 mean (retained + released) and the thick broken line the 1992-95 mean (retained only). The 1996-98 data, obtained from the license stub return, are represented by a non-continuous line.

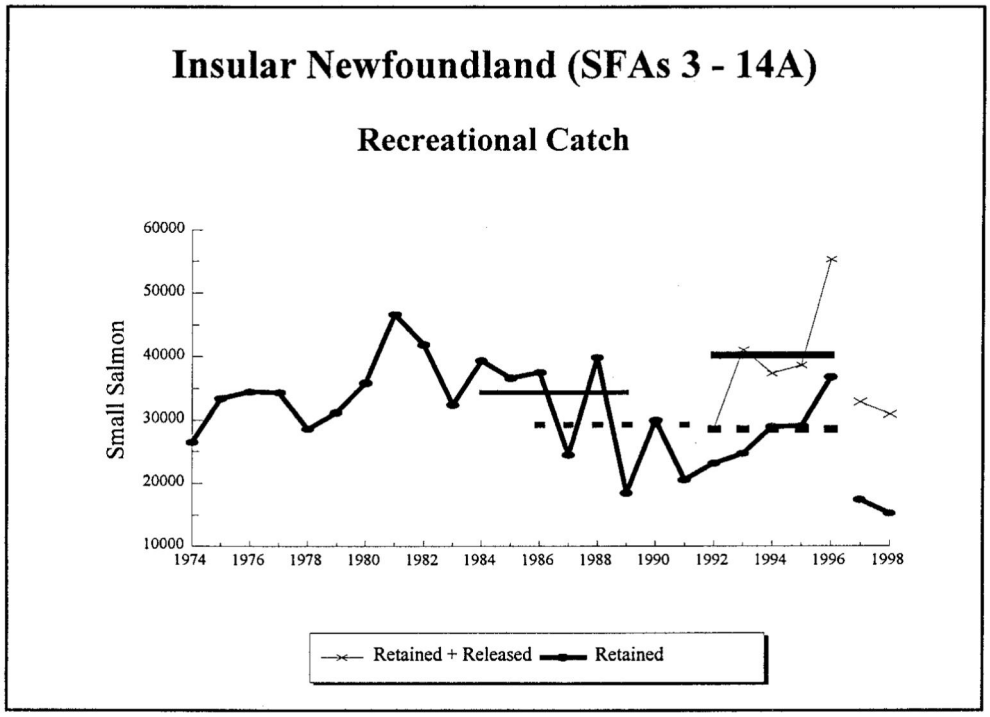

Fig. 7. Recreational catch of small salmon (retained, 1974-98; retained plus released, 1992-98), for Insular Newfoundland (SFAs 3-14A). The thin solid horizontal line represents the 1984-89 mean, the thin broken horizontal line the 1986-91 mean, the thick solid line the 1992-96 mean (retained + released) and the thick broken line the 1992-96 mean (retained only). For some rivers in SFAs 12 & 13, 1996, where DFO data were unavailable, license stub return data were used. The 1997-98 catch data, obtained from the license stub return, are represented by a non-continuous line.

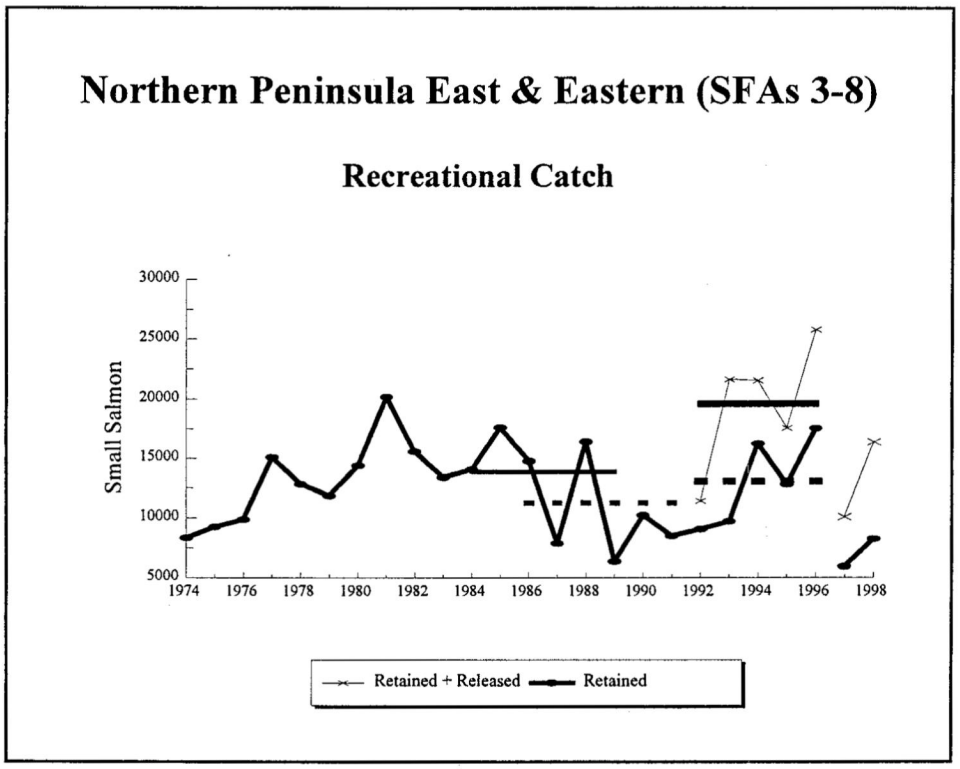

Fig. 8. Recreational catch of small salmon (retained, 1974-98; retained plus released, 1992-98), for Northern Peninsula East & Eastern (SFAs 3-8). The thin solid horizontal line represents the 1984-89 mean, the thin broken horizontal line the 1986-91 mean, the thick solid line the 1992-96 mean (retained + released) and the thick broken line the 1992-96 mean (retained only). The 1997-98 catch data, obtained from the license stub return, are represented by a non-continuous line.

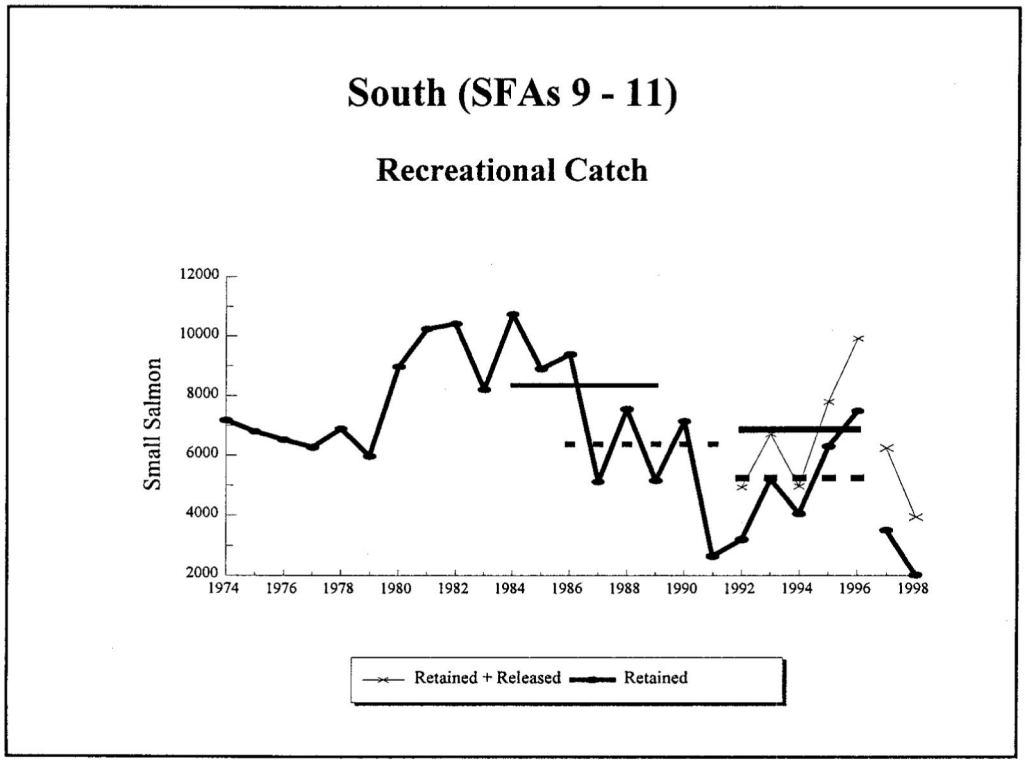

Fig. 9. Recreational catch of small salmon (retained, 1974-98; retained plus released, 1992-98), for South (SFAs 9-11). The thin solid horizontal line represents the 1984-89 mean, the thin broken horizontal line the 1986-91 mean, the thick solid line the 1992-96 mean (retained + released) and the thick broken line the 1992-96 mean (retained only). The 1997-98 catch data, obtained from the license stub return, are represented by a non-continuous line.

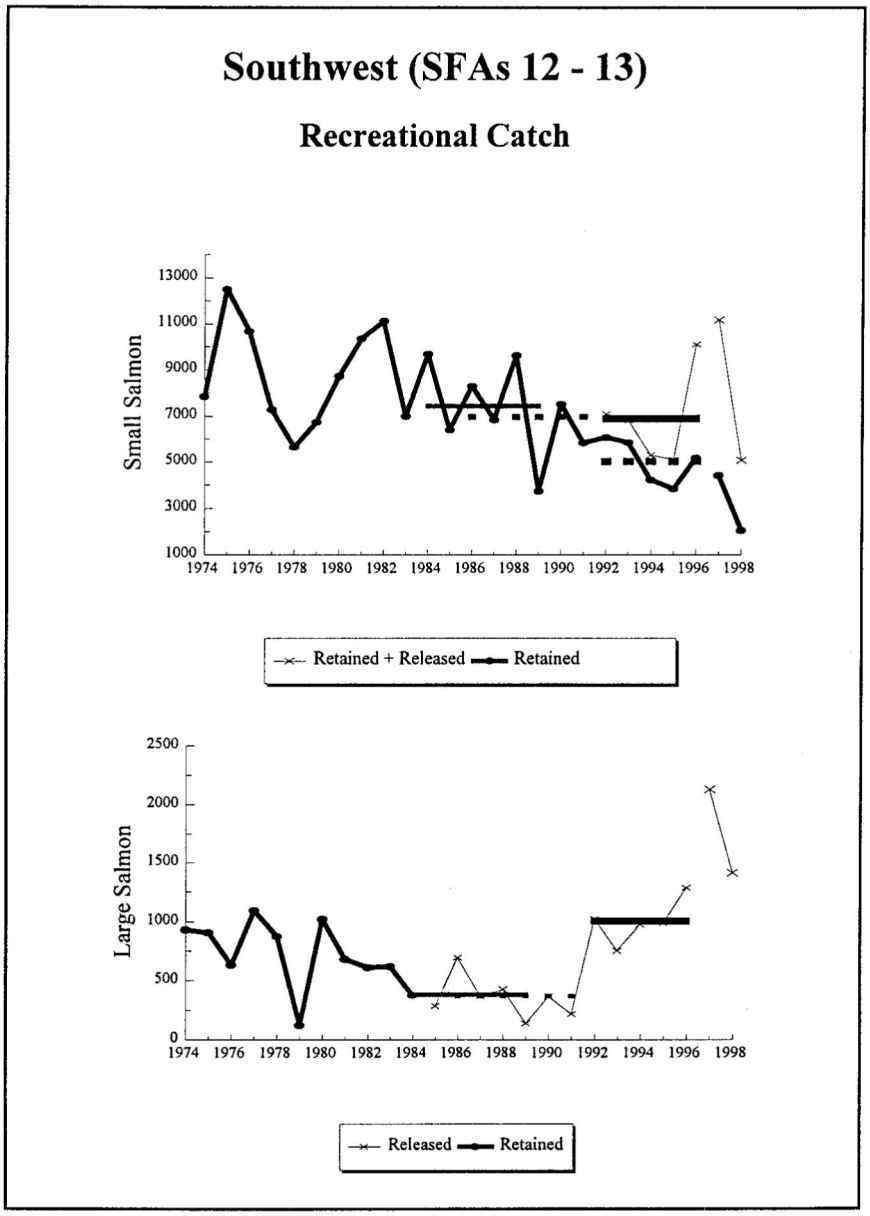

Fig. 10. Recreational catch of small salmon (retained, 1974-98; retained plus released, 1992-98), for Southwest (SFAs 12 - 13). The catch of large salmon prior to 1985 is retained and for 1985-98 is released. The thin solid horizontal line represents the 1984-89 mean, the thin broken horizontal line the 1986-91 mean, the thick solid line the 1992-96 mean (retained + released) and the thick broken line the 1992-96 mean (retained only). The 1997-98 catch data, obtained from the licnese stub return, are represented by a non-continuous line.

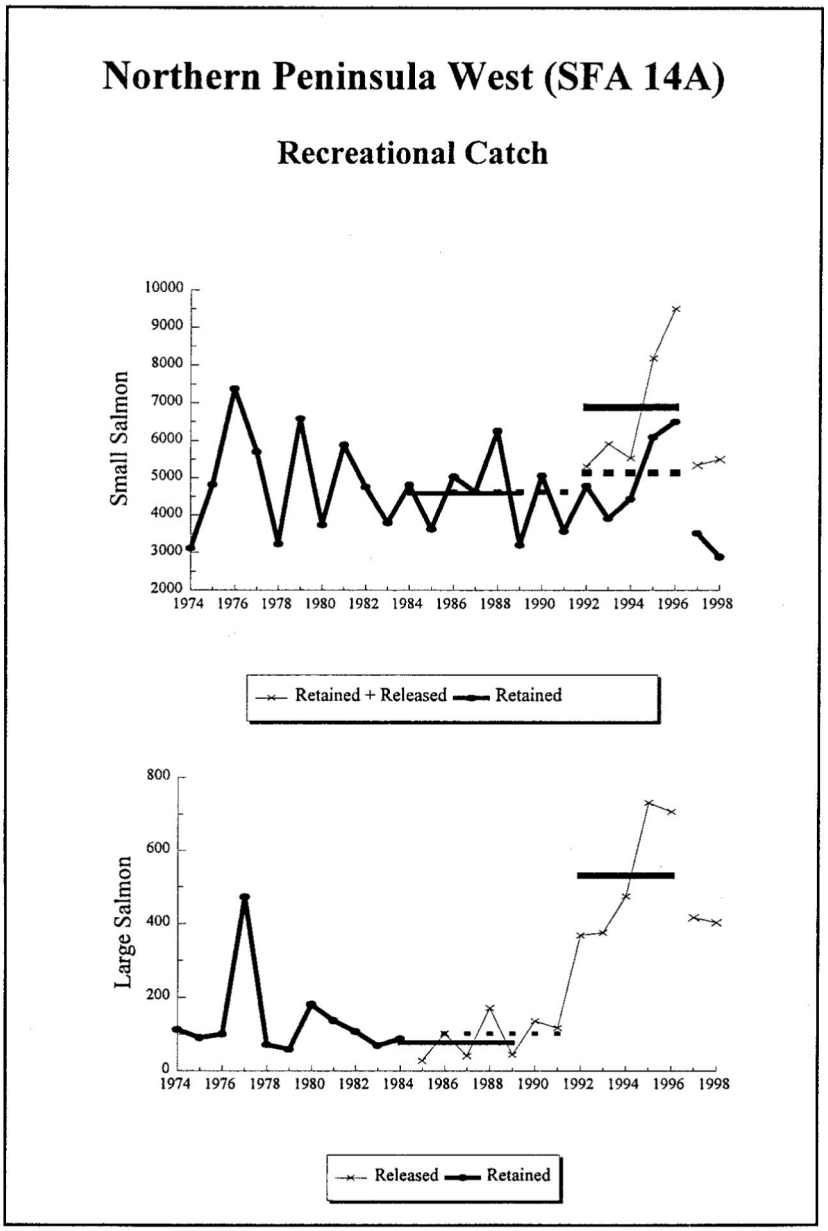

Fig. 11. Recreational catch of small salmon (retained, 1974-98; retained plus released, 1992-98), for Northern Peninsula West (SFA 14A). The catch of large salmon prior to 1985 is retained and for 1985-98 is released. The thin solid horizontal line represents the 1984-89 mean, the thin broken horizontal line the 1986-91 mean, the thick solid line the 1992-96 mean (retained + released) and the thick broken line the 1992-96 mean (retained only). The 1997-98 catch data, obtained from the license stub return, are represented by a non-continuous line.

Salmon Fishing Area 4
Total Returns - Small Salmon

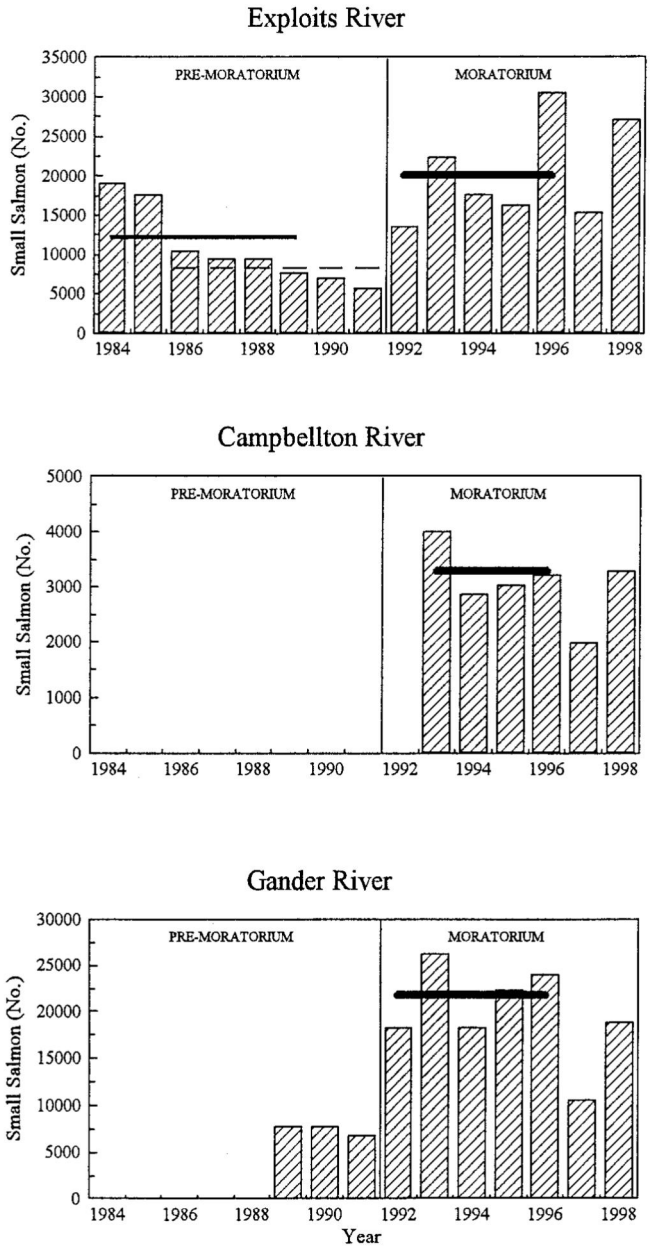

Fig. 12. Total returns of small salmon to Exploits River, Campbellton River and Gander River (SFA 4), 1984-98. The thin solid horizontal line represents the 1984-89 mean, the broken line the 1986-91 mean, and the thick solid line the 1992-96 mean.

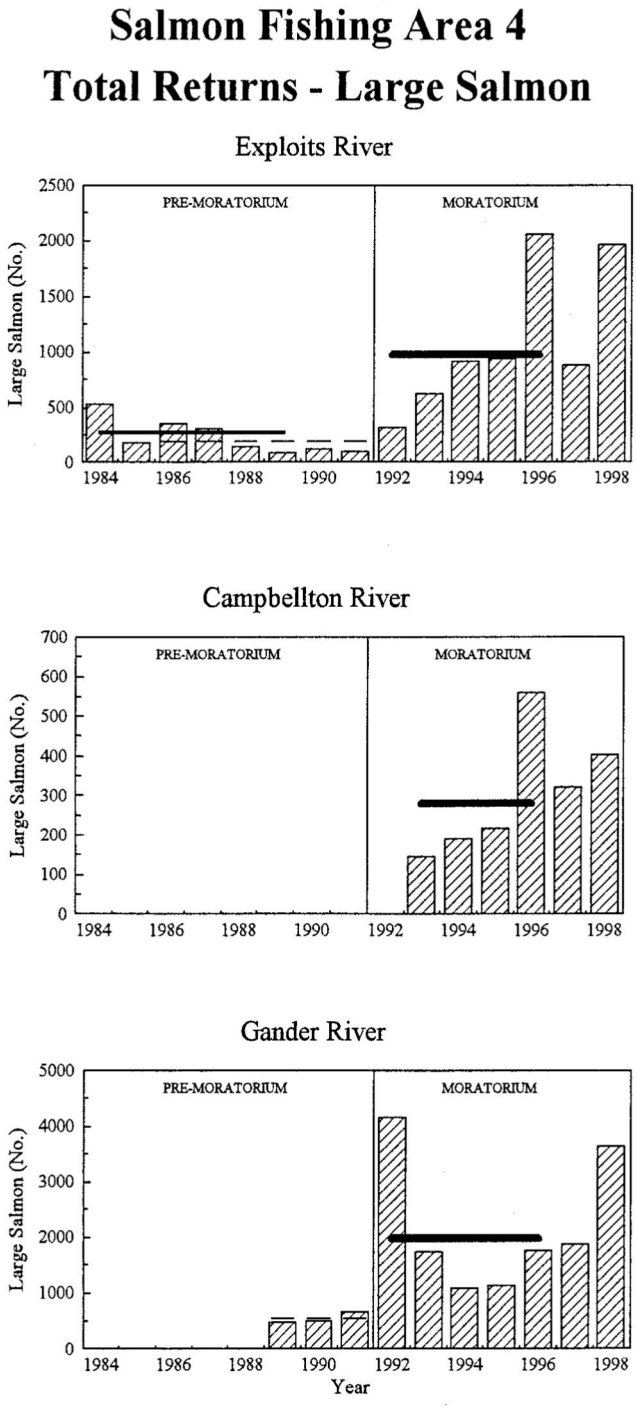

Fig. 13. Total returns of large salmon to Exploits River, Campbellton River and Gander River (SFA 4), 1984-98. The thin solid horizontal line represents the 1984-89 mean, the broken line the 1986-91 mean, and the thick solid line the 1992-96 mean.

Salmon Fishing Area 4

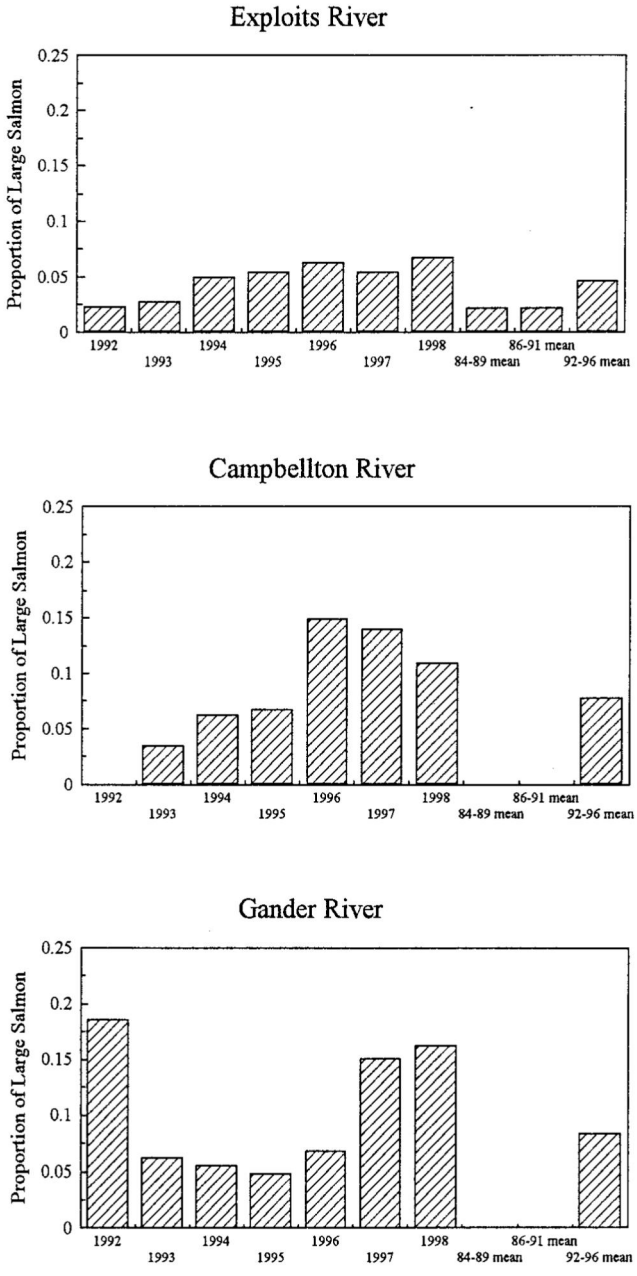

Fig. 14. Proportion of large salmon in total returns for Exploits River (Bishop's Falls), Campbellton River and Gander River, SFA 4, 1992-98, and the 1984-89, 1986-91, and 1992-96 means.

Salmon Fishing Area 5
Total Returns - Small Salmon

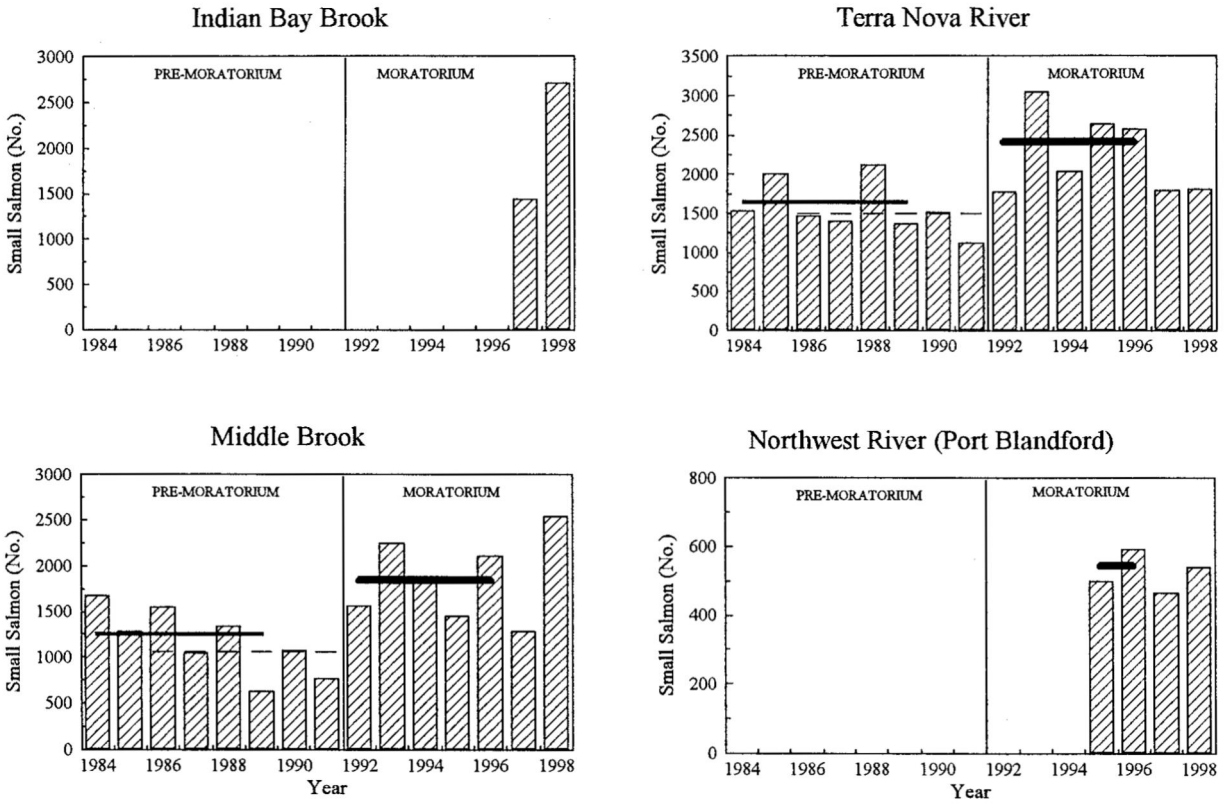

Fig. 15. Total returns of small salmon to Indian Bay Brook, Middle Brook, Terra Nova River and Northwest River (SFA 5), 1984-98. The thin solid horizontal line represents the 1984-89 mean, the broken line the 1986-91 mean, and the thick solid line the 1992-96 mean.

Salmon Fishing Area 5
Total Returns - Large Salmon

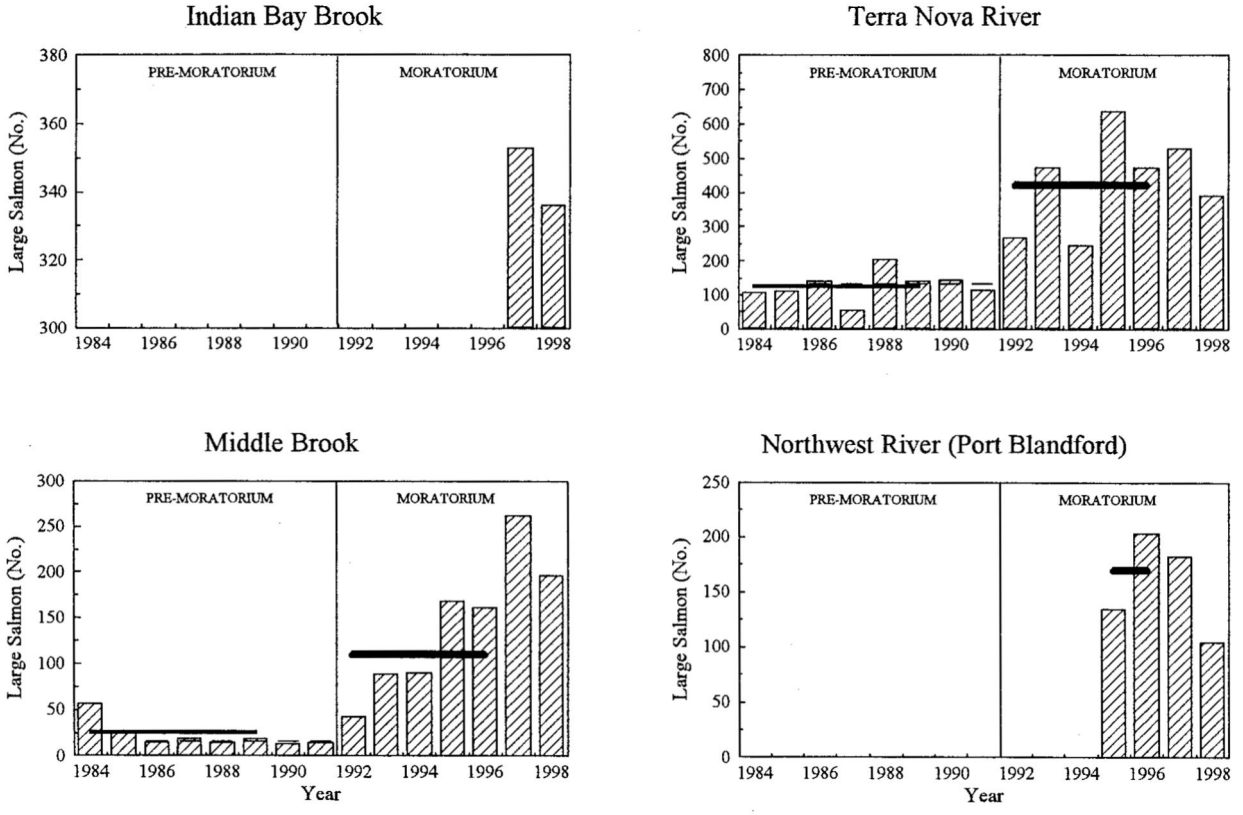

Fig. 16. Total returns of large salmon to Indian Bay Brook, Middle Brook, Terra Nova River and Northwest River (SFA 5), 1984-98. The thin solid horizontal line represents the 1984-89 mean, the broken line the 1986-91 mean, and the thick solid line the 1992-96 mean.

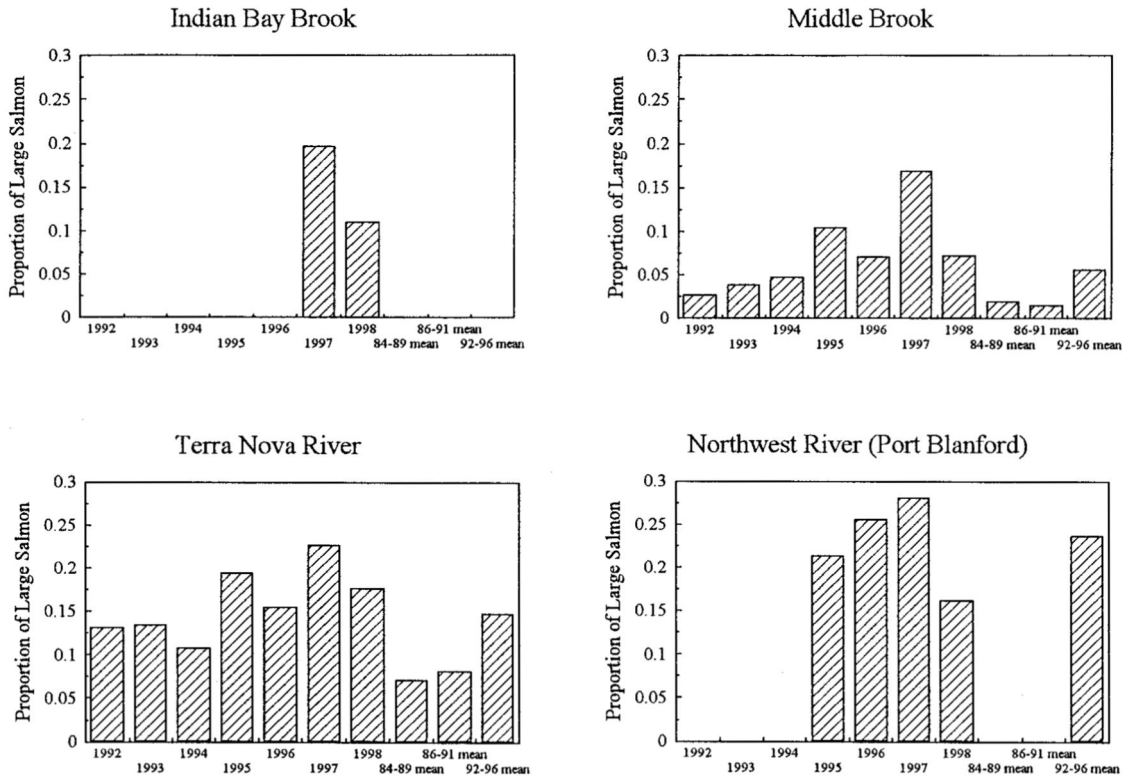

Fig. 17. Proportion of large salmon in total returns for Indian Bay Brook, Middle Brook, Terra Nova River and Northwest River (Port Blandford), SFA 5, 1992-98, and the 1984-89, 1986-91, and 1992-96 means.

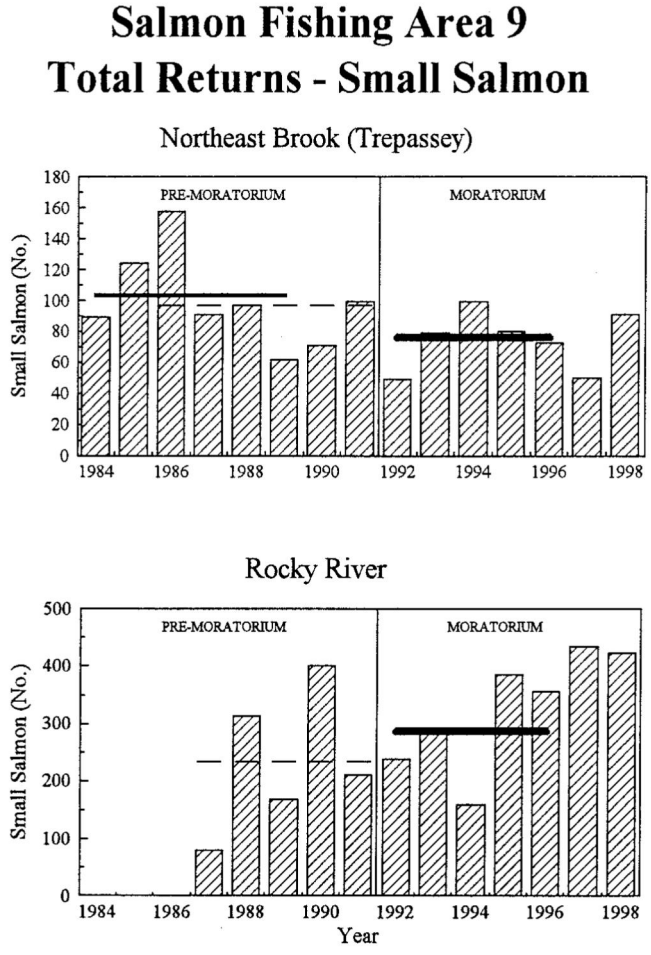

Fig. 18. Total returns of small salmon to Northeast Brook (Trepassey) and Rocky River (SFA 9), 1984-98. The thin solid horizontal line represents the 1984-89 mean, the broken line the 1986-91 mean, and the thick solid line the 1992-96 mean.

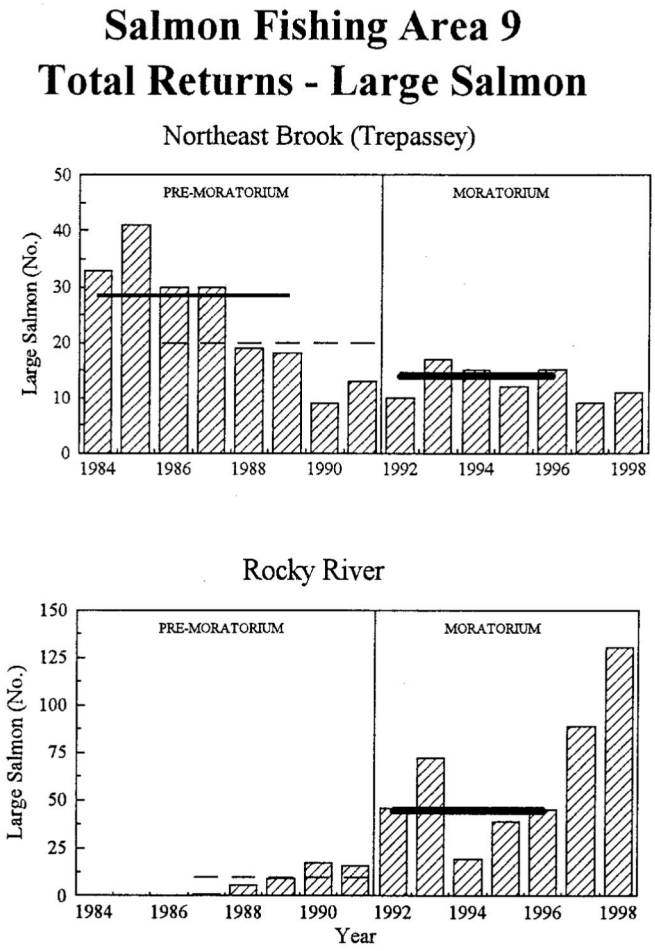

Fig. 19. Total returns of large salmon to Northeast Brook (Trepassey) and Rocky River (SFA 9), 1984-98. The thin solid horizontal line represents the 1984-89 mean, the broken line the 1986-91 mean, and the thick solid line the 1992-96 mean.

Salmon Fishing Area 9

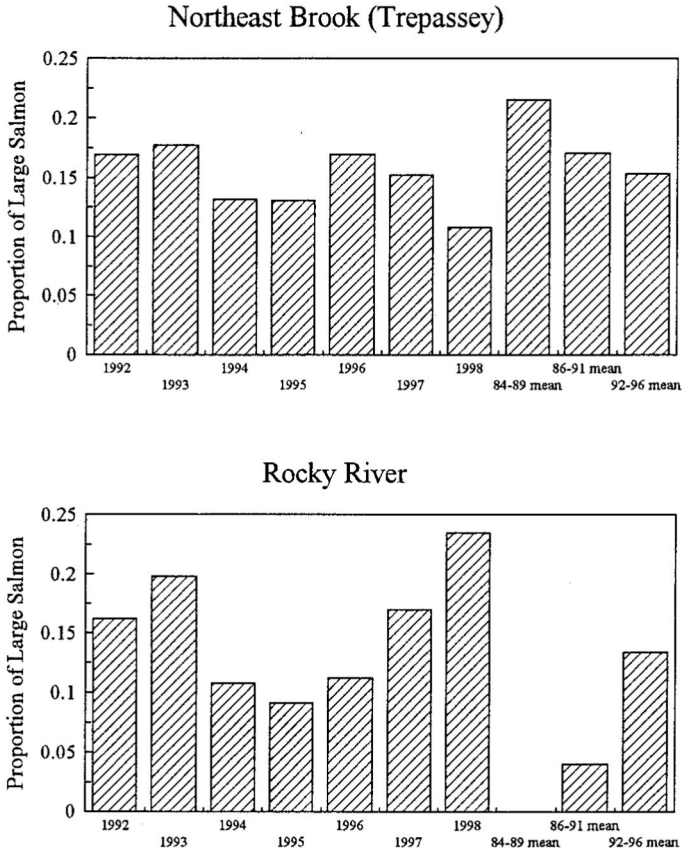

Fig. 20. Proportion of large salmon in total returns for Northeast Brook (Trepassey and Rocky River, SFA 9, 1992-98, and the 1984-89, 1986-91, and 1992-96 means.

Salmon Fishing Area 10
Total Returns - Small Salmon

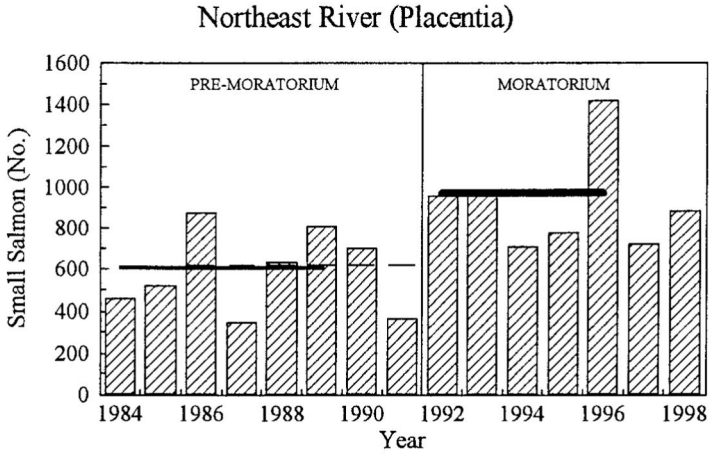

Fig. 21. Total returns of small salmon to Northeast River, Placentia (SFA 10), 1984-98. The thin solid horizontal line represents the 1984-89 mean, the broken line the 1986-91 mean, and the thick solid line the 1992-96 mean.

Salmon Fishing Area 10
Total Returns - Large Salmon

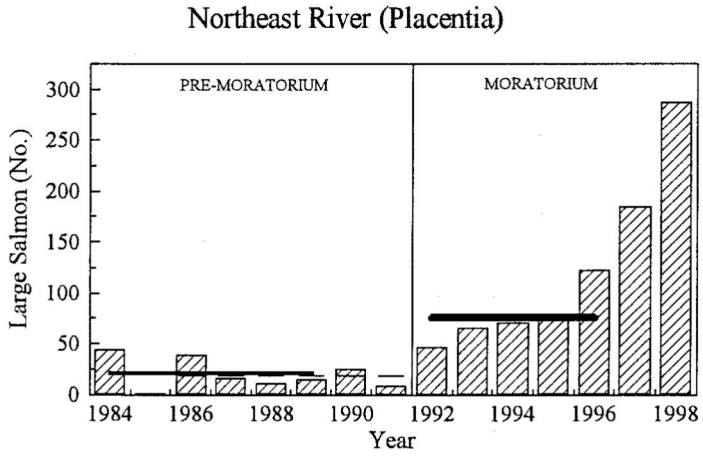

Fig. 22. Total returns of large salmon to Northeast River, Placentia (SFA 10), 1984-98. The thin solid horizontal line represents the 1984-89 mean, the broken line the 1986-91 mean, and the thick solid line the 1992-96 mean.

Salmon Fishing Area 10

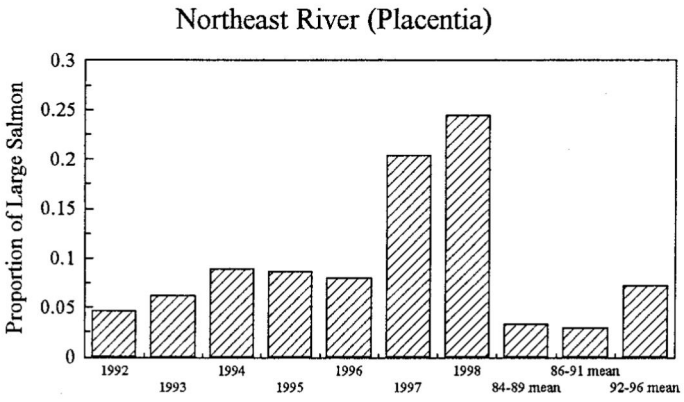

Fig. 23. Proportion of large salmon in total returns for Northeast River (Placentia), SFA 10, 1992-98, and the 1984-89, 1986-91, and 1992-96 means.

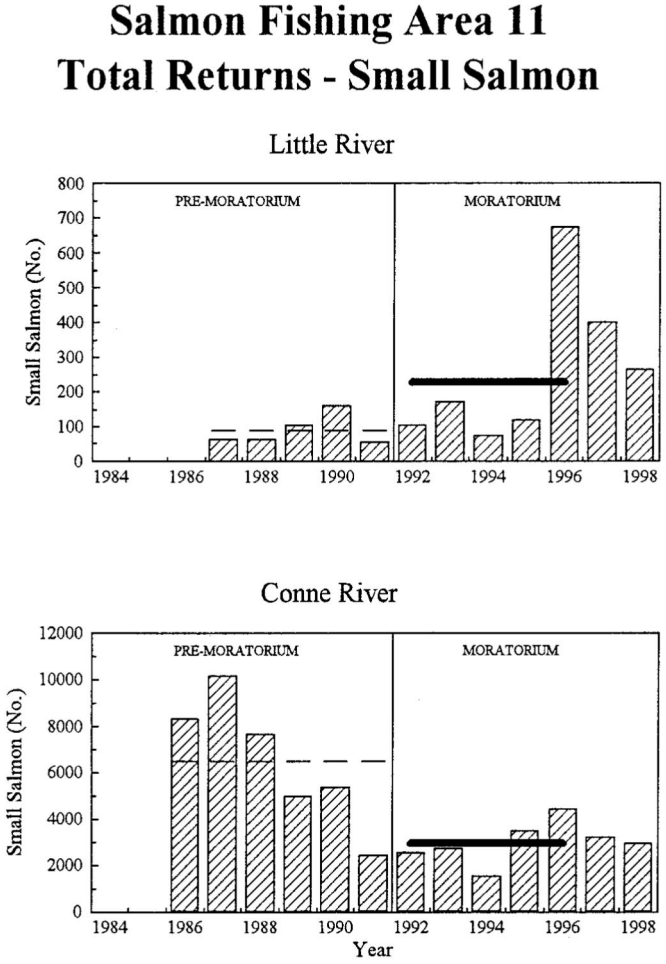

Fig. 24. Total returns of small salmon to Little River and Conne River (SFA 11), 1984-98. The broken line represents the 1986-91 mean, and the solid line the 1992-96 mean.

Salmon Fishing Area 11

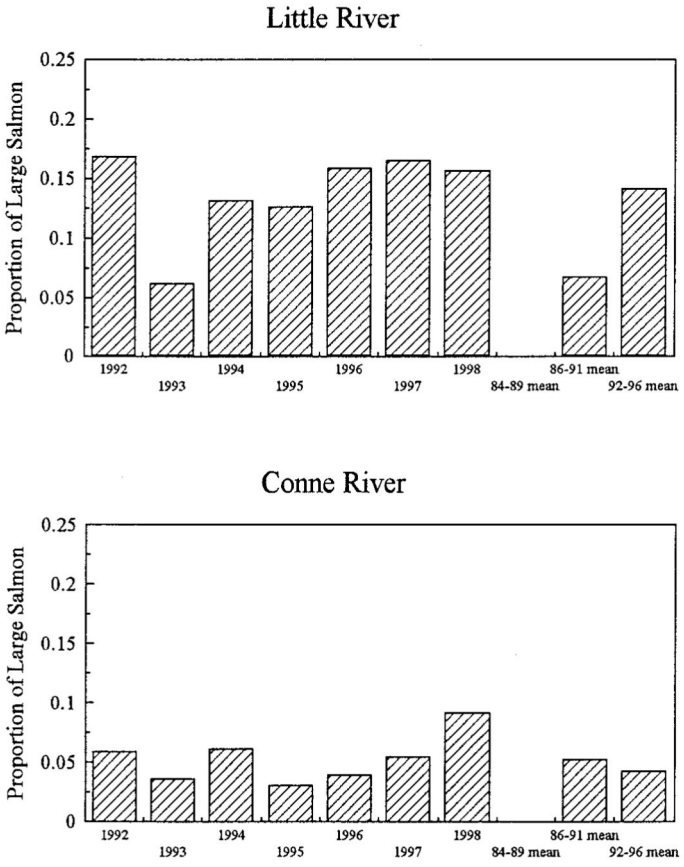

Fig. 26. Proportion of large salmon in total returns for Little River and Conne River, SFA 11, 1992-98, and the 1984-89, 1986-91, and 1992-96 means.

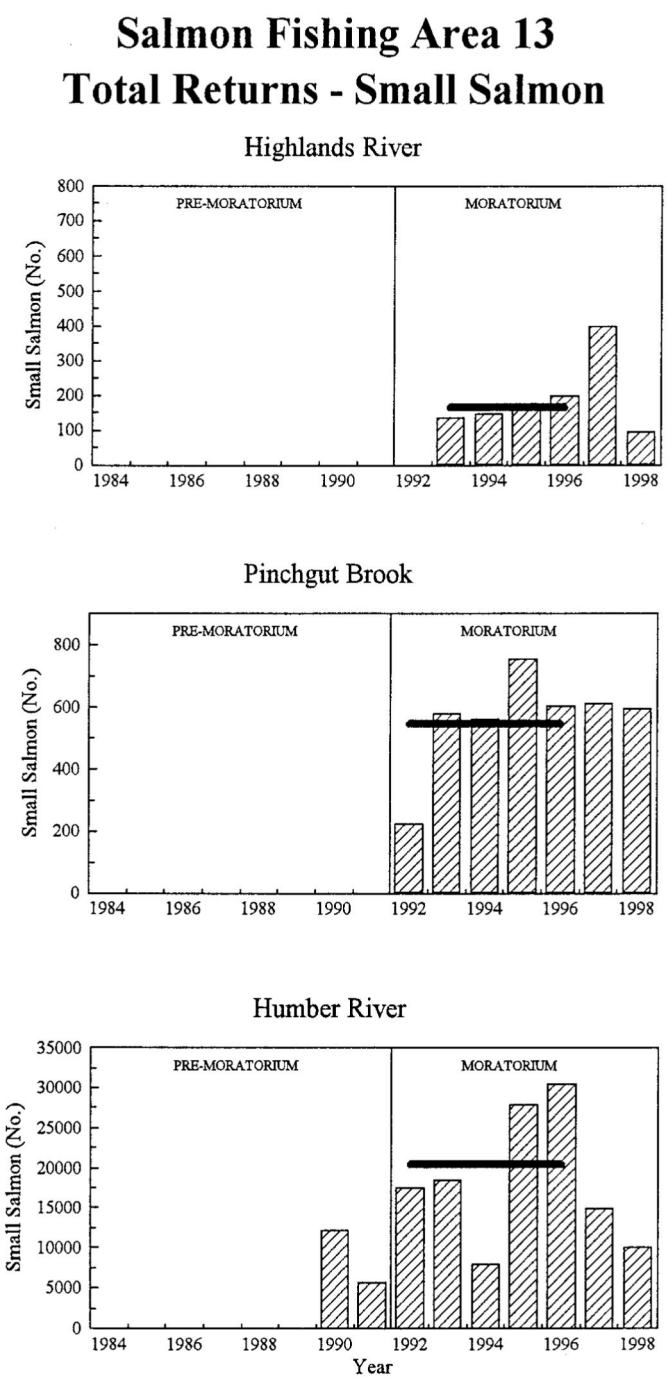

Fig. 27. Total returns of small salmon to Highlands River, Pinchgut Brook and Humber River (SFA 13), 1984-98. The thick solid horizontal line represents the 1992-96 mean.

Salmon Fishing Area 13
Total Returns - Large Salmon

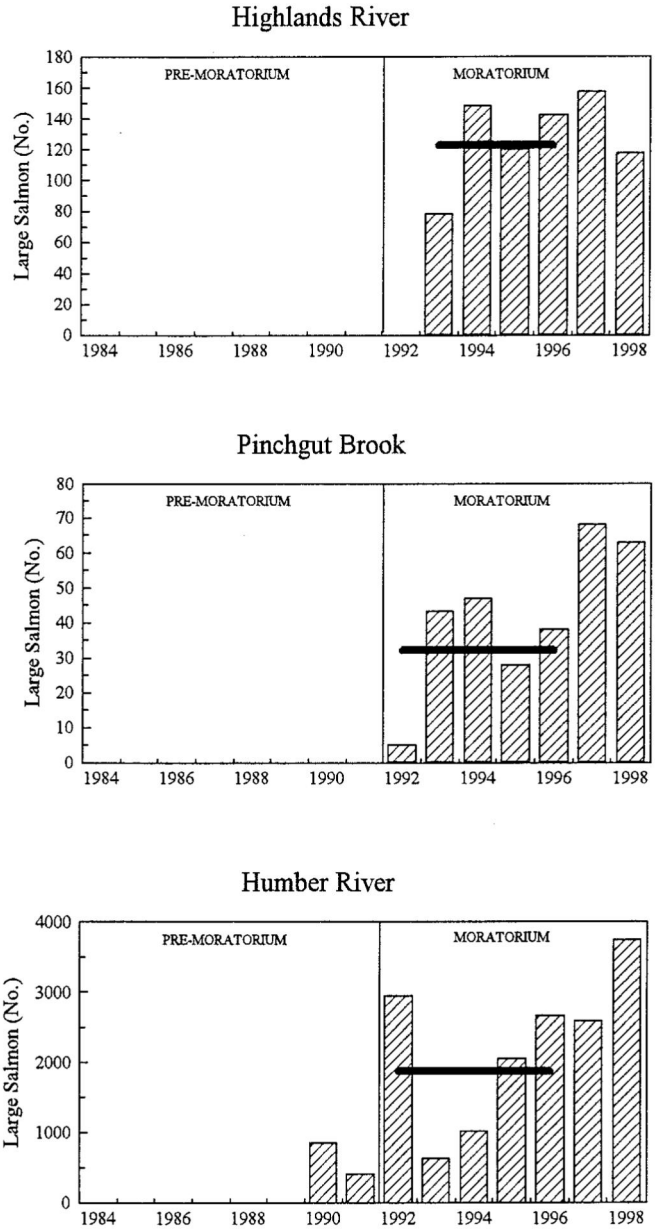

Fig. 28. Total returns of large salmon to Highlands River, Pinchgut Brook and Humber River (SFA 13), 1984-98. The thick solid horizontal line represents the 1992-96 mean.

Salmon Fishing Area 13

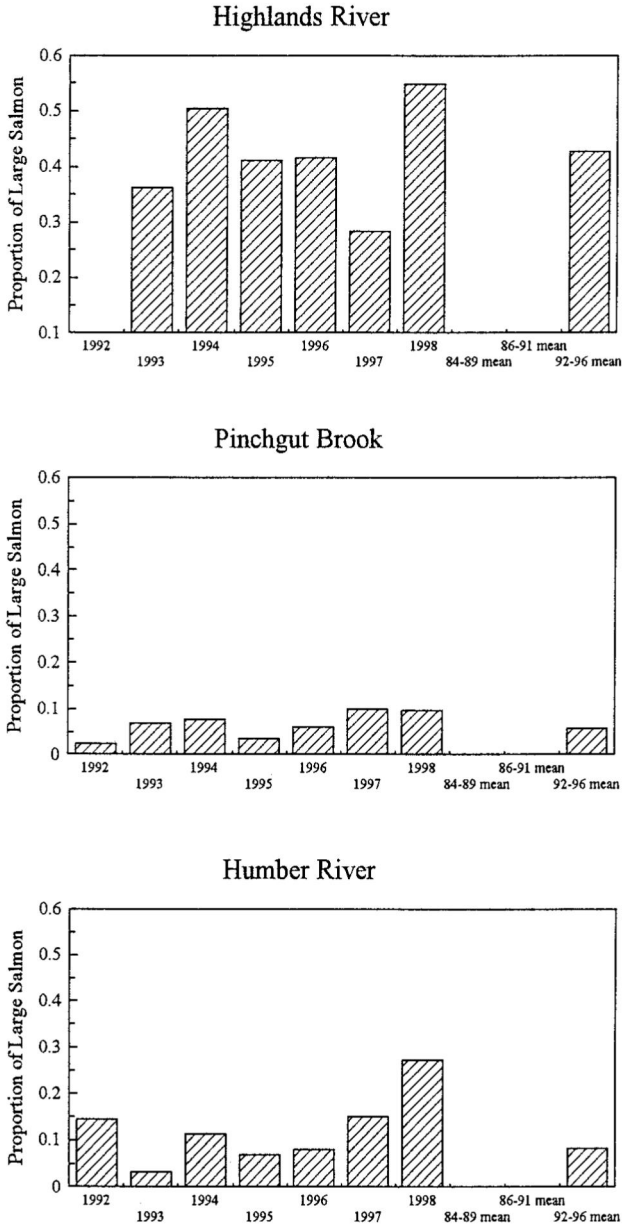

Fig. 29. Proportion of large salmon in total returns for Highlands River, Pinchgut Brook and Humber River, SFA 13, 1992-98, and the 1984-89, 1986-91, and 1992-96 means.

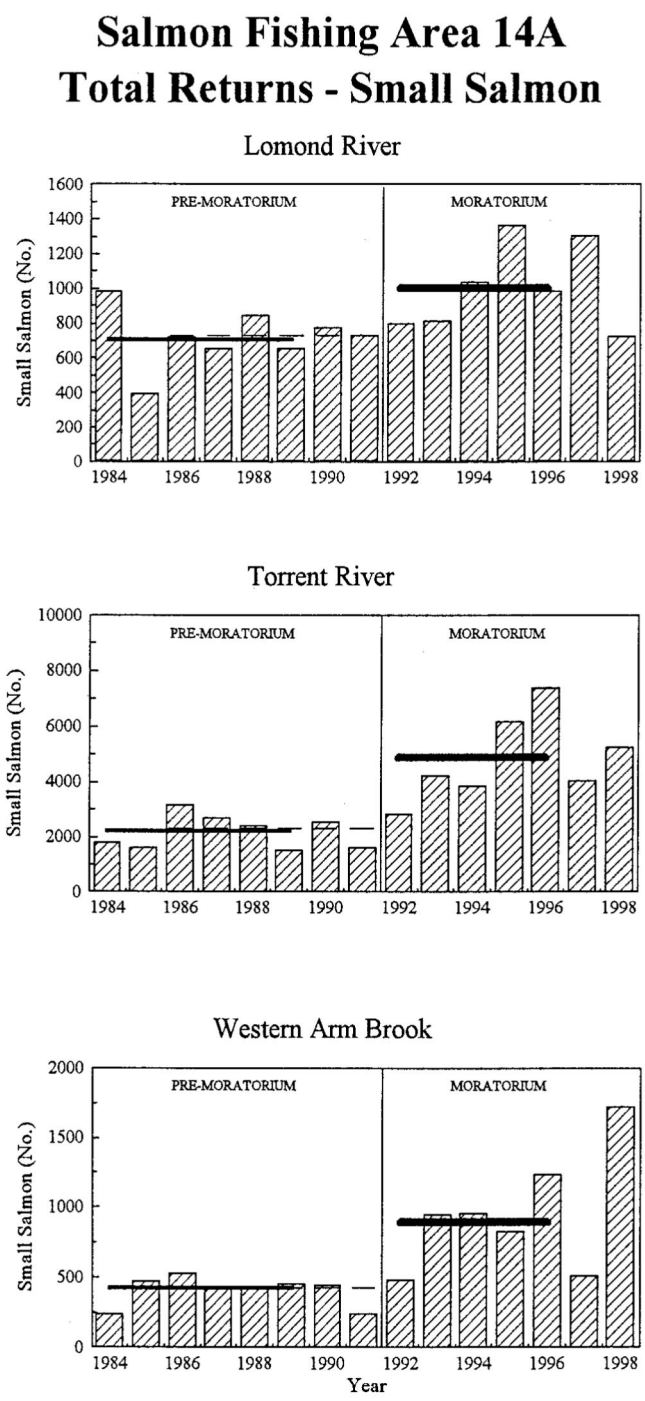

Fig. 30. Total returns of small salmon to Lomond River, Torrent River and Western Arm Brook (SFA 14A), 1984-98. The thin solid horizontal line represents the 1984-89 mean, the broken line the 1986-91 mean, and the thick solid line the 1992-96 mean.

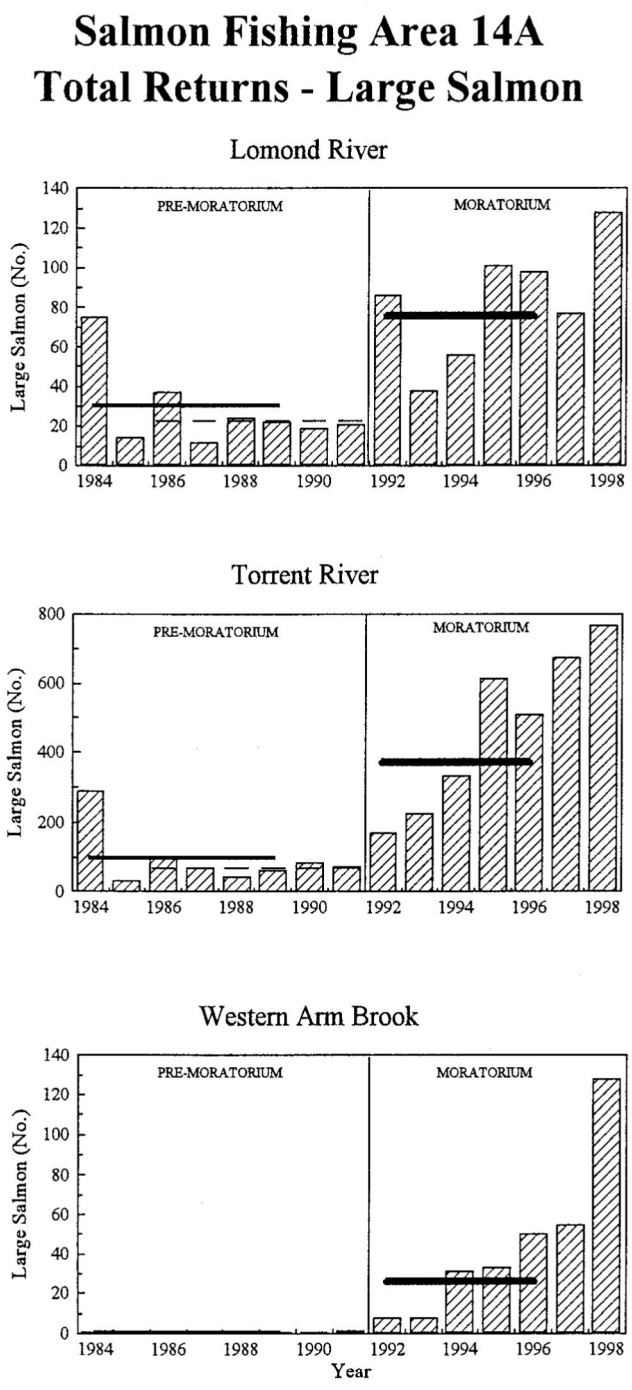

Fig. 31. Total returns of large salmon to Lomond River, Torrent River and Western Arm Brook (SFA 14A), 1984-98. The thin solid horizontal line represents the 1984-89 mean, the broken line the 1986-91 mean, and the thick solid line the 1992-96 mean.

Salmon Fishing Area 14A

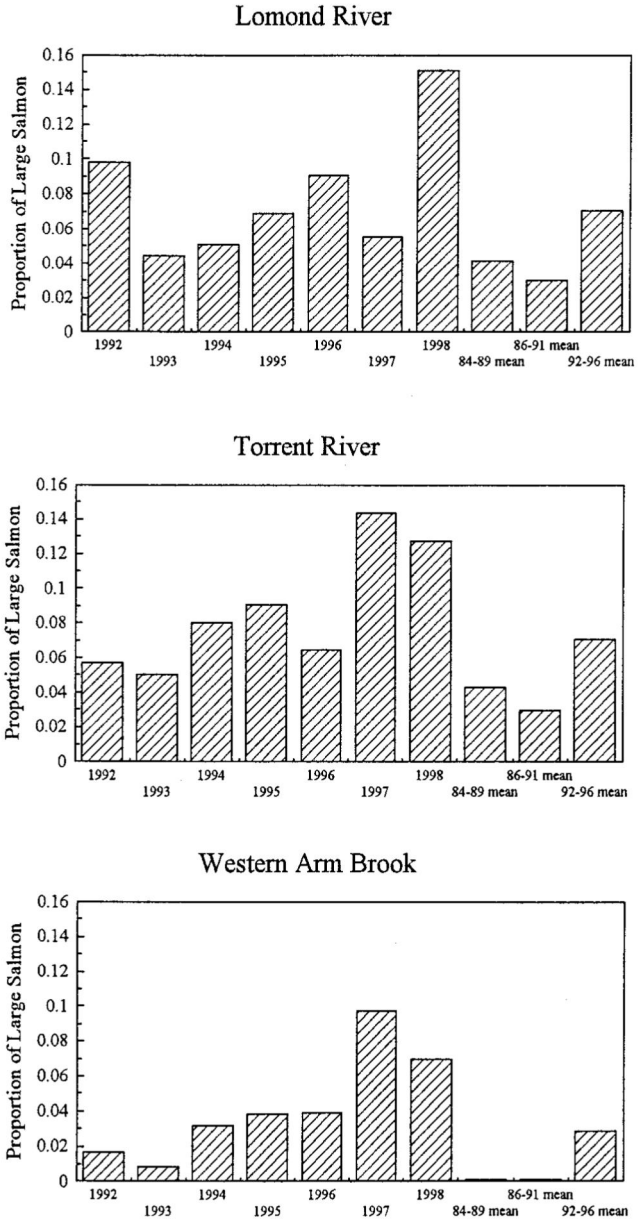

Fig. 32. Proportion of large salmon in total returns for Lomond River, Torrent River and Western Arm Brook, SFA 14A, 1992-98, and the 1984-89, 1986-91, and 1992-96 means.

Appendix 1a. Atlantic salmon recreational fishery catch and effort data for Labrador (SFAs 1, 2, &14B), 1974-98. Ret. = retained fish; Rel. = released fish.

	Effort	Small (<63 cm)			Large (>=63 cm)			Total (Small + Large)			
Year	Rod Days	Ret.	Rel.	Tot.	Ret.	Rel.	Tot.	Ret.	Rel.	Tot.	CPUE
1974	5492	2501	.	2501	803	.	803	3304	.	3304	0.60
1975	4209	3972	.	3972	327	.	327	4299	.	4299	1.02
1976	7155	5726	.	5726	830	.	830	6556	.	6556	0.92
1977	7234	4594	.	4594	1286	.	1286	5880	.	5880	0.81
1978	6248	2691	.	2691	767	.	767	3458	.	3458	0.55
1979	5333	4118	.	4118	609	.	609	4727	.	4727	0.89
1980	4948	3800	.	3800	889	.	889	4689	.	4689	0.95
1981	5198	5191	.	5191	520	.	520	5711	.	5711	1.10
1982	6400	4104	.	4104	621	.	621	4725	.	4725	0.74
1983	6657	4372	.	4372	428	.	428	4800	.	4800	0.72
1984	7128	2935	.	2935	510	.	510	3445	.	3445	0.48
1985	6366	3101	.	3101	294	.	294	3395	.	3395	0.53
1986	7694	3464	.	3464	467	.	467	3931	.	3931	0.51
1987	8754	5366	.	5366	633	.	633	5999	.	5999	0.69
1988	10211	5523	.	5523	710	.	710	6233	.	6233	0.61
1989	9177	4684	.	4684	461	.	461	5145	.	5145	0.56
1990	8927	3309	.	3309	357	.	357	3666	.	3666	0.41
1991	7500	2323	.	2323	93	.	93	2416	.	2416	0.32
1992	8342	2738	251	2989	781	10	791	3519	261	3780	0.45
1993	9318	2508	1793	4301	378	91	469	2886	1884	4770	0.51
1994	10297	2657	2735	5392	474	291	765	3131	3026	6157	0.60
1995	9846	2597	2808	5405	546	400	946	3143	3208	6351	0.65
1996**		3142	3624	6766	404	453	857	3546	4077	7623	
1997**		2585	1906	4491	198	478	676	2783	2384	5167	
1998**		2735	3642	6377	303	691	994	3038	4333	7371	
84-89 $\bar{X}$	8221.7	4178.8	.	4178.8	512.5	.	512.5	4691.3	.	4691.3	0.57
95% CL	1489.7	1214.2	.	1214.2	152.8	.	152.8	1336.3	.	1336.3	0.08
N	6	6	0	6	6	0	6	6	0	6	6
86-91 $\bar{X}$	8710.5	4111.5	.	4111.5	453.5	.	453.5	4565.0	.	4565.0	0.52
95% CL	1051.3	1340.5	.	1340.5	228.8	.	228.8	1557.1	.	1557.1	0.13
N	6	6	0	6	6	0	6	6	0	6	6
92-95 $\bar{X}$	9450.8	2625.0	1896.8	4521.8	544.8	198.0	742.8	3169.8	2094.8	5264.5	0.56
95% CL	1337.2	154.4	1894.2	1822.3	273.5	285.0	317.0	415.6	2156.9	1932.3	0.13
N	4	4	4	4	4	4	4	4	4	4	4

IN THE ABOVE TABLE A PERIOD INDICATES NO DATA FOR THAT YEAR.
CPUE IS BASED ON RETAINED + RELEASED FISH FOR 1992-95 AND ON RETAINED FISH ONLY PRIOR TO 1992.
**DATA ARE A COMBINATION OF LICENSE STUB RETURN (SFA 14B)AND RIVER GUARDIAN (SFA's 1 & 2) METHODS.
1998 DATA ARE PRELIMINARY.

Appendix 1b. Atlantic salmon recreational fishery catch and effort data for insular Newfoundland (SFAs 3 - 14A), 1974-98. Ret. = retained fish; Rel. = released fish.

	Effort	Small (<63 cm)			Large (>=63 cm)			Total (Small + Large)			
Year	Rod Days	Ret.	Rel.	Tot.	Ret.	Rel.	Tot.	Ret.	Rel.	Tot.	CPUE
1974	108199	26485	.	26485	1213	.	1213	27698	.	27698	0.26
1975	102907	33390	.	33390	1241	.	1241	34631	.	34631	0.34
1976	115847	34463	.	34463	1051	.	1051	35514	.	35514	0.31
1977	111836	34352	.	34352	2755	.	2755	37107	.	37107	0.33
1978	96659	28619	.	28619	1563	.	1563	30182	.	30182	0.31
1979	82578	31169	.	31169	561	.	561	31730	.	31730	0.38
1980	104332	35849	.	35849	1922	.	1922	37771	.	37771	0.36
1981	122476	46670	.	46670	1369	.	1369	48039	.	48039	0.39
1982	129369	41871	.	41871	1248	.	1248	43119	.	43119	0.33
1983	126308	32420	.	32420	1382	.	1382	33802	.	33802	0.27
1984	121979	39331	.	39331	511	.	511	39842	.	39842	0.33
1985	120030	36552	.	36552	*	315	315	36552	315	36867	0.31
1986	123528	37496	.	37496	*	798	798	37496	798	38294	0.31
1987	85969	24482	.	24482	*	410	410	24482	410	24892	0.29
1988	120497	39841	.	39841	*	600	600	39841	600	40441	0.34
1989	91286	18462	.	18462	*	183	183	18462	183	18645	0.20
1990	105736	29967	.	29967	*	503	503	29967	503	30470	0.29
1991	89812	20529	.	20529	*	336	336	20529	336	20865	0.23
1992	95931	23118	5642	28760	*	1413	1413	23118	7055	30173	0.31
1993	125661	24693	16403	41096	*	1640	1640	24693	18043	42736	0.34
1994	141508	28959	8370	37329	*	2052	2052	28959	10422	39381	0.28
1995	143275	29055	9575	38630	*	2188	2188	29055	11763	40818	0.28
1996***		36715	18603	55318	*	2639	2639	36715	21242	57957	
1997**		17388	15456	32844	*	3332	3332	17388	18788	36176	
1998**		15207	15676	30883	*	2852	2852	15207	18528	33735	
84-89 $\bar{X}$	115464.0	34336.4	.	34336.4	.	474.0	481.4	34438.6	474.0	34817.8	0.30
95% CL	16865.5	11141.0	.	11141.0	.	441.3	298.9	11232.5	441.3	11356.3	0.06
N	5	5	0	5	0	4	5	5	4	5	5
86-91 $\bar{X}$	106171.8	29259.0	.	29259.0	.	484.0	484.0	29259.0	484.0	29743.0	0.28
95% CL	19588.7	11990.2	.	11990.2	.	294.4	294.4	11990.2	294.4	12259.7	0.07
N	5	5	0	5	0	5	5	5	5	5	5
92-96 $\bar{X}$	126593.8	28508.0	11718.6	40226.6	.	1986.4	1986.4	28508.0	13705.0	42213.0	0.33
95% CL	34878.5	6553.5	6858.2	11955.1	.	595.3	595.3	6553.5	7196.1	12462.3	0.08
N	4	5	5	5	0	5	5	5	5	5	4

1987 DATA NOT INCLUDED IN MEAN.

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

CPUE IS BASED ON RETAINED + RELEASED FISH FOR 1985-95 AND ON RETAINED FISH ONLY PRIOR TO 1985.

* NOT ALLOWED TO RETAIN LARGE SALMON IN INSULAR NEWFOUNDLAND.

**DATA WERE OBTAINED FROM THE LICENSE STUB RETURN (1998 DATA ARE PRELIMINARY).

***DATA WERE UNAVAILABLE FOR SOME RIVERS IN INS. NEWFOUNDLAND (SFAs 12 & 13) IN 1996, THEREFORE LICENSE STUB DATA WERE USED.

Appendix 1c. Atlantic salmon recreational fishery catch and effort data for Northern Peninsula East & Eastern (SFAs 3 - 8), 1974-98. Ret. = retained fish; Rel. = released fish.

	Effort	Small (<63 cm)			Large (>=63 cm)			Total (Small + Large)			
Year	Rod Days	Ret.	Rel.	Tot.	Ret.	Rel.	Tot.	Ret.	Rel.	Tot.	CPUE
1974	38626	8336	.	8336	110	.	110	8446	.	8446	0.22
1975	35673	9259	.	9259	190	.	190	9449	.	9449	0.26
1976	38552	9885	.	9885	256	.	256	10141	.	10141	0.26
1977	45112	15102	.	15102	1154	.	1154	16256	.	16256	0.36
1978	39561	12829	.	12829	539	.	539	13368	.	13368	0.34
1979	31365	11866	.	11866	349	.	349	12215	.	12215	0.39
1980	40581	14401	.	14401	588	.	588	14989	.	14989	0.37
1981	49396	20187	.	20187	430	.	430	20617	.	20617	0.42
1982	51961	15568	.	15568	435	.	435	16003	.	16003	0.31
1983	46821	13404	.	13404	518	.	518	13922	.	13922	0.30
1984	49240	14091	.	14091	25	.	25	14116	.	14116	0.29
1985	52799	17628	.	17628	*	.	.	17628	.	17628	0.33
1986	48582	14803	.	14803	*	.	.	14803	.	14803	0.30
1987	27158	7888	.	7888	*	.	.	7888	.	7888	0.29
1988	46400	16412	.	16412	*	.	.	16412	.	16412	0.35
1989	30571	6352	.	6352	*	.	.	6352	.	6352	0.21
1990	38956	10262	.	10262	*	.	.	10262	.	10262	0.26
1991	35084	8489	.	8489	*	.	.	8489	.	8489	0.24
1992	36254	9063	2373	11436	*	11	11	9063	2384	11447	0.32
1993	52640	9729	11911	21640	*	426	426	9729	12337	22066	0.42
1994	72813	16250	5283	21533	*	539	539	16250	5822	22072	0.30
1995	63184	12823	4738	17561	*	421	421	12823	5159	17982	0.28
1996	71615	17555	8244	25799	*	505	505	17555	8749	26304	0.37
1997**		5934	4171	10105	*	521	521	5934	4692	10626	
1998**		8258	8113	16371	*	738	738	8258	8851	17109	
84-89 $\bar{X}$	45518.4	13857.2	.	13857.2	.	.	.	13862.2	.	13862.2	0.30
95% CL	10759.4	5483.0	.	5483.0	.	.	.	5483.4	.	5483.4	0.06
N	5	5	0	5	0	0	0	5	0	5	5
86-91 $\bar{X}$	39918.6	11263.6	.	11263.6	.	.	.	11263.6	.	11263.6	0.28
95% CL	9388.1	5261.9	.	5261.9	.	.	.	5261.9	.	5261.9	0.07
N	5	5	0	5	0	0	0	5	0	5	5
92-96 $\bar{X}$	59301.2	13084.0	6509.8	19593.8	.	380.4	380.4	13084.0	6890.2	19974.2	0.34
95% CL	18877.0	4707.2	4558.8	6718.1	.	264.0	264.0	4707.2	4709.7	6954.6	0.07
N	5	5	5	5	0	5	5	5	5	5	5

1987 DATA NOT INCLUDED IN MEAN.

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

CPUE IS BASED ON RETAINED + RELEASED FISH FOR 1992-96 AND ON RETAINED FISH ONLY PRIOR TO 1992.

* NOT ALLOWED TO RETAIN LARGE SALMON IN INSULAR NEWFOUNDLAND.

**DATA WERE OBTAINED FROM THE LICENSE STUB RETURN (1998 DATA ARE PRELIMINARY).

Appendix 1d. Atlantic salmon recreational fishery catch and effort data for South (SFAs 9 - 11), 1974-98. Ret. = retained fish; Rel. = released fish.

	Effort	Small (<63 cm)			Large (>=63 cm)			Total (Small + Large)			
Year	Rod Days	Ret.	Rel.	Tot.	Ret.	Rel.	Tot.	Ret.	Rel.	Tot.	CPUE
1974	29268	7182	.	7182	61	.	61	7243	.	7243	0.25
1975	24518	6800	.	6800	55	.	55	6855	.	6855	0.28
1976	26301	6517	.	6517	64	.	64	6581	.	6581	0.25
1977	23945	6273	.	6273	32	.	32	6305	.	6305	0.26
1978	24038	6894	.	6894	77	.	77	6971	.	6971	0.29
1979	18834	5983	.	5983	30	.	30	6013	.	6013	0.32
1980	26044	8972	.	8972	132	.	132	9104	.	9104	0.35
1981	28488	10241	.	10241	122	.	122	10363	.	10363	0.36
1982	33239	10419	.	10419	96	.	96	10515	.	10515	0.32
1983	35346	8212	.	8212	177	.	177	8389	.	8389	0.24
1984	30500	10740	.	10740	22	.	22	10762	.	10762	0.35
1985	29984	8899	.	8899	*	.	.	8899	.	8899	0.30
1986	30427	9379	.	9379	*	.	.	9379	.	9379	0.31
1987	20651	5125	.	5125	*	.	.	5125	.	5125	0.25
1988	27166	7548	.	7548	*	.	.	7548	.	7548	0.28
1989	23291	5173	.	5173	*	.	.	5173	.	5173	0.22
1990	25538	7147	.	7147	*	.	.	7147	.	7147	0.28
1991	17089	2643	.	2643	*	.	.	2643	.	2643	0.15
1992	18100	3208	1732	4940	*	8	8	3208	1740	4948	0.27
1993	29280	5215	1506	6721	*	84	84	5215	1590	6805	0.23
1994	25073	4055	917	4972	*	61	61	4055	978	5033	0.20
1995	35146	6299	1499	7798	*	47	47	6299	1546	7845	0.22
1996	41628	7498	2425	9923	*	139	139	7498	2564	10062	0.24
1997**		3521	2732	6253	*	264	264	3521	2996	6517	
1998**		2017	1929	3946	*	296	296	2017	2225	4242	
84-89 $\bar{X}$	28273.6	8347.8	.	8347.8	.	.	.	8352.2	.	8352.2	0.30
95% CL	3855.2	2619.5	.	2619.5	.	.	.	2627.3	.	2627.3	0.06
N	5	5	0	5	0	0	0	5	0	5	5
86-91 $\bar{X}$	24702.2	6378.0	.	6378.0	.	.	.	6378.0	.	6378.0	0.26
95% CL	6191.6	3187.5	.	3187.5	.	.	.	3187.5	.	3187.5	0.07
N	5	5	0	5	0	0	0	5	0	5	5
92-96 $\bar{X}$	29845.4	5255.0	1615.8	6870.8	.	67.8	67.8	5255.0	1683.6	6938.6	0.23
95% CL	11241.5	2128.0	675.0	2599.0	.	60.1	60.1	2128.0	708.8	2647.3	0.02
N	5	5	5	5	0	5	5	5	5	5	5

1987 DATA NOT INCLUDED IN MEAN.

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

CPUE IS BASED ON RETAINED + RELEASED FISH FOR 1992-96 AND ON RETAINED FISH ONLY PRIOR TO 1992.

* NOT ALLOWED TO RETAIN LARGE SALMON IN INSULAR NEWFOUNDLAND.

**DATA WERE OBTAINED FROM THE LICENSE STUB RETURN (1998 DATA ARE PRELIMINARY).

Appendix 1e. Atlantic salmon recreational fishery catch and effort data for Southwest (SFAs 12 & 13), 1974-98. Ret. = retained fish; Rel. = released fish.

	Effort	Small (<63 cm)			Large (>=63 cm)			Total (Small + Large)			
Year	Rod Days	Ret.	Rel.	Tot.	Ret.	Rel.	Tot.	Ret.	Rel.	Tot.	CPUE
1974	30736	7847	.	7847	929	.	929	8776	.	8776	0.29
1975	33457	12513	.	12513	906	.	906	13419	.	13419	0.40
1976	33848	10680	.	10680	631	.	631	11311	.	11311	0.33
1977	25712	7270	.	7270	1097	.	1097	8367	.	8367	0.33
1978	20991	5655	.	5655	875	.	875	6530	.	6530	0.31
1979	18094	6742	.	6742	123	.	123	6865	.	6865	0.38
1980	23488	8733	.	8733	1022	.	1022	9755	.	9755	0.42
1981	25874	10360	.	10360	680	.	680	11040	.	11040	0.43
1982	28056	11121	.	11121	610	.	610	11731	.	11731	0.42
1983	28121	7004	.	7004	618	.	618	7622	.	7622	0.27
1984	25742	9693	.	9693	377	.	377	10070	.	10070	0.39
1985	23859	6399	.	6399	*	287	287	6399	287	6686	0.28
1986	29137	8284	.	8284	*	696	696	8284	696	8980	0.31
1987	23099	6849	.	6849	*	369	369	6849	369	7218	0.31
1988	27963	9630	.	9630	*	429	429	9630	429	10059	0.36
1989	21201	3734	.	3734	*	139	139	3734	139	3873	0.18
1990	24829	7508	.	7508	*	367	367	7508	367	7875	0.32
1991	23789	5832	.	5832	*	219	219	5832	219	6051	0.25
1992	24460	6069	1006	7075	*	1025	1025	6069	2031	8100	0.33
1993	25883	5844	984	6828	*	754	754	5844	1738	7582	0.29
1994	22576	4225	1073	5298	*	977	977	4225	2050	6275	0.28
1995	20786	3843	1251	5094	*	989	989	3843	2240	6083	0.29
1996***		5177	4926	10103	*	1289	1289	5177	6215	11392	
1997**		4419	6731	11150	*	2130	2130	4419	8861	13280	
1998**		2045	3034	5079	*	1415	1415	2045	4449	6494	
84-89 $\bar{X}$	25166.8	7431.5	.	7431.5	.	384.0	382.8	7494.3	384.0	7814.3	0.31
95% CL	3170.6	2382.0	.	2382.0	.	255.2	193.0	2464.9	255.2	2512.4	0.07
N	6	6	0	6	0	5	6	6	5	6	6
86-91 $\bar{X}$	25003.0	6972.8	.	6972.8	.	369.8	369.8	6972.8	369.8	7342.7	0.29
95% CL	3164.0	2144.5	.	2144.5	.	202.4	202.4	2144.5	202.4	2302.7	0.06
N	6	6	0	6	0	6	6	6	6	6	6
92-96 $\bar{X}$	23426.3	5031.6	1848.0	6879.6	.	1006.8	1006.8	5031.6	2854.8	7886.4	0.34
95% CL	3533.6	1213.3	2140.1	2492.3	.	236.4	236.4	1213.3	2342.6	2653.7	0.08
N	4	5	5	5	0	5	5	5	5	5	4

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

CPUE IS BASED ON RETAINED + RELEASED FISH FOR 1985-95 AND ON RETAINED FISH ONLY PRIOR TO 1985.

**DATA WERE OBTAINED FROM THE LICENSE STUB RETURN (1998 DATA ARE PRELIMINARY).

***FOR RIVERS WHERE DFO DATA WERE UNAVAILABLE LICENSE STUB RETURN DATA WERE USED.

Appendix 1f. Atlantic salmon recreational fishery catch and effort data for the Northern Peninsula West (SFA 14A), 1974-98. Ret. = retained fish; Rel. = released fish.

	Effort	Small (<63 cm)			Large (>=63 cm)			Total (Small + Large)			
Year	Rod Days	Ret.	Rel.	Tot.	Ret.	Rel.	Tot.	Ret.	Rel.	Tot.	CPUE
1974	9569	3120	.	3120	113	.	113	3233	.	3233	0.34
1975	9259	4818	.	4818	90	.	90	4908	.	4908	0.53
1976	17146	7381	.	7381	100	.	100	7481	.	7481	0.44
1977	17067	5707	.	5707	472	.	472	6179	.	6179	0.36
1978	12069	3241	.	3241	72	.	72	3313	.	3313	0.27
1979	14285	6578	.	6578	59	.	59	6637	.	6637	0.46
1980	14219	3743	.	3743	180	.	180	3923	.	3923	0.28
1981	18718	5882	.	5882	137	.	137	6019	.	6019	0.32
1982	16113	4763	.	4763	107	.	107	4870	.	4870	0.30
1983	16020	3800	.	3800	69	.	69	3869	.	3869	0.24
1984	16497	4807	.	4807	87	.	87	4894	.	4894	0.30
1985	13388	3626	.	3626	*	28	28	3626	28	3654	0.27
1986	15382	5030	.	5030	*	102	102	5030	102	5132	0.33
1987	15061	4620	.	4620	*	41	41	4620	41	4661	0.31
1988	18968	6251	.	6251	*	171	171	6251	171	6422	0.34
1989	16223	3203	.	3203	*	44	44	3203	44	3247	0.20
1990	16413	5050	.	5050	*	136	136	5050	136	5186	0.32
1991	13850	3565	.	3565	*	117	117	3565	117	3682	0.27
1992	17117	4778	531	5309	*	369	369	4778	900	5678	0.33
1993	17858	3905	2002	5907	*	376	376	3905	2378	6283	0.35
1994	21046	4429	1097	5526	*	475	475	4429	1572	6001	0.29
1995	24159	6090	2087	8177	*	731	731	6090	2818	8908	0.37
1996	25876	6485	3008	9493	*	706	706	6485	3714	10199	0.39
1997**		3514	1822	5336	*	417	417	3514	2239	5753	
1998**		2887	2600	5487	*	403	403	2887	3003	5890	
84-89 $\bar{X}$	15919.8	4589.5	.	4589.5	.	77.2	78.8	4604.0	77.2	4668.3	0.29
95% CL	1944.1	1135.7	.	1135.7	.	74.1	56.2	1139.9	74.1	1186.6	0.06
N	6	6	0	6	0	5	6	6	5	6	6
86-91 $\bar{X}$	15982.8	4619.8	.	4619.8	.	101.8	101.8	4619.8	101.8	4721.7	0.30
95% CL	1812.7	1162.6	.	1162.6	.	54.0	54.0	1162.6	54.0	1199.9	0.06
N	6	6	0	6	0	6	6	6	6	6	6
92-96 $\bar{X}$	21211.2	5137.4	1745.0	6882.4	.	531.4	531.4	5137.4	2276.4	7413.8	0.35
95% CL	4747.0	1370.3	1189.5	2302.4	.	218.6	218.6	1370.3	1354.4	2504.4	0.05
N	5	5	5	5	0	5	5	5	5	5	5

IN THE ABOVE TABLE A PERIOD INDICATES NO DATA FOR THAT YEAR.
CPUE IS BASED ON RETAINED + RELEASED FISH FOR 1985-96 AND ON RETAINED FISH ONLY PRIOR TO 1985.
**DATA WERE OBTAINED FROM THE LICENSE STUB RETURN (1998 DATA ARE PRELIMINARY).

Appendix 1g. Atlantic salmon recreational fishery catch and effort data for Salmon Fishing Area 1, Labrador, 1974-98. Ret. = retained fish; Rel. = released fish.

	Effort	Small (<63 cm)			Large (>=63 cm)			Total (Small + Large)			
Year	Rod Days	Ret.	Rel.	Tot.	Ret.	Rel.	Tot.	Ret.	Rel.	Tot.	CPUE
1974	801	347	.	347	311	.	311	658	.	658	0.82
1975	245	379	.	379	117	.	117	496	.	496	2.02
1976	928	891	.	891	368	.	368	1259	.	1259	1.36
1977	809	688	.	688	533	.	533	1221	.	1221	1.51
1978	704	875	.	875	432	.	432	1307	.	1307	1.86
1979	1367	905	.	905	430	.	430	1335	.	1335	0.98
1980	780	704	.	704	232	.	232	936	.	936	1.20
1981	422	669	.	669	195	.	195	864	.	864	2.05
1982	831	834	.	834	379	.	379	1213	.	1213	1.46
1983	834	488	.	488	137	.	137	625	.	625	0.75
1984	1074	702	.	702	222	.	222	924	.	924	0.86
1985	946	642	.	642	135	.	135	777	.	777	0.82
1986	741	421	.	421	129	.	129	550	.	550	0.74
1987	1011	854	.	854	141	.	141	995	.	995	0.98
1988	1629	1278	.	1278	171	.	171	1449	.	1449	0.89
1989	1296	1269	.	1269	144	.	144	1413	.	1413	1.09
1990	1245	563	.	563	115	.	115	678	.	678	0.54
1991	1056	130	.	130	8	.	8	138	.	138	0.13
1992	899	283	29	312	335	0	335	618	29	647	0.72
1993	422	121	124	245	22	25	47	143	149	292	0.69
1994	1036	453	933	1386	114	96	210	567	1029	1596	1.54
1995	880	500	854	1354	92	97	189	592	951	1543	1.75
1996	879	260	62	322	50	17	67	310	79	389	0.44
1997	1266	300	133	433	46	25	71	346	158	504	0.40
1998	813	256	448	704	61	109	170	317	557	874	1.08
84-89 $\bar{X}$	1116.2	861.0	.	861.0	157.0	.	157.0	1018.0	.	1018.0	0.91
95% CL	324.5	365.8	.	365.8	36.7	.	36.7	372.1	.	372.1	0.12
N	6	6	0	6	6	0	6	6	0	6	6
86-91 $\bar{X}$	1163.0	752.5	.	752.5	118.0	.	118.0	870.5	.	870.5	0.75
95% CL	316.4	489.3	.	489.3	59.8	.	59.8	539.5	.	539.5	0.36
N	6	6	0	6	6	0	6	6	0	6	6
92-97 $\bar{X}$	897.0	319.5	355.8	675.3	109.8	43.3	153.2	429.3	399.2	828.5	0.92
95% CL	290.0	144.7	439.8	568.4	121.0	44.3	117.8	201.4	483.6	615.4	0.66
N	6	6	6	6	6	6	6	6	6	6	6

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

CPUE IS BASED ON RETAINED + RELEASED FISH FOR 1992-98 AND ON RETAINED FISH ONLY PRIOR TO 1992.

Appendix 1h. Atlantic salmon recreational fishery catch and effort data for Salmon Fishing Area 2, Labrador, 1974-98. Ret. = retained fish; Rel. = released fish.

	Effort	Small (<63 cm)			Large (>= 63 cm)			Total (Small + Large)			
Year	Rod Days	Ret.	Rel.	Tot.	Ret.	Rel.	Tot.	Ret.	Rel.	Tot.	CPUE
1974	1978	1414	.	1414	201	.	201	1615	.	1615	0.82
1975	1784	2524	.	2524	56	.	56	2580	.	2580	1.45
1976	2331	2337	.	2337	152	.	152	2489	.	2489	1.07
1977	2507	2244	.	2244	160	.	160	2404	.	2404	0.96
1978	3131	1243	.	1243	152	.	152	1395	.	1395	0.45
1979	1817	2312	.	2312	60	.	60	2372	.	2372	1.31
1980	1692	2158	.	2158	320	.	320	2478	.	2478	1.46
1981	1423	2824	.	2824	105	.	105	2929	.	2929	2.06
1982	2290	1999	.	1999	162	.	162	2161	.	2161	0.94
1983	2294	1884	.	1884	161	.	161	2045	.	2045	0.89
1984	2057	1246	.	1246	103	.	103	1349	.	1349	0.66
1985	1756	1367	.	1367	59	.	59	1426	.	1426	0.81
1986	2310	1972	.	1972	154	.	154	2126	.	2126	0.92
1987	2750	2625	.	2625	277	.	277	2902	.	2902	1.06
1988	2875	2653	.	2653	288	.	288	2941	.	2941	1.02
1989	2986	2242	.	2242	264	.	264	2506	.	2506	0.84
1990	2607	1680	.	1680	144	.	144	1824	.	1824	0.70
1991	2427	1041	.	1041	36	.	36	1077	.	1077	0.44
1992	2813	1599	158	1757	208	10	218	1807	168	1975	0.70
1993	3600	1340	1255	2595	114	36	150	1454	1291	2745	0.76
1994	3352	1511	1716	3227	259	184	443	1770	1900	3670	1.09
1995	3544	1280	1727	3007	246	219	465	1526	1946	3472	0.98
1996	6271	1991	2610	4601	255	296	551	2246	2906	5152	0.82
1997	5256	1729	1264	2993	152	118	270	1881	1382	3263	0.62
1998	5050	1628	2273	3901	242	356	598	1870	2629	4499	0.89
84-89 $\bar{X}$	2455.7	2017.5	.	2017.5	190.8	.	190.8	2208.3	.	2208.3	0.90
95% CL	517.1	637.4	.	637.4	103.6	.	103.6	736.8	.	736.8	0.15
N	6	6	0	6	6	0	6	6	0	6	6
86-91 $\bar{X}$	2659.2	2035.5	.	2035.5	193.8	.	193.8	2229.3	.	2229.3	0.84
95% CL	273.8	645.5	.	645.5	104.6	.	104.6	747.9	.	747.9	0.23
N	6	6	0	6	6	0	6	6	0	6	6
92-97 $\bar{X}$	4139.3	1575.0	1455.0	3030.0	205.7	143.8	349.5	1780.7	1598.8	3379.5	0.82
95% CL	1393.7	275.2	844.2	975.5	63.3	115.6	166.7	296.5	951.5	1113.1	0.18
N	6	6	6	6	6	6	6	6	6	6	6

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

CPUE IS BASED ON RETAINED + RELEASED FISH FOR 1992-98 AND ON RETAINED FISH ONLY PRIOR TO 1992.

Appendix 1i. Atlantic salmon recreational fishery catch and effort data for Salmon Fishing Area 3, insular Newfoundland, 1974-98. Ret. = retained fish; Rel. = released fish.

	Effort	Small (<63 cm)			Large (>= 63 cm)			Total (Small + Large)			
Year	Rod Days	Ret.	Rel.	Tot.	Ret.	Rel.	Tot.	Ret.	Rel.	Tot.	CPUE
1974	1890	839	.	839	4	.	4	843	.	843	0.45
1975	1948	1107	.	1107	0	.	0	1107	.	1107	0.57
1976	2284	947	.	947	1	.	1	948	.	948	0.42
1977	2249	1530	.	1530	4	.	4	1534	.	1534	0.68
1978	2030	758	.	758	1	.	1	759	.	759	0.37
1979	2514	2040	.	2040	0	.	0	2040	.	2040	0.81
1980	2585	1743	.	1743	37	.	37	1780	.	1780	0.69
1981	3113	2358	.	2358	3	.	3	2361	.	2361	0.76
1982	3907	2634	.	2634	88	.	88	2722	.	2722	0.70
1983	4075	1617	.	1617	2	.	2	1619	.	1619	0.40
1984	2248	1001	.	1001	0	.	0	1001	.	1001	0.45
1985	2355	1310	.	1310	*	.	.	1310	.	1310	0.56
1986	1430	772	.	772	*	.	.	772	.	772	0.54
1987	1121	563	.	563	*	.	.	563	.	563	0.50
1988	2979	1756	.	1756	*	.	.	1756	.	1756	0.59
1989	1672	738	.	738	*	.	.	738	.	738	0.44
1990	3159	1718	.	1718	*	.	.	1718	.	1718	0.54
1991	3495	1316	.	1316	*	.	.	1316	.	1316	0.38
1992	3961	1562	120	1682	*	5	5	1562	125	1687	0.43
1993	4384	1480	2585	4065	*	152	152	1480	2737	4217	0.96
1994	7715	3314	1844	5158	*	404	404	3314	2248	5562	0.72
1995	5438	1405	890	2295	*	186	186	1405	1076	2481	0.46
1996	6363	2122	1118	3240	*	143	143	2122	1261	3383	0.53
1997**		1632	1296	2928	*	132	132	1632	1428	3060	
1998**		2131	2129	4260	*	102	102	2131	2231	4362	
84-89 $\bar{X}$	2136.8	1115.4	.	1115.4	.	.	.	1115.4	.	1115.4	0.52
95% CL	756.4	527.3	.	527.3	.	.	.	527.3	.	527.3	0.09
N	5	5	0	5	0	0	0	5	0	5	5
86-91 $\bar{X}$	2547.0	1260.0	.	1260.0	.	.	.	1260.0	.	1260.0	0.49
95% CL	1156.8	611.2	.	611.2	.	.	.	611.2	.	611.2	0.13
N	5	5	0	5	0	0	0	5	0	5	5
92-96 $\bar{X}$	5572.2	1976.6	1311.4	3288.0	0.0	178.0	178.0	1976.6	1489.4	3466.0	0.62
95% CL	1887.1	992.2	1167.9	1718.9	0.0	178.8	178.8	992.2	1274.6	1872.4	0.24
N	5	5	5	5	5	5	5	5	5	5	5

1987 DATA NOT INCLUDED IN MEAN.

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

CPUE IS BASED ON RETAINED + RELEASED FISH FOR 1992-96 AND ON RETAINED FISH ONLY PRIOR TO 1992.

* NOT ALLOWED TO RETAIN LARGE SALMON IN INSULAR NEWFOUNDLAND.

**DATA OBTAINED FROM THE LICENSE STUB RETURN (1998 DATA ARE PRELIMINARY).

Appendix 1j. Atlantic salmon recreational fishery catch and effort data for Salmon Fishing Area 4, insular Newfoundland, 1974-98. Ret. = retained fish; Rel. = released fish.

	Effort	Small (<63 cm)			Large (>= 63 cm)			Total (Small + Large)			
Year	Rod Days	Ret.	Rel.	Tot.	Ret.	Rel.	Tot.	Ret.	Rel.	Tot.	CPUE
1974	22038	5373	.	5373	82	.	82	5455	.	5455	0.25
1975	22384	5943	.	5943	166	.	166	6109	.	6109	0.27
1976	24787	6683	.	6683	188	.	188	6871	.	6871	0.28
1977	28117	8396	.	8396	1086	.	1086	9482	.	9482	0.34
1978	24131	8774	.	8774	502	.	502	9276	.	9276	0.38
1979	21496	8026	.	8026	327	.	327	8353	.	8353	0.39
1980	25172	9414	.	9414	507	.	507	9921	.	9921	0.39
1981	32282	13536	.	13536	361	.	361	13897	.	13897	0.43
1982	32929	9973	.	9973	258	.	258	10231	.	10231	0.31
1983	26649	8954	.	8954	297	.	297	9251	.	9251	0.35
1984	29633	9900	.	9900	15	.	15	9915	.	9915	0.33
1985	34329	12190	.	12190	*	.	.	12190	.	12190	0.36
1986	31650	9293	.	9293	*	.	.	9293	.	9293	0.29
1987	18564	5453	.	5453	*	.	.	5453	.	5453	0.29
1988	27413	9854	.	9854	*	.	.	9854	.	9854	0.36
1989	17767	3786	.	3786	*	.	.	3786	.	3786	0.21
1990	23533	5661	.	5661	*	.	.	5661	.	5661	0.24
1991	21999	4892	.	4892	*	.	.	4892	.	4892	0.22
1992	19485	5290	1515	6805	*	5	5	5290	1520	6810	0.35
1993	30958	5724	7232	12956	*	158	158	5724	7390	13114	0.42
1994	43242	9351	2728	12079	*	79	79	9351	2807	12158	0.28
1995	36717	7979	3199	11178	*	151	151	7979	3350	11329	0.31
1996	44385	10960	6374	17334	*	232	232	10960	6606	17566	0.40
1997**		3353	2461	5814	*	338	338	3353	2799	6152	
1998**		4963	4952	9915	*	526	526	4963	5478	10441	
84-89 $\bar{X}$	28158.4	9004.6	.	9004.6	.	.	.	9007.6	.	9007.6	0.32
95% CL	7875.7	3875.8	.	3875.8	.	.	.	3877.2	.	3877.2	0.06
N	5	5	0	5	0	0	0	5	0	5	5
86-91 $\bar{X}$	24472.4	6697.2	.	6697.2	.	.	.	6697.2	.	6697.2	0.27
95% CL	6573.0	3372.1	.	3372.1	.	.	.	3372.1	.	3372.1	0.08
N	5	5	0	5	0	0	0	5	0	5	5
92-96 $\bar{X}$	34957.4	7860.8	4209.6	12070.4	0.0	125.0	125.0	7860.8	4334.6	12195.4	0.35
95% CL	12660.5	2977.9	3059.7	4686.9	0.0	107.0	107.0	2977.9	3148.0	4785.8	0.08
N	5	5	5	5	5	5	5	5	5	5	5

1987 DATA NOT INCLUDED IN MEAN.

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

CPUE IS BASED ON RETAINED + RELEASED FISH FOR 1992-96 AND ON RETAINED FISH ONLY PRIOR TO 1992.

* NOT ALLOWED TO RETAIN LARGE SALMON IN INSULAR NEWFOUNDLAND.

**DATA OBTAINED FROM THE LICENSE STUB RETURN (1998 DATA ARE PRELIMINARY).

Appendix 1k. Atlantic salmon recreational fishery catch and effort data for Salmon Fishing Area 5, insular Newfoundland, 1974-98. Ret. = retained fish; Rel.= released fish.

	Effort	Small (<63 cm)			Large (>= 63 cm)			Total (Small + Large)			
Year	Rod Days	Ret.	Rel.	Tot.	Ret.	Rel.	Tot.	Ret.	Rel.	Tot.	CPUE
1974	9335	1637	.	1637	21	.	21	1658	.	1658	0.18
1975	7527	1988	.	1988	23	.	23	2011	.	2011	0.27
1976	6975	1898	.	1898	65	.	65	1963	.	1963	0.28
1977	10572	4616	.	4616	44	.	44	4660	.	4660	0.44
1978	9108	2858	.	2858	28	.	28	2886	.	2886	0.32
1979	3926	1331	.	1331	20	.	20	1351	.	1351	0.34
1980	8155	2702	.	2702	29	.	29	2731	.	2731	0.33
1981	8863	3488	.	3488	35	.	35	3523	.	3523	0.40
1982	9935	2433	.	2433	53	.	53	2486	.	2486	0.25
1983	10195	2357	.	2357	170	.	170	2527	.	2527	0.25
1984	12403	2703	.	2703	1	.	1	2704	.	2704	0.22
1985	11613	3484	.	3484	*	.	.	3484	.	3484	0.30
1986	11510	4053	.	4053	*	.	.	4053	.	4053	0.35
1987	5267	1664	.	1664	*	.	.	1664	.	1664	0.32
1988	10497	4166	.	4166	*	.	.	4166	.	4166	0.40
1989	6617	1417	.	1417	*	.	.	1417	.	1417	0.21
1990	7999	2414	.	2414	*	.	.	2414	.	2414	0.30
1991	7002	2048	.	2048	*	.	.	2048	.	2048	0.29
1992	9230	1941	728	2669	*	1	1	1941	729	2670	0.29
1993	12949	2091	2008	4099	*	107	107	2091	2115	4206	0.32
1994	18000	3216	689	3905	*	52	52	3216	741	3957	0.22
1995	16691	2860	586	3446	*	76	76	2860	662	3522	0.21
1996	16415	3948	706	4654	*	113	113	3948	819	4767	0.29
1997**		898	395	1293	*	46	46	898	441	1339	
1998**		1060	996	2056	*	100	100	1060	1096	2156	
84-89 $\bar{X}$	10528.0	3164.6	.	3164.6	.	.	.	3164.8	.	3164.8	0.30
95% CL	2841.4	1410.2	.	1410.2	.	.	.	1410.1	.	1410.1	0.10
N	5	5	0	5	0	0	0	5	0	5	5
86-91 $\bar{X}$	8725.0	2819.6	.	2819.6	.	.	.	2819.6	.	2819.6	0.32
95% CL	2694.0	1528.2	.	1528.2	.	.	.	1528.2	.	1528.2	0.08
N	5	5	0	5	0	0	0	5	0	5	5
92-96 $\bar{X}$	14657.0	2811.2	943.4	3754.6	0.0	69.8	69.8	2811.2	1013.2	3824.4	0.26
95% CL	4423.0	1026.5	741.9	925.7	0.0	56.7	56.7	1026.5	767.8	976.7	0.06
N	5	5	5	5	5	5	5	5	5	5	5

1987 DATA NOT INCLUDED IN MEAN.

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

CPUE IS BASED ON RETAINED + RELEASED FISH FOR 1992-96 AND ON RETAINED FISH ONLY PRIOR TO 1992.

* NOT ALLOWED TO RETAIN LARGE SALMON IN INSULAR NEWFOUNDLAND.

**DATA OBTAINED FROM THE LICENSE STUB RETURN (1998 DATA ARE PRELIMINARY).

Appendix 11. Atlantic salmon recreational fishery catch and effort data for Salmon Fishing Area 6, insular Newfoundland, 1974-98. Ret. = retained fish; Rel. = released fish.

	Effort	Small (<63 cm)			Large (>= 63 cm)			Total (Small + Large)			
Year	Rod Days	Ret.	Rel.	Tot.	Ret.	Rel.	Tot.	Ret.	Rel.	Tot.	CPUE
1974	2685	303	.	303	1	.	1	304	.	304	0.11
1975	1851	94	.	94	1	.	1	95	.	95	0.05
1976	2864	247	.	247	2	.	2	249	.	249	0.09
1977	1869	401	.	401	19	.	19	420	.	420	0.22
1978	2237	296	.	296	7	.	7	303	.	303	0.14
1979	1766	244	.	244	2	.	2	246	.	246	0.14
1980	2807	320	.	320	14	.	14	334	.	334	0.12
1981	3406	605	.	605	29	.	29	634	.	634	0.19
1982	3031	288	.	288	17	.	17	305	.	305	0.10
1983	3684	296	.	296	10	.	10	306	.	306	0.08
1984	3218	312	.	312	5	.	5	317	.	317	0.10
1985	2256	429	.	429	*	.	.	429	.	429	0.19
1986	2596	445	.	445	*	.	.	445	.	445	0.17
1987	1306	137	.	137	*	.	.	137	.	137	0.10
1988	3392	429	.	429	*	.	.	429	.	429	0.13
1989	2959	246	.	246	*	.	.	246	.	246	0.08
1990	3089	334	.	334	*	.	.	334	.	334	0.11
1991	1620	186	.	186	*	.	.	186	.	186	0.11
1992	2265	230	10	240	*	0	0	230	10	240	0.11
1993	2784	323	81	404	*	9	9	323	90	413	0.15
1994	2429	241	21	262	*	4	4	241	25	266	0.11
1995	2513	336	61	397	*	8	8	336	69	405	0.16
1996	2331	327	43	370	*	17	17	327	60	387	0.17
1997**		33	14	47	*	2	2	33	16	49	
1998**		60	22	82	*	4	4	60	26	86	
84-89 $\bar{X}$	2884.2	372.2	.	372.2	.	.	.	373.2	.	373.2	0.13
95% CL	573.2	109.8	.	109.8	.	.	.	108.8	.	108.8	0.05
N	5	5	0	5	0	0	0	5	0	5	5
86-91 $\bar{X}$	2731.2	328.0	.	328.0	.	.	.	328.0	.	328.0	0.12
95% CL	848.8	139.9	.	139.9	.	.	.	139.9	.	139.9	0.04
N	5	5	0	5	0	0	0	5	0	5	5
92-96 $\bar{X}$	2464.4	291.4	43.2	334.6	0.0	7.6	7.6	291.4	50.8	342.2	0.14
95% CL	250.9	63.8	35.9	96.5	0.0	7.9	7.9	63.8	40.6	102.4	0.03
N	5	5	5	5	5	5	5	5	5	5	5

1987 DATA NOT INCLUDED IN MEAN.

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

CPUE IS BASED ON RETAINED + RELEASED FISH FOR 1992-96 AND ON RETAINED FISH ONLY PRIOR TO 1992.

* NOT ALLOWED TO RETAIN LARGE SALMON IN INSULAR NEWFOUNDLAND.

**DATA OBTAINED FROM THE LICENSE STUB RETURN (1998 DATA ARE PRELIMINARY).

Appendix 1m. Atlantic salmon recreational fishery catch and effort data for Salmon Fishing Area 7, insular Newfoundland, 1974-98. Ret. = retained fish; Rel. = released fish.

	Effort	Small (<63 cm)			Large (>= 63 cm)			Total (Small + Large)			
Year	Rod Days	Ret.	Rel.	Tot.	Ret.	Rel.	Tot.	Ret.	Rel.	Tot.	CPUE
1974	2019	133	.	133	2	.	2	135	.	135	0.07
1975	1436	40	.	40	0	.	0	40	.	40	0.03
1976	1128	30	.	30	0	.	0	30	.	30	0.03
1977	1775	78	.	78	1	.	1	79	.	79	0.04
1978	1786	99	.	99	1	.	1	100	.	100	0.06
1979	1332	125	.	125	0	.	0	125	.	125	0.09
1980	1546	102	.	102	1	.	1	103	.	103	0.07
1981	1348	123	.	123	2	.	2	125	.	125	0.09
1982	1621	155	.	155	10	.	10	165	.	165	0.10
1983	1804	139	.	139	34	.	34	173	.	173	0.10
1984	1381	96	.	96	4	.	4	100	.	100	0.07
1985	1635	112	.	112	*	.	.	112	.	112	0.07
1986	700	102	.	102	*	.	.	102	.	102	0.15
1987	632	28	.	28	*	.	.	28	.	28	0.04
1988	1645	128	.	128	*	.	.	128	.	128	0.08
1989	1226	66	.	66	*	.	.	66	.	66	0.05
1990	827	49	.	49	*	.	.	49	.	49	0.06
1991	644	36	.	36	*	.	.	36	.	36	0.06
1992	1313	40	0	40	*	0	0	40	0	40	0.03
1993	1107	58	3	61	*	0	0	58	3	61	0.06
1994	1162	71	0	71	*	0	0	71	0	71	0.06
1995	1425	170	0	170	*	0	0	170	0	170	0.12
1996	1603	139	3	142	*	0	0	139	3	142	0.09
1997**		9	0	9	*	3	3	9	3	12	
1998**		26	0	26	*	2	2	26	2	28	
84-89 $\bar{X}$	1317.4	100.8	.	100.8	.	.	.	101.6	.	101.6	0.08
95% CL	481.5	28.5	.	28.5	.	.	.	28.3	.	28.3	0.03
N	5	5	0	5	0	0	0	5	0	5	5
86-91 $\bar{X}$	1008.4	76.2	.	76.2	.	.	.	76.2	.	76.2	0.08
95% CL	524.3	47.3	.	47.3	.	.	.	47.3	.	47.3	0.04
N	5	5	0	5	0	0	0	5	0	5	5
92-96 $\bar{X}$	1322.0	95.6	1.2	96.8	0.0	0.0	0.0	95.6	1.2	96.8	0.07
95% CL	249.4	69.5	2.0	69.6	0.0	0.0	0.0	69.5	2.0	69.6	0.04
N	5	5	5	5	5	5	5	5	5	5	5

1987 DATA NOT INCLUDED IN MEAN.

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

CPUE IS BASED ON RETAINED + RELEASED FISH FOR 1992-96 AND ON RETAINED FISH ONLY PRIOR TO 1992.

* NOT ALLOWED TO RETAIN LARGE SALMON IN INSULAR NEWFOUNDLAND.

**DATA OBTAINED FROM THE LICENSE STUB RETURN (1998 DATA ARE PRELIMINARY).

Appendix 1n. Atlantic salmon recreational fishery catch and effort data for Salmon Fishing Area 8, insular Newfoundland, 1974-98. Ret. = retained fish; Rel. = released fish.

	Effort	Small (<63 cm)			Large (>= 63 cm)			Total (Small + Large)			
Year	Rod Days	Ret.	Rel.	Tot.	Ret.	Rel.	Tot.	Ret.	Rel.	Tot.	CPUE
1974	659	51	.	51	0	.	0	51	.	51	0.08
1975	527	87	.	87	0	.	0	87	.	87	0.17
1976	514	80	.	80	0	.	0	80	.	80	0.16
1977	530	81	.	81	0	.	0	81	.	81	0.15
1978	269	44	.	44	0	.	0	44	.	44	0.16
1979	331	100	.	100	0	.	0	100	.	100	0.30
1980	316	120	.	120	0	.	0	120	.	120	0.38
1981	384	77	.	77	0	.	0	77	.	77	0.20
1982	538	85	.	85	9	.	9	94	.	94	0.17
1983	414	41	.	41	5	.	5	46	.	46	0.11
1984	357	79	.	79	0	.	0	79	.	79	0.22
1985	611	103	.	103	*	.	.	103	.	103	0.17
1986	696	138	.	138	*	.	.	138	.	138	0.20
1987	268	43	.	43	*	.	.	43	.	43	0.16
1988	474	79	.	79	*	.	.	79	.	79	0.17
1989	330	99	.	99	*	.	.	99	.	99	0.30
1990	349	86	.	86	*	.	.	86	.	86	0.25
1991	324	11	.	11	*	.	.	11	.	11	0.03
1992	.	.	.	.	*	.	.	.	.	.	.
1993	458	53	2	55	*	0	0	53	2	55	0.12
1994	265	57	1	58	*	0	0	57	1	58	0.22
1995	400	73	2	75	*	0	0	73	2	75	0.19
1996	518	59	0	59	*	0	0	59	0	59	0.11
1997**		9	5	14	*	0	0	9	5	14	
1998**		18	14	32	*	4	4	18	18	36	
84-89 $\bar{X}$	493.6	99.6	.	99.6	.	.	.	99.6	.	99.6	0.20
95% CL	196.8	30.0	.	30.0	.	.	.	30.0	.	30.0	0.05
N	5	5	0	5	0	0	0	5	0	5	5
86-91 $\bar{X}$	434.6	82.6	.	82.6	.	.	.	82.6	.	82.6	0.19
95% CL	196.7	57.2	.	57.2	.	.	.	57.2	.	57.2	0.09
N	5	5	0	5	0	0	0	5	0	5	5
92-96 $\bar{X}$	410.3	60.5	1.3	61.8	0.0	0.0	0.0	60.5	1.3	61.8	0.15
95% CL	172.1	13.8	1.5	14.3	0.0	0.0	0.0	13.8	1.5	14.3	0.07
N	4	4	4	4	4	4	4	4	4	4	4

1987 DATA NOT INCLUDED IN MEAN.

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

CPUE IS BASED ON RETAINED + RELEASED FISH FOR 1992-96 AND ON RETAINED FISH ONLY PRIOR TO 1992.

* NOT ALLOWED TO RETAIN LARGE SALMON IN INSULAR NEWFOUNDLAND.

**DATA OBTAINED FROM THE LICENSE STUB RETURN (1998 DATA ARE PRELIMINARY).

Appendix 1o. Atlantic salmon recreational fishery catch and effort data for Salmon Fishing Area 9, insular Newfoundland, 1974-98. Ret. = retained fish; Rel. = released fish.

	Effort	Small (<63 cm)			Large (>= 63 cm)			Total (Small + Large)			
Year	Rod Days	Ret.	Rel.	Tot.	Ret.	Rel.	Tot.	Ret.	Rel.	Tot.	CPUE
1974	9162	1494	.	1494	9	.	9	1503	.	1503	0.16
1975	10046	1872	.	1872	6	.	6	1878	.	1878	0.19
1976	8809	1623	.	1623	12	.	12	1635	.	1635	0.19
1977	8766	1080	.	1080	9	.	9	1089	.	1089	0.12
1978	7224	1303	.	1303	17	.	17	1320	.	1320	0.18
1979	5859	1704	.	1704	15	.	15	1719	.	1719	0.29
1980	6446	2379	.	2379	61	.	61	2440	.	2440	0.38
1981	6343	1862	.	1862	52	.	52	1914	.	1914	0.30
1982	8574	1825	.	1825	33	.	33	1858	.	1858	0.22
1983	10754	2303	.	2303	71	.	71	2374	.	2374	0.22
1984	8754	2264	.	2264	5	.	5	2269	.	2269	0.26
1985	9385	1750	.	1750	*	.	.	1750	.	1750	0.19
1986	8807	2298	.	2298	*	.	.	2298	.	2298	0.26
1987	5994	867	.	867	*	.	.	867	.	867	0.14
1988	7157	1373	.	1373	*	.	.	1373	.	1373	0.19
1989	7039	1315	.	1315	*	.	.	1315	.	1315	0.19
1990	8240	1866	.	1866	*	.	.	1866	.	1866	0.23
1991	6482	560	.	560	*	.	.	560	.	560	0.09
1992	6177	690	196	886	*	1	1	690	197	887	0.14
1993	10344	1431	151	1582	*	15	15	1431	166	1597	0.15
1994	7154	829	93	922	*	2	2	829	95	924	0.13
1995	10487	1594	307	1901	*	11	11	1594	318	1912	0.18
1996	10365	1371	251	1622	*	25	25	1371	276	1647	0.16
1997**		505	302	807	*	52	52	505	354	859	
1998**		430	319	749	*	110	110	430	429	859	
84-89 $\bar{X}$	8228.4	1800.0	.	1800.0	.	.	.	1801.0	.	1801.0	0.22
95% CL	1318.4	583.4	.	583.4	.	.	.	584.9	.	584.9	0.05
N	5	5	0	5	0	0	0	5	0	5	5
86-91 $\bar{X}$	7545.0	1482.4	.	1482.4	.	.	.	1482.4	.	1482.4	0.20
95% CL	1179.8	810.1	.	810.1	.	.	.	810.1	.	810.1	0.08
N	5	5	0	5	0	0	0	5	0	5	5
92-96 $\bar{X}$	8905.4	1183.0	199.6	1382.6	0.0	10.8	10.8	1183.0	210.4	1393.4	0.16
95% CL	2575.3	494.3	103.7	563.7	0.0	12.3	12.3	494.3	109.9	572.8	0.02
N	5	5	5	5	5	5	5	5	5	5	5

1987 DATA NOT INCLUDED IN MEAN.

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

CPUE IS BASED ON RETAINED + RELEASED FISH FOR 1992-96 AND ON RETAINED FISH ONLY PRIOR TO 1992.

* NOT ALLOWED TO RETAIN LARGE SALMON IN INSULAR NEWFOUNDLAND.

**DATA OBTAINED FROM THE LICENSE STUB RETURN (1998 DATA ARE PRELIMINARY).

Appendix 1p. Atlantic salmon recreational fishery catch and effort data for Salmon Fishing Area 10, insular Newfoundland, 1974-98. Ret. = retained fish; Rel. = released fish.

	Effort	Small (<63 cm)			Large (>= 63 cm)			Total (Small + Large)			
Year	Rod Days	Ret.	Rel.	Tot.	Ret.	Rel.	Tot.	Ret.	Rel.	Tot.	CPUE
1974	10987	1212	.	1212	14	.	14	1226	.	1226	0.11
1975	5999	427	.	427	9	.	9	436	.	436	0.07
1976	8811	730	.	730	10	.	10	740	.	740	0.08
1977	7213	1097	.	1097	5	.	5	1102	.	1102	0.15
1978	8764	1595	.	1595	42	.	42	1637	.	1637	0.19
1979	6405	849	.	849	8	.	8	857	.	857	0.13
1980	9588	1524	.	1524	27	.	27	1551	.	1551	0.16
1981	9309	1317	.	1317	29	.	29	1346	.	1346	0.14
1982	9331	1256	.	1256	10	.	10	1266	.	1266	0.14
1983	9173	1140	.	1140	79	.	79	1219	.	1219	0.13
1984	6361	1457	.	1457	2	.	2	1459	.	1459	0.23
1985	6887	1326	.	1326	*	.	.	1326	.	1326	0.19
1986	6387	1535	.	1535	*	.	.	1535	.	1535	0.24
1987	3348	429	.	429	*	.	.	429	.	429	0.13
1988	5198	1142	.	1142	*	.	.	1142	.	1142	0.22
1989	4709	898	.	898	*	.	.	898	.	898	0.19
1990	4778	835	.	835	*	.	.	835	.	835	0.17
1991	2960	230	.	230	*	.	.	230	.	230	0.08
1992	3422	245	497	742	*	6	6	245	503	748	0.22
1993	7656	700	691	1391	*	26	26	700	717	1417	0.19
1994	7028	946	150	1096	*	21	21	946	171	1117	0.16
1995	10210	1450	254	1704	*	23	23	1450	277	1727	0.17
1996	15128	2092	428	2520	*	88	88	2092	516	2608	0.17
1997**		705	391	1096	*	79	79	705	470	1175	
1998**		616	313	929	*	84	84	616	397	1013	
84-89 $\bar{X}$	5908.4	1271.6	.	1271.6	.	.	.	1272.0	.	1272.0	0.22
95% CL	1133.5	318.4	.	318.4	.	.	.	318.8	.	318.8	0.03
N	5	5	0	5	0	0	0	5	0	5	5
86-91 $\bar{X}$	4806.4	928.0	.	928.0	.	.	.	928.0	.	928.0	0.19
95% CL	1529.5	592.5	.	592.5	.	.	.	592.5	.	592.5	0.06
N	5	5	0	5	0	0	0	5	0	5	5
92-96 $\bar{X}$	8688.8	1086.6	404.0	1490.6	0.0	32.8	32.8	1086.6	436.8	1523.4	0.18
95% CL	5387.9	882.3	262.3	840.0	0.0	39.5	39.5	882.3	267.2	876.9	0.02
N	5	5	5	5	5	5	5	5	5	5	5

1987 DATA NOT INCLUDED IN MEAN.

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

CPUE IS BASED ON RETAINED + RELEASED FISH FOR 1992-96 AND ON RETAINED FISH ONLY PRIOR TO 1992.

* NOT ALLOWED TO RETAIN LARGE SALMON IN INSULAR NEWFOUNDLAND.

**DATA OBTAINED FROM THE LICENSE STUB RETURN (1998 DATA ARE PRELIMINARY).

Appendix 1q. Atlantic salmon recreational fishery catch and effort data for Salmon Fishing Area 11, insular Newfoundland, 1974-98. Ret. = retained fish; Rel. = released fish.

	Effort	Small (<63 cm)			Large (>= 63 cm)			Total (Small + Large)			
Year	Rod Days	Ret.	Rel.	Tot.	Ret.	Rel.	Tot.	Ret.	Rel.	Tot.	CPUE
1974	9119	4476	.	4476	38	.	38	4514	.	4514	0.50
1975	8473	4501	.	4501	40	.	40	4541	.	4541	0.54
1976	8681	4164	.	4164	42	.	42	4206	.	4206	0.48
1977	7966	4096	.	4096	18	.	18	4114	.	4114	0.52
1978	8050	3996	.	3996	18	.	18	4014	.	4014	0.50
1979	6570	3430	.	3430	7	.	7	3437	.	3437	0.52
1980	10010	5069	.	5069	44	.	44	5113	.	5113	0.51
1981	12836	7062	.	7062	41	.	41	7103	.	7103	0.55
1982	15334	7338	.	7338	53	.	53	7391	.	7391	0.48
1983	15419	4769	.	4769	27	.	27	4796	.	4796	0.31
1984	15385	7019	.	7019	15	.	15	7034	.	7034	0.46
1985	13712	5823	.	5823	*	.	.	5823	.	5823	0.42
1986	15233	5546	.	5546	*	.	.	5546	.	5546	0.36
1987	11309	3829	.	3829	*	.	.	3829	.	3829	0.34
1988	14811	5033	.	5033	*	.	.	5033	.	5033	0.34
1989	11543	2960	.	2960	*	.	.	2960	.	2960	0.26
1990	12520	4446	.	4446	*	.	.	4446	.	4446	0.36
1991	7647	1853	.	1853	*	.	.	1853	.	1853	0.24
1992	8501	2273	1039	3312	*	1	1	2273	1040	3313	0.39
1993	11280	3084	664	3748	*	43	43	3084	707	3791	0.34
1994	10891	2280	674	2954	*	38	38	2280	712	2992	0.27
1995	14449	3255	938	4193	*	13	13	3255	951	4206	0.29
1996	16135	4035	1746	5781	*	26	26	4035	1772	5807	0.36
1997**		2311	2039	4350	*	133	133	2311	2172	4483	
1998**		971	1297	2268	*	102	102	971	1399	2370	
84-89 $\bar{X}$	14136.8	5276.2	.	5276.2	.	.	.	5279.2	.	5279.2	0.37
95% CL	1974.9	1844.8	.	1844.8	.	.	.	1850.3	.	1850.3	0.09
N	5	5	0	5	0	0	0	5	0	5	5
86-91 $\bar{X}$	12350.8	3967.6	.	3967.6	.	.	.	3967.6	.	3967.6	0.32
95% CL	3784.3	1897.3	.	1897.3	.	.	.	1897.3	.	1897.3	0.06
N	5	5	0	5	0	0	0	5	0	5	5
92-96 $\bar{X}$	12251.2	2985.4	1012.2	3997.6	0.0	24.2	24.2	2985.4	1036.4	4021.8	0.33
95% CL	3764.1	918.4	548.3	1365.6	0.0	21.6	21.6	918.4	541.9	1365.2	0.05
N	5	5	5	5	5	5	5	5	5	5	5

1987 DATA NOT INCLUDED IN MEAN.

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

CPUE IS BASED ON RETAINED + RELEASED FISH FOR 1992-96 AND ON RETAINED FISH ONLY PRIOR TO 1992.

* NOT ALLOWED TO RETAIN LARGE SALMON IN INSULAR NEWFOUNDLAND.

**DATA OBTAINED FROM THE LICENSE STUB RETURN (1998 DATA ARE PRELIMINARY).

Appendix 1r. Atlantic salmon recreational fishery catch and effort data for Salmon Fishing Area 12, insular Newfoundland, 1974-98. Ret. = retained fish; Rel. = released fish.

	Effort	Small (<63 cm)			Large (>= 63 cm)			Total (Small + Large)			
Year	Rod Days	Ret.	Rel.	Tot.	Ret.	Rel.	Tot.	Ret.	Rel.	Tot.	CPUE
1974	1423	658	.	658	13	.	13	671	.	671	0.47
1975	1204	510	.	510	20	.	20	530	.	530	0.44
1976	926	297	.	297	5	.	5	302	.	302	0.33
1977	1238	558	.	558	48	.	48	606	.	606	0.49
1978	1305	366	.	366	20	.	20	386	.	386	0.30
1979	1711	733	.	733	10	.	10	743	.	743	0.43
1980	2175	820	.	820	29	.	29	849	.	849	0.39
1981	2035	1060	.	1060	17	.	17	1077	.	1077	0.53
1982	2810	1555	.	1555	15	.	15	1570	.	1570	0.56
1983	2648	667	.	667	8	.	8	675	.	675	0.25
1984	3590	1922	.	1922	68	.	68	1990	.	1990	0.55
1985	3722	1097	.	1097	*	30	30	1097	30	1127	0.30
1986	3430	938	.	938	*	34	34	938	34	972	0.28
1987	2212	831	.	831	*	27	27	831	27	858	0.39
1988	3607	1413	.	1413	*	23	23	1413	23	1436	0.40
1989	2657	560	.	560	*	10	10	560	10	570	0.21
1990	3060	856	.	856	*	30	30	856	30	886	0.29
1991	2761	644	.	644	*	15	15	644	15	659	0.24
1992	2831	639	466	1105	*	78	78	639	544	1183	0.42
1993	3362	745	155	900	*	22	22	745	177	922	0.27
1994	2853	593	137	730	*	48	48	593	185	778	0.27
1995	2679	507	87	594	*	41	41	507	128	635	0.24
1996***		716	282	998	*	53	53	716	335	1051	
1997**		634	468	1102	*	88	88	634	556	1190	
1998**		280	282	562	*	111	111	280	393	673	
84-89 $\bar{X}$	3203.0	1126.8	.	1126.8	.	24.8	32.0	1138.2	24.8	1158.8	0.36
95% CL	649.4	505.5	.	505.5	.	11.4	20.4	529.3	11.4	522.9	0.13
N	6	6	0	6	0	5	6	6	5	6	6
86-91 $\bar{X}$	2954.5	873.7	.	873.7	.	23.2	23.2	873.7	23.2	896.8	0.30
95% CL	543.4	314.3	.	314.3	.	9.6	9.6	314.3	9.6	318.8	0.08
N	6	6	0	6	0	6	6	6	6	6	6
92-96 $\bar{X}$	2931.3	640.0	225.4	865.4	0.0	48.4	48.4	640.0	273.8	913.8	0.31
95% CL	473.2	118.9	189.3	254.6	0.0	25.2	25.2	118.9	210.7	268.8	0.12
N	4	5	5	5	0	5	5	5	5	5	4

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CPUE IS BASED ON RETAINED + RELEASED FISH FOR 1985-95 AND ON RETAINED FISH ONLY PRIOR TO 1985.

* NOT ALLOWED TO RETAIN LARGE SALMON IN INSULAR NEWFOUNDLAND.

**DATA OBTAINED FROM THE LICENSE STUB RETURN (1998 DATA ARE PRELIMINARY).

***FOR RIVERS WHERE DFO DATA WERE UNAVAILABLE, LICENSE STUB RETURN DATA WERE USED.

Appendix 1s. Atlantic salmon recreational fishery catch and effort data for Salmon Fishing Area 13, insular Newfoundland, 1974-98. Ret. = retained fish; Rel. = released fish.

	Effort	Small (<63 cm)			Large (>= 63 cm)			Total (Small + Large)			
Year	Rod Days	Ret.	Rel.	Tot.	Ret.	Rel.	Tot.	Ret.	Rel.	Tot.	CPUE
1974	29313	7189	.	7189	916	.	916	8105	.	8105	0.28
1975	32253	12003	.	12003	886	.	886	12889	.	12889	0.40
1976	32922	10383	.	10383	626	.	626	11009	.	11009	0.33
1977	24474	6712	.	6712	1049	.	1049	7761	.	7761	0.32
1978	19686	5289	.	5289	855	.	855	6144	.	6144	0.31
1979	16383	6009	.	6009	113	.	113	6122	.	6122	0.37
1980	21313	7913	.	7913	993	.	993	8906	.	8906	0.42
1981	23839	9300	.	9300	663	.	663	9963	.	9963	0.42
1982	25246	9566	.	9566	595	.	595	10161	.	10161	0.40
1983	25473	6337	.	6337	610	.	610	6947	.	6947	0.27
1984	22152	7771	.	7771	309	.	309	8080	.	8080	0.36
1985	20137	5302	.	5302	*	257	257	5302	257	5559	0.28
1986	25707	7346	.	7346	*	662	662	7346	662	8008	0.31
1987	20887	6018	.	6018	*	342	342	6018	342	6360	0.30
1988	24356	8217	.	8217	*	406	406	8217	406	8623	0.35
1989	18544	3174	.	3174	*	129	129	3174	129	3303	0.18
1990	21769	6652	.	6652	*	337	337	6652	337	6989	0.32
1991	21028	5188	.	5188	*	204	204	5188	204	5392	0.26
1992	21629	5430	540	5970	*	947	947	5430	1487	6917	0.32
1993	22521	5099	829	5928	*	732	732	5099	1561	6660	0.30
1994	19723	3632	936	4568	*	929	929	3632	1865	5497	0.28
1995	18107	3336	1164	4500	*	948	948	3336	2112	5448	0.30
1996***		4461	4644	9105	*	1236	1236	4461	5880	10341	
1997**		3785	6263	10048	*	2042	2042	3785	8305	12090	
1998**		1765	2752	4517	*	1304	1304	1765	4056	5821	
84-89 $\bar{X}$	21963.8	6304.7	.	6304.7	.	359.2	350.8	6356.2	359.2	6655.5	0.30
95% CL	2814.9	1979.3	.	1979.3	.	246.4	187.6	2033.4	246.4	2112.7	0.06
N	6	6	0	6	0	5	6	6	5	6	6
86-91 $\bar{X}$	22048.5	6099.2	.	6099.2	.	346.7	346.7	6099.2	346.7	6445.8	0.29
95% CL	2715.2	1862.2	.	1862.2	.	194.0	194.0	1862.2	194.0	2017.4	0.06
N	6	6	0	6	0	6	6	6	6	6	6
92-96 $\bar{X}$	20495.0	4391.6	1622.6	6014.2	0.0	958.4	958.4	4391.6	2581.0	6972.6	0.34
95% CL	3140.5	1123.3	2115.3	2318.1	0.0	223.3	223.3	1123.3	2310.4	2478.9	0.08
N	4	5	5	5	0	5	5	5	5	5	4

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

CPUE IS BASED ON RETAINED + RELEASED FISH FOR 1985-95 AND ON RETAINED FISH ONLY PRIOR TO 1985.

* NOT ALLOWED TO RETAIN LARGE SALMON IN INSULAR NEWFOUNDLAND.

**DATA OBTAINED FROM THE LICENSE STUB RETURN (1998 DATA ARE PRELIMINARY).

***FOR RIVERS WHERE DFO DATA WERE UNAVAILABLE, LICENSE STUB RETURN DATA WERE USED.

Appendix 1t. Atlantic salmon recreational fishery catch and effort data for Salmon Fishing Area 14A, insular Newfoundland, 1974-98. Ret. = retained fish; Rel. = released fish.

	Effort	Small (<63 cm)			Large (>= 63 cm)			Total (Small + Large)			
Year	Rod Days	Ret.	Rel.	Tot.	Ret.	Rel.	Tot.	Ret.	Rel.	Tot.	CPUE
1974	9569	3120	.	3120	113	.	113	3233	.	3233	0.34
1975	9259	4818	.	4818	90	.	90	4908	.	4908	0.53
1976	17146	7381	.	7381	100	.	100	7481	.	7481	0.44
1977	17067	5707	.	5707	472	.	472	6179	.	6179	0.36
1978	12069	3241	.	3241	72	.	72	3313	.	3313	0.27
1979	14285	6578	.	6578	59	.	59	6637	.	6637	0.46
1980	14219	3743	.	3743	180	.	180	3923	.	3923	0.28
1981	18718	5882	.	5882	137	.	137	6019	.	6019	0.32
1982	16113	4763	.	4763	107	.	107	4870	.	4870	0.30
1983	16020	3800	.	3800	69	.	69	3869	.	3869	0.24
1984	16497	4807	.	4807	87	.	87	4894	.	4894	0.30
1985	13388	3626	.	3626	*	28	28	3626	28	3654	0.27
1986	15382	5030	.	5030	*	102	102	5030	102	5132	0.33
1987	15061	4620	.	4620	*	41	41	4620	41	4661	0.31
1988	18968	6251	.	6251	*	171	171	6251	171	6422	0.34
1989	16223	3203	.	3203	*	44	44	3203	44	3247	0.20
1990	16413	5050	.	5050	*	136	136	5050	136	5186	0.32
1991	13850	3565	.	3565	*	117	117	3565	117	3682	0.27
1992	17117	4778	531	5309	*	369	369	4778	900	5678	0.33
1993	17858	3905	2002	5907	*	376	376	3905	2378	6283	0.35
1994	21046	4429	1097	5526	*	475	475	4429	1572	6001	0.29
1995	24159	6090	2087	8177	*	731	731	6090	2818	8908	0.37
1996	25876	6485	3008	9493	*	706	706	6485	3714	10199	0.39
1997**		3514	1822	5336	*	417	417	3514	2239	5753	
1998**		2887	2600	5487	*	403	403	2887	3003	5890	
84-89 $\bar{X}$	15919.8	4589.5	.	4589.5	.	77.2	78.8	4604.0	77.2	4668.3	0.29
95% CL	1944.1	1135.7	.	1135.7	.	74.1	56.2	1139.9	74.1	1186.6	0.06
N	6	6	0	6	0	5	6	6	5	6	6
86-91 $\bar{X}$	15982.8	4619.8	.	4619.8	.	101.8	101.8	4619.8	101.8	4721.7	0.30
95% CL	1812.7	1162.6	.	1162.6	.	54.0	54.0	1162.6	54.0	1199.9	0.06
N	6	6	0	6	0	6	6	6	6	6	6
92-96 $\bar{X}$	21211.2	5137.4	1745.0	6882.4	0.0	531.4	531.4	5137.4	2276.4	7413.8	0.35
95% CL	4747.0	1370.3	1189.5	2302.4	0.0	218.6	218.6	1370.3	1354.4	2504.4	0.05
N	5	5	5	5	5	5	5	5	5	5	5

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

CPUE IS BASED ON RETAINED + RELEASED FISH FOR 1985-96 AND ON RETAINED FISH ONLY PRIOR TO 1985.

* NOT ALLOWED TO RETAIN LARGE SALMON IN INSULAR NEWFOUNDLAND.

**DATA OBTAINED FROM THE LICENSE STUB RETURN (1998 DATA ARE PRELIMINARY).

Appendix 1u. Atlantic salmon recreational fishery catch and effort data for Salmon Fishing Area 14B, Labrador, 1974-98. Ret. = retained fish; Rel. = released fish.

	Effort	Small (<63 cm)			Large (>= 63 cm)			Total (Small + Large)			
Year	Rod Days	Ret.	Rel.	Tot.	Ret.	Rel.	Tot.	Ret.	Rel.	Tot.	CPUE
1974	2713	740	.	740	291	.	291	1031	.	1031	0.38
1975	2180	1069	.	1069	154	.	154	1223	.	1223	0.56
1976	3896	2498	.	2498	310	.	310	2808	.	2808	0.72
1977	3918	1662	.	1662	593	.	593	2255	.	2255	0.58
1978	2413	573	.	573	183	.	183	756	.	756	0.31
1979	2149	901	.	901	119	.	119	1020	.	1020	0.47
1980	2476	938	.	938	337	.	337	1275	.	1275	0.51
1981	3353	1698	.	1698	220	.	220	1918	.	1918	0.57
1982	3279	1271	.	1271	80	.	80	1351	.	1351	0.41
1983	3529	2000	.	2000	130	.	130	2130	.	2130	0.60
1984	3997	987	.	987	185	.	185	1172	.	1172	0.29
1985	3664	1092	.	1092	100	.	100	1192	.	1192	0.33
1986	4643	1071	.	1071	184	.	184	1255	.	1255	0.27
1987	4993	1887	.	1887	215	.	215	2102	.	2102	0.42
1988	5707	1592	.	1592	251	.	251	1843	.	1843	0.32
1989	4895	1173	.	1173	53	.	53	1226	.	1226	0.25
1990	5075	1066	.	1066	98	.	98	1164	.	1164	0.23
1991	4017	1152	.	1152	49	.	49	1201	.	1201	0.30
1992	4630	856	64	920	238	0	238	1094	64	1158	0.25
1993	5296	1047	414	1461	242	30	272	1289	444	1733	0.33
1994	5909	693	86	779	101	11	112	794	97	891	0.15
1995	5422	817	227	1044	208	84	292	1025	311	1336	0.25
1996**		891	952	1843	99	140	239	990	1092	2082	
1997**		556	509	1065	*	335	335	556	844	1400	
1998**		851	921	1772	*	226	226	851	1147	1998	
84-89 $\bar{X}$	4649.8	1300.3	.	1300.3	164.7	.	164.7	1465.0	.	1465.0	0.32
95% CL	770.4	375.4	.	375.4	77.7	.	77.7	422.5	.	422.5	0.07
N	6	6	0	6	6	0	6	6	0	6	6
86-91 $\bar{X}$	4888.3	1323.5	.	1323.5	141.7	.	141.7	1465.2	.	1465.2	0.30
95% CL	581.7	354.9	.	354.9	90.9	.	90.9	422.5	.	422.5	0.07
N	6	6	0	6	6	0	6	6	0	6	6
92-95 $\bar{X}$	5314.3	853.3	197.8	1051.0	197.3	31.3	228.5	1050.5	229.0	1279.5	0.24
95% CL	838.8	233.4	256.5	467.7	104.9	59.3	128.6	325.0	287.0	562.2	0.12
N	4	4	4	4	4	4	4	4	4	4	4

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

CPUE IS BASED ON RETAINED + RELEASED FISH FOR 1992-95 AND ON RETAINED FISH ONLY PRIOR TO 1992.

*NOT ALLOWED TO RETAIN LARGE SALMON IN SFA 14B, 1997.

**DATA OBTAINED FROM THE LICENSE STUB RETURN (1998 DATA ARE PRELIMINARY).