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Canadian Science Advisory Secretariat | **Secrétariat canadien de consultation scientifique**

Research Document 2003/105 | **Document de recherche 2003/105**

Status of Atlantic Salmon (*Salmo salar* L.) Stocks of Insular Newfoundland (SFAs 3-14A), 2003

État des stocks de saumon atlantique (*Salmo salar* L.) de l'île de Terre-Neuve (ZPS 3 à 14A) en 2003

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ISSN 1480-4883

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Abstract

The commercial Atlantic salmon fishery moratorium, implemented in insular Newfoundland in 1992, entered its 12th year in 2003. Returns of small and large salmon in 2003 improved over 2002 (a below average year) for most rivers. However, in relation to the moratorium means, many rivers declined or remained similar. Increased recruitment of small salmon for most rivers on the northeast, east, and northwest coasts, corresponding to greatly increased spawning escapements in 1992-1996 as a result of the closure of the commercial fishery, have not materialized. The proportion of large salmon in total returns in 2003 decreased from 2002 and the moratorium means in most cases. Conservation egg requirements were met or exceeded in only ten out of 24 rivers or sections of rivers in 2003. Virtually all rivers in insular Newfoundland were closed to angling for varying periods (mainly in August) in 2003, due to low water levels and high water temperatures. Recreational fishery catches of small and large salmon, effort expenditure, and catch rate for insular Newfoundland overall in 2003 were below average. Sea survival increased over 2002 for Campbellton River, Rocky River, and Western Arm Brook while decreases were noted for Northeast Brook, Trepassey and Conne River. In the case of Conne River, survival in 2003 was the lowest on record. Smolt production in 2003 decreased from 2002 in four out of five rivers, the exception being Campbellton River. When smolt production decreases, returns of small salmon are expected to be lower in the following year, unless correspondingly there are increases in marine survival that offset decreased numbers of smolts. The converse holds when there are increases in smolt production.

Résumé

Entré en vigueur à l'île de Terre-Neuve en 1992, le moratoire sur la pêche commerciale du saumon atlantique, commençait sa douzième année en 2003. Dans la plupart des rivières, les remontes de petits et de gros saumons ont été meilleures en 2003 qu'en 2002 (année de remontes inférieures à la moyenne). Toutefois, les remontes dans de nombreuses rivières ont baissé ou sont restées stables par rapport aux moyennes sur la durée du moratoire. Dans la plupart des rivières sur les côtes est, nord-est et nord-ouest, il n'y a pas eu d'augmentation du recrutement de petits saumons correspondant aux échappées grandement accrues de 1992 à 1996 à la suite de la fermeture de la pêche commerciale. Dans la plupart des cas, la proportion de gros saumons dans les remontes totales a diminué en 2003 par rapport à 2002 et à la moyenne sur la durée du moratoire. En 2003, la ponte a été suffisante pour satisfaire les besoins de conservation dans seulement dix des 24 rivières ou tronçons de rivières. En 2003, la pêche à la ligne a été fermée dans pratiquement toutes les rivières de l'île de Terre-Neuve durant diverses périodes (surtout en août), en raison de niveaux d'eau bas et de températures de l'eau élevées. En 2003, les captures, l'effort et le taux de capture de la pêche récréative du saumon dans l'ensemble de l'île de Terre-Neuve ont été inférieurs à la moyenne. Par rapport à 2002, la survie en mer a augmenté chez les saumons des rivières Campbellton et Rocky et du ruisseau Western Arm, tandis qu'elle a diminué chez ceux des rivières Trepassey et Conne et du ruisseau Northeast. En 2003, la survie du stock de la rivière Conne était la plus faible jamais enregistrée. Dans quatre rivières sur cinq (l'exception étant la rivière Campbellton), la production de saumoneaux a baissé de 2002 à 2003. Lorsque la production de saumoneaux diminue, on s'attend à ce que la remonte de petits saumons diminue l'année suivante, à moins que la survie en mer augmente de façon à compenser le nombre réduit de saumoneaux. L'inverse s'applique lorsque la production de saumoneaux augmente.

Introduction

This paper presents the general status of Atlantic salmon stocks in Salmon Fishing Areas (SFAs) 3-14A of the Newfoundland Region (Fig. 1) in 2003. Catch and effort data from the recreational fishery, counts and total returns at fishways and counting fences, and egg depositions in relation to conservation requirements are examined in relation to historical data and management measures in effect in 2003.

Management measures, past and present

The moratorium on the commercial Atlantic salmon fishery in insular Newfoundland continued in 2003. The implementation of the moratorium in 1992 was accompanied by a commercial license retirement program and 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 (O'Connell *et al.* MS 1992b) and the moratorium years (1992-2002). These regulations continue a long-standing history of management programs designed to prevent stock declines and to allow populations to rebuild (May 1993).

A quota on the number of small salmon (< 63 cm in fork length) that could be retained in the Atlantic salmon 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. 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 1995-1997. 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 1998). 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 seasonal bag limit for the retention of small salmon in insular Newfoundland 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. Beginning on July 8, 1998 only the use of barbless hooks was permitted. As in previous years, the retention of large salmon (≥ 63 cm in fork length) was not permitted in insular Newfoundland in 2002.

A three-year management plan was implemented in 1999, a significant component of which was the introduction of a River Classification System for insular Newfoundland, used to develop retention levels based on the health of individual stocks, without jeopardising conservation goals. This was a major departure from previous years when stocks were managed on a more regional or SFA basis. Details of the three-year plan and a description of the River Classification System are provided in Anon. (1999). A five-year management plan was introduced in 2002 (Anon. 2002), wherein the River Classification System, though variously modified, was retained.

Special management measures were in effect for several rivers in 2003 and a number of rivers were closed for the season, details of which are provided in Anon. (2003). 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.

As was the case for the period 1995-2002, there were fall hook-and-release fisheries (September 8-October 7) in Gander River (SFA 4) and in Humber River (SFA 13) in 2003. A fall fishery was also introduced for Exploits River in 2002 and continued in 2003 with the same opening and closure dates as for Gander and Humber rivers applying.

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 as follows:

Year	**Licenses sold**
1992	25718
1993	26508
1994	22596
1995	21489
1996	25553
1997	21403
1998	18490
1999	17927
2000	17244
2001	17876
2002	15937
2003 (preliminary)	16000

There has been a significant overall decline ($P = 0.0000$) in the numbers of licenses sold since 1992 ($y = -986.34x + 0.000022$; $r^2 = 0.847$).

Methods

Fishway, counting fence, swim-through survey (five rivers in Bay St. George), and egg deposition data were added to that presented in O'Connell *et al.* (MS 2003). Recreational fishery data are provided for the period 1994-2003 and were derived from the License Stub Return System. The information for 2003 is preliminary at this stage. Recreational fishing effort was presented as rod days, defined as any day or part of a day on which an angler fishes.

Recreational fishery catch and effort data in 2003 were compared to means for 1994-2002. Counts, total returns (which typically are counts at counting facilities or from

swim-through surveys plus angling removals below counting facilities or before swim-through surveys plus an adjustment for hook-and-release mortality), and percent of conservation egg requirement achieved in 2003 were compared to the pre-salmon moratorium mean 1984-1991. This mean involves the years 1984-1989 in which there were major management changes in the commercial fishery in the Newfoundland Region (O'Connell *et al.* 1992a) and includes 1990 and 1991 when quotas were in effect in each SFA in insular Newfoundland (O'Connell *et al.* MS 1992b). The mix of management measures in effect during 1984-1989 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 involving the pre-moratorium mean. Two means were used for the moratorium years, 1992-1996 and 1997-1992. The first corresponds to the period when fish otherwise caught in the commercial fishery escaped to rivers thereby increasing spawning escapements in many rivers, while the second is the period during which the progeny of the increased spawners were to return (see also below).

References for river-specific methodologies used for the calculation of total river returns of small and large salmon and percent of conservation egg requirement achieved can be found in CSAS (2001, 2002a, 2002b, 2003). **Since recreational fishery data were not finalized for 2003, total returns and percent of conservation egg requirement achieved values are still preliminary where appropriate.**

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

Results and Discussion

Smolt-to-adult (small salmon) survival

The smolt-to-adult survival (repeat spawners included) of 6.8% for Campbellton River in 2003 (adult year) increased over 2002 (Table 2); the highest survival for this river occurred in 1994 (9.0%). A survival of 5.5% was observed for Northeast Brook, Trepassey (SFA 9) in 2003, a decrease from that of 2002, which in turn was the highest since 1996. Rocky River (SFA 9) recorded a survival of 4.0% in 2003, an improvement over that of 2002. Survival for Conne River (SFA 11) in 2003 (2.4%) was the lowest on record, markedly below the 8.1% achieved in 2000. The highest survival for Conne River (10.2%) was reached in 1988. There were no smolt counts for Highlands River since 2001 and hence survival cannot be determined. Survival for Western Arm Brook (SFA 14A) in 2003 (9.4%) improved slightly over 2002 and was the second highest of the moratorium years (the record high of 12.1% occurred in the pre-moratorium year 1979).

Fig. 2 shows graphically trends in sea survival for the rivers mentioned above. Survival adjusted for marine 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 salmon are assumed to represent natural survival rates. Pre-moratorium adjusted (for commercial harvest)

survival rates approaching 15% were achieved in Conne River and Northeast Brook, Trepassey. Ocean survival for both of these stocks fell throughout the late 1980s and early 1990s. Despite major changes to fisheries and corresponding reductions in marine exploitation, sea survival rates for Conne River and Northeast Brook, Trepassey remain low, as highlighted by the adjusted sea survival rates. The same statement holds for Western Arm Brook, if several years prior to 1985 (the earliest year shown in Fig. 2) presented in Table 2 were adjusted for marine exploitation.

Smolt production

The number of smolts counted at Northeast Brook, Trepassey in 2003 was approximately one-half the record number counted in 2002. Declines from 2002 of were also noted for Rocky River (56%), Conne River (4%), and Western Arm Brook (19%) while Campbellton River showed an increase (8%).

Recreational fishery, counts, and total returns

Recreational catches of small and large salmon for insular Newfoundland (SFAs 3-14A combined) are presented in Appendix 1a. 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 1b-e. Data for each individual SFA are shown in Appendix 1f-q. Calculation of catch per unit of effort (CPUE) is in terms of small and large retained and released fish combined. Counts of small and large salmon and associated pre-moratorium and moratorium means are presented in Tables 3 and 4.

<u>Entire Insular Newfoundland (SFAs 3-14A)</u>

Recreational fishery

The total catch of small salmon (retained + released fish) and retained catch of small salmon in 2003 were the lowest of the time series (Fig. 3). The number of large salmon released was similar to 2002 and remained well below the 1994-2002 mean. Effort was also similar to 2002 and below average. Catch per unit of effort (CPUE) in 2003 decreased from the above average level of 2002.

<u>Northern Peninsula East and Eastern (SFAs 3-8)</u>

Recreational fishery

Total and retained catches of small salmon in 2003 were similar to 2002 and remained below the 1994-2002 means (Fig. 4). The number of large salmon released and effort expenditure were the lowest recorded. CPUE was similar to 2002 and slightly above average.

Total returns – northeast coast

SFA 3: The counting fence in Northwest Branch tributary of Main River (Sop's Arm) has not operated since 1999.

SFA 4: Information on total returns of small (Table 5 and Fig. 5) and large (Table 6 and Fig. 5) salmon is available for Exploits River (Bishop's Falls), Gander River, and Campbellton River. Returns of small salmon to Exploits River in 2003 increased over 2002 and all means (Table 7) while returns of large salmon increased over 2002 and all means except that of 1992-2002 where there was no change (Table 8). Returns of small salmon to Campbellton River in 2003 showed a slight increase over 2002 and were similar to the mean for 1997-2002, but below the 1992-1996 mean. Returns of large salmon in 2003 increased over 2002 but remained below the means. Returns of small salmon to Gander River in 2003 were similar to 2002 and the 1997-2002 mean and well above the 1984-1991 mean, but below the 1992-1996 mean. Returns of large salmon were similar to 2002 and the 1992-1996 mean, above the 1984-1991 mean, and below the 1997-2002 mean.

The proportion of large salmon in total returns to Exploits River in 2003 deceased from 2002 and the 1997-2002 mean, increased over the 1984-1991 mean, and was similar to the 1992-1996 mean (Table 9 and Fig. 6). The proportion for Campbellton River increased slightly over 2002 but remained below the means while for Gander River the proportion in 2003 was similar to that of 2002, above the means for 1984-1991 and 1992-1996 but below the mean for 1997-2002.

Total returns – east coast

SFA 5: Information on total returns of small (Table 5 and Fig. 7) and large (Table 6 and Fig. 7) salmon is available for Middle Brook, the lower Terra Nova River, and Northwest River, Terra Nova National Park. Returns of small salmon to Middle Brook in 2003 increased over 2002 and were similar to the 1984-1991 mean, but declined from the means for 1992-1996 and 1997-2002 (Table 7). Returns of large salmon were similar to 2002, showed an increase over the 1984-1991 mean, but remained below the 1992-1996 and 1997-2002 means (Table 8). Returns of small salmon to lower Terra Nova River increased over 2002 and all means except that of 1992-1996 which showed no change. Returns of large salmon increased over 2002 and the 1984-1991 mean, remained below the 1992-1996 mean and were similar to the 1997-2002 mean. Returns of both small and large salmon to Northwest River in 2003 increased over 2002 and the means.

Proportions of large salmon in total returns to Middle Brook and Terra Nova River in 2003 decreased from 2002, increased over the means for 1984-1991, but decreased from the means for 1992-1996 (except for Middle Brook which remained similar) and 1997-2002 (Table 9 and Fig. 8). The proportion for Northwest River was similar to 2002 and slightly below the means.

South (SFAs 9-11)

Recreational fishery

Total and retained catches of small salmon, the number of large salmon released, and effort expenditure in 2003 were among the lowest recorded (Fig. 9). CPUE, however, was average.

Total returns

SFA 9: Information on total returns of small (Table 5 and Fig. 10) and large (Table 6 and Fig. 10) salmon is available for Northeast Brook, Trepassey and Rocky River. Total returns of small salmon to Northeast Brook in 2003 increased over 2002 and the means (Table 7). Returns of large salmon increased over 2002 and were similar to the mean for 1997-2002, but decreased from the means for 1984-1991 and 1992-1996 (Table 8). Returns of small salmon to Rocky River in 2003 also increased over 2002 and the means. Large salmon returns were similar to 2002, decreased relative to the 1997-2002 mean but increased over the 1984-1991 and 1992-1996 means.

The proportion of large salmon in total returns to Northeast Brook in 2003 increased over 2002 but remained below the means (Table 9 and Fig. 11). The proportion for Rocky River decreased from 2002 and the 1997-2002 mean and increased over the means for 1984-1991 and 1992-1996 (slightly).

SFA 11: Information on total returns of small (Table 5 and Fig. 10) and large (Table 6 and Fig. 10) salmon is available for Conne River and Little River. Returns of small salmon to Little River in 2003 decreased from 2002 and the 1997-2002 mean but remained above the means for 1984-1991 and 1992-1996 (Table 7). Returns of large salmon decreased relative to 2002 and all means except that of 1984-1991 which showed an increase (Table 8). Returns of both small and large salmon to Conne River in 2003 decreased from 2002 and all means.

The proportions of large salmon in total returns to Little River and Conne River in 2003 decreased from 2002 and all means (Table 9 and Fig. 11).

Southwest (SFAs 12-13)

Recreational fishery

Total catch of small salmon in 2003 decreased from 2002 and the mean while the number of small salmon retained was average (Fig. 12). The number of large salmon released increased over 2002 but remained below the mean. Effort expenditure increased over 2002 and was about average while CPUE on the other hand was the lowest on record.

Total returns

SFA 13: Information on total returns of small (Table 5 and Fig. 13) and large (Table 6 and Fig. 13) salmon is available for Highlands River, Crabbes River, Middle Barachois River, Robinsons River, Fischells River, Flat Bay Brook, and Harry's River. All rivers had increases in returns of small salmon in 2003 compared to 2002 except Flat Bay Brook which remained similar (Table 7). Returns of large salmon to Highlands River, Crabbes River, Fischells River, and Harry's River in 2003 increased relative to 2002 while the remaining rivers had decreases (Table 8). For both small and large salmon, Highlands and Harry's rivers showed increases over the 1992-1996 means and compared to the 1997-2002 means, all rivers except Middle Barachois, Robinsons, and Flat Bay had increases.

Proportions of large salmon in total returns in 2003 increased over 2002 for Highlands, Crabbes, Fishells, and Harry's rivers but decreased in the remainder (Table 9 and Fig. 14). Compared to the means, all but Fischells and Harry's rivers had declines.

Northern Peninsula West (SFA 14A)

Recreational fishery

Total and retained catches of small salmon and the number of large salmon released in 2003 decreased from 2002 and the means (Fig. 15). Effort expenditure increased over 2002 though still below the mean while CPUE went from above average in 2002 to below average in 2003.

Total returns

Information on total returns of small (Table 5 and Fig. 16) and large (Table 6 and Fig. 15) salmon is available for Lomond River, Torrent River, and Western Arm Brook. Returns of small salmon to Lomond River in 2003 were similar to 2002 and the 1997-2002 mean and increased over the 1984-1991 mean, but decreased from the 1992-1996 mean (Table 7). A similar pattern was shown by large salmon with the exception that returns in 2003 increased over 2002 (Table 8). Returns of small and large salmon to Torrent River in 2003 decreased from 2002 and the 1992-1996 and 1997-2002 means but remained above the 1984-1991 mean. Returns of small salmon to Western Arm Brook in 2003 were similar to 2002 and above the means while large salmon showed a decrease relative to 2002 but remained above the means.

The proportion of large salmon in total returns to Lomond River in 2003 increased over 2002 and the 1984-1991 and 1992-1996 means but was similar to the mean for 1997-2002 (Table 9 and Fig. 17). The proportion for Torrent River was similar to 2002, above the 1984-1991 and 1992-1996 means, but below the mean for 1997-2002. Except in relation to the 1984-1991 mean, the proportion for Western Arm Brook declined.

Net marks

The incidence of net-marked fish has been determined at counting facilities 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**	**1999**	**2000**	**2001**	**2002**	**2003**
Gander River	15.9	8.9	12.2	15.9	2.9	5.2	3.9	3.7	3.0	4.6
Campbellton River	6.2	5.0	4.3	4.3	5.8	4.1	11.4	4.9	3.7	7.5
Middle Brook				15.8	11.6	4.5	7.7	3.0	7.0	4.2
Terra Nova River				2.9	1.2	3.1		4.8	4.1	3.0
Northeast Riv., Plac.							7.5			
Conne River	18.6	7.1	6.2	7.2	3.7	4.0	3.3	8.0	2.6	6.1
Harry's River			0.6	9.3	1.8	0.1	2.6			
Humber River		1.4	2.6	7.6	4.1	2.4				

The incidence of marked fish in 2003 increased over the record low of 2002 for Campbellton River. It should be noted that, unlike the other rivers, marks recorded for Campbellton River include all marks (e.g. resulting from encounters with predators, etc.) and not just net marks. Fish were counted with a video system in this river and it is not possible to accurately distinguish the various markings. It was possible to determine the incidence of net marks for the remaining rivers. After 1999, values for Gander River were determined at the fishway in Salmon Brook tributary and at the counting fence in other years; the incidence for 2003 was the highest since 1999. For Middle Brook and Terra Nova River, there was a decrease relative to 2002, being most pronounced for Middle Brook. Conne River showed an increase over 2002. 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.

Percent of conservation egg requirement achieved

<u>Northern Peninsula East and Eastern (SFAs 3-8)</u>

Northeast coast, SFA 4

The Exploits River as a whole achieved just over half of its conservation egg requirement in 2003 while the lower Exploits segment exceeded requirement (Table 10 and Fig. 18); the middle and upper Exploits remained well below requirement, being most pronounced for the latter. Percent achieved in 2003 exceeded 2002 for the whole Exploits and for all segments separately; with the exception of the upper Exploits, this also applied in relation to the means. It should be noted that values included in the pre-moratorium

mean (1984-1991) for the upper Exploits were the result of artificial stocking of this segment while egg deposition in subsequent years resulted from natural spawning of adults ascending the Red Indian Lake fish passage. The Exploits River was the site of major Atlantic salmon enhancement programs beginning in the late 1950s and extending to the early 1990s (O'Connell *et al*. 1983; O'Connell and Bourgeois 1987; Bourgeois *et al*. MS 2001).

Egg deposition in Campbellton River exceeded conservation requirement in all years. The percent met in 2003 increased over the record low observed in 2002 but was below the means.

Gander River has not attained conservation requirement since 1999. The percent achieved in 2003 decreased from 2002 and the moratorium means but remained above the pre-moratorium mean.

East coast, SFA 5

Middle Brook achieved conservation egg requirement in all years of the moratorium. The percent achieved in 2003 increased over the moratorium low of 2002 and the pre-moratorium mean, but remained below the moratorium means.

Terra Nova River has yet to attain egg requirement. It should be noted however that accessible habitat for anadromous Atlantic salmon in this river more than doubled with the establishment of a fish passage at Mollyguajeck Falls in 1985, as part of an enhancement initiative that started in that year (O'Connell *et al*. MS 2000). Initial enhancement activity started in 1952 with the construction of a fishway around impassable falls in the upper river (O'Connell *et al*. MS 2000; Mullins *et al*. 2003). The level of attainment of egg requirement in 2003 was the highest since 1995, surpassing 2002 and the means.

The percent of egg requirement reached in Northwest River in 2003 was the highest on record. In 1948, the area above Northwest Falls was made accessible to anadromous salmon with the blasting of a fish passage (Cote *et al*. 2001). Prior to 1948 only the first 3.2 km of the river were accessible.

Data for Indian Bay Brook are only available for 1997-1999 and conservation egg requirement was achieved in all years.

<u>South (SFAs 9-11)</u>

SFA 9

There is no information available for Biscay Bay River since 1996. Northeast Brook, Trepassey has reached egg requirement in all years of record. The level achieved in 2003 was the highest since 1986, well above 2002 and the means.

Rocky River was the recipient of Atlantic salmon enhancement initiatives during the period 1984-1996 which included an operational fishway around an impassable waterfall at the mouth (Bourgeois 1998; Mullins *et al*. 2003). This river achieved half of its egg requirement in 2003, which was an increase over 2002 and the means.

SFA 10

For the first time, there was no information available for Northeast River, Placentia in 2003. This river exceeded egg requirement in all years.

SFA 11

Little River attained egg requirement in 2003. The level decreased from 2002 and the 1997-2002 mean, but increased over the 1984-1991 and 1992-1996 means. This system was stocked with swim-up fry in the 1980s and 1990s (Bourgeois *et al*. MS 1997).

The level of egg requirement met in Conne River in 2003 was one of the lowest on record, below 2002 and the means.

Southwest (SFAs 12-13)

SFA 13

Of the seven rivers with data available for 2003, only Highlands River and Flat Bay Brook virtually achieved egg requirement (99%). Compared to 2002 and the 1992-1996 means, all rivers increased (except Middle Barachois which remained the same in relation to 2002). Highlands, Crabbes, Fischells, and Harry's rivers increased over the 1997-2002 means while the remainder had decreases.

There is no information available for Pinchgut Brook for 2003 or for Humber River since 1999.

Northern Peninsula West (SFA 14A)

Lomond River achieved egg requirement in 2003. Compared to 2002 and the pre-moratorium mean there was an increase but in relation to the moratorium means there were decreases.

Torrent River likewise achieved egg requirement in 2003, decreasing from 2002 and the moratorium means while increasing over the pre-moratorium mean. An enhancement program was carried out in this river in 1965-1976, which included the construction of a fishway around an impassable waterfall located 2 km from the mouth (Mullins *et al*. 2003).

Egg requirement was achieved in Western Arm Brook in 2003; there was a decrease compared to 2002 but an increase in relation to the means.

Summary and Conclusions

Returns of small and large salmon in 2003 improved over 2002 (a below average year) for most rivers. However, many rivers declined or remained similar in comparison to the moratorium means. The proportion of large salmon in total returns decreased from 2002 and the moratorium means for most rivers. Greatly increased spawning escapements in most rivers on the northeast, northwest, and east coasts in 1992-1996, immediate benefits of the moratorium, should have resulted in corresponding increases in small salmon recruitment beginning in 1997 and 1998 (depending on smolt age composition). This has not occurred and in fact, except for Western Arm Brook, average returns in 1997-2002 were lower than in 1992-1996. Some rivers in southern Newfoundland did not receive the same immediate benefits from the closure of the commercial fishery as was evident in northern areas and indeed returns of small salmon were lower during moratorium years than prior to the moratorium in Northeast Brook, Trepassey and Conne River. With respect to large salmon, with only a few exceptions (Northwest River, Northeast Brook, Trepassey, and Conne River), returns during the moratorium years showed an overall increase relative to pre-moratorium years, and for most, average returns in 1997-2002 were higher than in 1992-1996. Prior to the closure of the commercial salmon fishery, marine exploitation rates for the period 1984-1991 averaged 45.3% on small salmon and 74.2% on large salmon (Dempson *et al*. 2001). In spite of the closures and restrictions placed on fisheries since 1992, overall abundance continues to be low.

Conservation egg requirements were met or exceeded in only ten out of 24 rivers or sections of rivers in 2003. It should be noted that rivers that have undergone enhancement activities in the past 10-20 years (Exploits, Terra Nova, and Rocky), resulting in the opening up of vast amounts of habitat, are still in the developmental stage and are not expected to achieve conservation requirements in the near future.

Virtually all rivers in insular Newfoundland were closed to angling for varying periods (mainly in August) in 2003, due to low water levels and high water temperatures (Table 1). This most likely affected angling effort and catches to some extent (historically, most angling activity and the bulk of catches occur in June-July). For insular Newfoundland overall (Fig. 3), catches of small and large salmon, effort, and the catch rate in 2003 were below average.

Sea survival in 2003 increased over 2002 in three of the five rivers with smolt and adult counts. For Conne River, sea survival in 2003 was the lowest on record. Smolt production decreased from 2002 in four of the five. When smolt production decreases, returns of small salmon are expected to be lower in the following year, unless correspondingly there are increases in marine survival that offset decreased numbers of smolts. The converse holds when there are increases in smolt production.

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Table 1. Opening and closure dates of the Atlantic salmon recreational fishery for each SFA, and variations by river, 2003.

River	Class	Close dates	Reason for closure
SFA 3 June 15 - September 7			
Western Brook (Beaver Brook)	III	August 15 - September 2	Low water levels & high water temperatures
Easter Brook	III	August 15 - September 2	"
Northeast Brook	III	August 15 - September 2	"
Coney Arm River	III	August 12 - 28	"
Sop's Arm River	II	August 12 - 28	"
Hampden River	III	August 12 - 28	"
Wild Cove Brook	III	August 7 - 28	"
Western Arm Brook	III	August 7 - 28	"
Middle Arm Brook	III	August 12 - 28	"
Southern Arm Brook	III	August 7 - 28	"
Baie Verte River	III	August 7 - 28	"
Woodstock Brook	III	August 7 - 28	"
SFA 4 June 15 - September 7			
Burlington River	III	August 7 - 28	Low water levels & high water temperatures
Indian River	II	August 8 - 28	"
West River	III	August 8 - 28	"
South Brook	III	August 8 - 28	"
Tommy's Arm River	III	August 8 - 28	"
Northwest Arm Brook	III	August 8 - 28	"
Western Arm Brook	III	August 8 - 28	"
Leamington River	III	August 8 - 28	"
Charles Brook	III	August 8 - 28	"
Northern Arm River	III	August 8 - 28	"
Peters River	III	August 8 - 28	"
Exploits River (tributaries)	III	August 8 - 28	"
Rattling Brook downstream from the powerhouse)	III	August 8 - 28	"
Campbellton River	II	August 12 - 28	"
Gander River (Northwest tributary)	II	August 8 - 28	"
Gander River (Southwest and tributary streams)	III	August 8 - 28	"
Gander River (Sooleys Brook)		August 12 - 28	"
All tributaries of Gander River	III	August 12 - 28	"
SFA 5 June 15 - September 7			
Northwest Brook (Indian Bay)	III	August 7 - September 5	Low water levels & high water temperatures
Indian Bay River	II	August 7 - 28	"
Northwest River (Trinity)	III	August 7 - September 5	"
Traverse Brook	II	August 7 - September 5	"
Middle Brook	II	August 7 - September 5	"
Gambo River	II	August 7 - September 5	"
Northwest Brook (Alexander Bay)	III	August 7 - September 5	"
Terra Nova River	III	August 7 - September 5	"
Salmon Brook	IV	August 7 - September 5	"
Southwest Brook (Port Blandford River)	IV	August 7 - September 5	"
SFA 6 June 15 - September 7			
Samon Cove River	III	August 7 - September 5	Low water levels & high water temperatures
Trouty River	III	August 7 - September 5	"
Pope's Harbour River	III	August 7 - September 5	"
Shoal Harbour River	III	August 7 - September 5	"
Deer Harbour River	III	August 7 - September 5	"
Bellevue River	III	August 7 - 28	"
SFA 7 June 15 - September 7			
Salmon Cover River	III	July 17, August 7 - 28	Low water levels & high water temperatures
North River	III	July 17, August 7 - 28	"
South River	III	July 17, August 7 - 28	"
North Arm River Holyrood	IV	July 17, August 7 - 28	"
SFA 8 June 15 - September 7			
Renews River	III	August 7 - 28	Low water levels & high water temperatures

Table 1 cont'd

River	Class	Close dates	Reason for closure
SFA 9 June 6 - September 7			
Biscay Bay River	III	August 7 - 28	Low water levels & high water temperatures
Northwest River (Trepassey)	III	August 7 - 28	"
Peters River	III	August 7 - 28	"
Salmonier River (25 m above and below Pincents fa	III	July 11 - August 28	
Salmonier River	III	August 7 - 28	Low water levels & high water temperatures
Colinet River	III	August 7 - 28	"
Rocky River	IV	August 7 - 28	"
North Harbour River	III	August 7 - 28	"
Little Salmonier River	III	August 7 - September 2	"
Big Barachois Brook	III	August 7 - September 2	"
Branch River	III	August 7 - September 2	"
SFA 10 June 6 - September 7			
Great Barasway River	III	August 7 - 28	Low water levels & high water temperatures
Southeast Rive (Placentia)	III	August 7 - 28	"
Northeast River (Placentia)	III	August 7 - 28	"
Come by Chance River	III	August 7 - 28	"
Watson's Brook	III	August 7 - 28	"
North Harbour River	III	August 7 - 28	"
Black River	III	August 7 - 28	"
Pipers Hole River	III	August 7 - 28	"
Cape Roger River	III	July 9 - 18, August 8 - 28	"
Nonsuch Brook	IV	July 9 - 18, August 8 - 28	"
Bay De L'Eau River	III	July 9 - 18, August 8 - 28	"
Red Harbour River	III	July 9 - 18, August 8 - 28	"
West Brook	III	July 9 - 18, August 8 - 28	"
Tides Brook	III	July 9 - 18, August 8 - 28	"
Salmonier River (Burin)	III	July 9 - 17, August 8 -28	"
Little St. Lawrence River	III	July 9 - 17, August 8 -28	"
Lawn River	III	July 9 - 10, August 8 - 28	"
Taylors Bay River	III	July 9 - 10, August 8 - 28	"
Salmonier River (Lamaline)	III	July 9 - 10, August 8 - 28	"
Piercey's Brook	III	July 9 - 10, August 8 - 28	"
Rushoon River (non scheduled)		July 9 - 10, August 8 - 28	"
SFA 11 June 6 - September 7			
Grand Bank Brook	III	July 9 - 10, August 8 - 28	Low water levels & high water temperatures
Long Harbour River	III	August 15 - 28	"
Bay Du Nord River	III	August 15 - September 2	"
Simmons Brook	III	August 15 - September 2	"
Southwest Brook	III	August 15 - September 2	"
Old Bay Brook	III	August 15 - September 2	"
Taylors Bay Brook	III	August 15 - September 2	"
Long Reach Brook	III	August 15 - September 2	"
Allen's Cove Brook	III	August 15 - September 2	"
Bottom Brook	III	August 15 - September 2	"
Hare Bay River	III	August 15 - September 2	"
Garnish River	III	July 9 - 17, August 8 - 28	"
SFA 1June 6 - September 7			
SFA 1June 1 - September 7			
SFA 14A June 15 - September 7			
Big Brook	III	August 15 - 28	Low water levels & high water temperatures
Watson's Brook	III	August 15 - 28	"
Parkers Brook	III	August 15 - 28	"
Bartlett's Brook	III	August 15 - 28	"
Upper Brook	III	August 15 - 28	"
East River	III	August 15 - 28	"
Pincents Brook	III	August 15 - 28	"
SFA 14B June 15 - September 15			

Table 2. Atlantic salmon smolt-to-adult suvival (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. Adjusted smolt counts for Rocky River are bold.

	Campbellton River			Northeast Brook			Rocky River			Conne River[1]			Highlands River			Western Arm Brook		
Year (i)	Smolts year i	Sm. sal. year i + 1	% Surv.	Smolts year i	Sm. sal. year i + 1	% Surv.	Smolts year i	Sm. sal. year i + 1	% Surv.	Smolts year i	Sm. sal. year i + 1	% Surv.	Smolts year i	Sm. sal. year i + 1	% Surv.	Smolts year i	Sm. sal. 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													15028	127	0.8	15665	492	3.1
1981													15839	100	0.6	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	41663	3035	7.3	944	80	8.5	9781	385	3.9	60762	3502	5.8	10503	172	1.6	9283	823	8.9
1995	39715	3208	8.1	792	73	9.2	7577	356	4.7	57733 *	4154	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	14502	509	3.5
1997	62050	3275	5.3	1829	91	5.0	**16900**	423	2.5	100983	2931	2.9	6776	96	1.4	23845	1718	7.2
1998	50441	3076	6.1	1727	95	5.5	**12163**	327	2.7	69841	2358	3.4	5922	146	2.5	17139	1046	6.1
1999	47256	1798	3.8	1419	83	5.8	**8625**	277	3.2	63658	5177	8.1	9634	58	0.6	13500	1492	11.1
2000	35596	2151	6.0	1740	56	3.2	**7616**	233	3.1	60777	1503	2.5	13120	75	0.6	12706	563	4.4
2001	37170	1974	5.3	916	65	7.1	**9392**	276	2.9	86898	2573	3.0		169		16013	1465	9.1
2002	32630	2219	6.8	2076	115	5.5	**10144**	402	4.0	81806	1953	2.4		293		14999	1406	9.4
2003	35089			1064			**4440**			78682						12086		

[1]Includes Native food fishery.

* 57733 excludes 5016 removed to Roti Bay.

4154 small salmon for Conne River 1996 excludes 286 fish from the wild smolt aquaculture experiment.

Table 3. Counts of small salmon from fishways and counting fences in insular Newfoundland 1974-2003 by Salmon Fishing Area (SFA). Also shown are means, coefficients of variation, 95% confidence limits (LCL and UCL), and percentage change for 2003 in relation to 2002, and the 1984-1991, 1992-1996, and 1997-2002 means. Partial counts are in parentheses and are not included in statistical calculations. Adusted counts are bold.

	SFA 3	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	19	20	21	22
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	13016		542	4999	1718
1999	(432)	28252	3076	1105	18461	2219	1802	1836	1198	314	95	327	336	307	2357	146	608	27585		829	4008	1046
2000	-	11817	1798	742	-	-	1660	-	833	272	83	277	520	564	4708	58	441	-		658	3763	1486
2001	-	18978	2151	663	-	-	1188	2151	1512	102	56	233	**265**	125	1359	75	200	-	(36)	333	2216	559
2002	-	15147	1974	714	-	-	823	1374	-	441	65	276	414	487	2352	169	593	-	35	548	3965	1463
2003	-	28626	2219	722	-	-	1105	2225	-	999	115	402	-	322	1867	294	351	-	-	589	3297	1406
$\bar{X}$ 1984-1991		10078		881	7236		851	1214	771		99	235	501	89	5866					355	1982	353
CV		44		62	10		33	24	19		31	53	31	48	47					29	27	39
95% UCL		13821		1336	8960		1085	1459	924		124	390	631	142	8741					481	2425	468
95% LCL		6334		426	5512		617	969	617		74	79	371	36	2991					229	1540	238
N		8		8	3		8	8	6		8	5	8	5	6					5	8	8
$\bar{X}$ 1992-1996		19088	3275	1248	21566		1509	1819	1122		76	286	867	228	2759	163	543	20477		653	4534	887
CV		35	15	25	16		24	21	17		24	32	26	111	43	17	36	44		33	40	31
95% UCL		27442	4078	1640	25824		1950	2422	1356		98	399	1151	540	4233	208	785	31628		925	6794	1224
95% LCL		10735	2472	857	17309		1068	1217	888		54	172	583	-85	1285	118	301	9327		382	2274	549
N		5	4	5	5		5	4	5		5	5	5	5	5	4	5	5		5	5	5
$\bar{X}$ 1997-2002		19013	2375	831	15893	2077	1517	1744	1171	334	73	329	489	358	2731	157	508	18489		616	3768	1130
CV		36	27	37	30	31	37	17	23	50	26	25	38	44	41	80	32	43		30	24	45
95% UCL		26216	3040	1154	27553	3673	2104	2106	1507	541	93	416	685	525	3892	289	680	38194		806	4711	1666
95% LCL		11810	1710	507	4233	481	929	1382	834	126	53	241	293	191	1570	25	336	-1216		425	2826	595
N		6	6	6	3	3	6	5	5	5	6	6	6	6	6	6	6	3		6	6	6
% change 2003 vs.																						
2002		89	12	1			34	62		127	77	46			-21	74	-41		-3	7	-17	-4
1984-1991 mean		184		-18			30	83			16	71			-68					66	66	299
1992-1996 mean		50	-32	-42			-27	22			51	41			-32	80	-35			-10	-27	59
1997-2002 mean		51	-7	-13			-27	28		199	57	22			-32	87	-31			-4	-13	24

1. Main River (Sop's Arm)
2. Exploits River (Bishop's Falls)
3. Campbellton River
4. Salmon Brook (Gander River)
5. Gander River
6. Indian Bay Brook
7. Middle Brook
8. Terra Nova River (Lower)
9. Terra Nova River (Upper)
10. Northwest River, Port Blandford
11. Northeast Brook, Trepassey
12. Rocky River
13. Northeast River, Placentia
14. Little River
15. Conne River
16. Highlands River
17. Pinchgut Brook
18. Humber River
19. Trout River
20. Lomond River
21. Torrent River
22. Western Arm Brook

Table 4. Counts of large salmon from fishways and counting fences in insular Newfoundland 1974-2003 by Salmon Fishing Area (SFA). Also shown are means, coefficients of variation, 95% confidence limits (LCL and UCL), and percentage change for 2003 in relation to 2002, and the 1984-1991, 1992-1996, and 1997-2002 means. Partial counts are in parentheses and are not included in statistical calculations. Adusted counts are bold.

	SFA 3	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	19	20	21	22
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	4865		126	757	128
1999	(34)	2235	493	138	4815	365	130	343	76	93	18	77	167	49	241	82	63	4433		113	399	22
2000	-	683	208	61	-	-	189	-	90	106	14	104	258	52	216	67	15	-		81	587	120
2001	-	1346	119	93	-	-	62	330	181	50	8	60	**65**	35	140	65	3	-	(15)	72	437	28
2002	-	889	123	95	-	-	69	271	-	113	2	78	40	41	167	87	23	-	12	62	397	47
2003	-	1335	152	139	-	-	74	329	-	273	11	73	-	13	51	166	20	-	-	77	330	23
$\bar{X}$ 1984-1991		229		18	550		22	128	58		24	10	20	6	347					25	92	1
CV		68		67	19		66	33	36		46	69	77	78	41					59	89	107
95% UCL		359		28	811		35	163	80		33	18	32	13	494					43	160	1
95% LCL		99		8	289		10	92	36		15	1	7	0	199					7	24	0
N		8		8	3		8	8	6		8	5	8	5	6					5	8	8
$\bar{X}$ 1992-1996		970	279	102	1968		110	403	203		14	44	76	37	128	122	32	1871		70	368	26
CV		68	68	17	64		49	46	19		20	43	38	134	29	26	52	54		39	51	69
95% UCL		1785	581	123	3543		176	694	250		17	68	111	100	173	172	53	3124		104	601	48
95% LCL		155	-24	80	394		44	111	155		10	21	40	-25	82	72	11	618		37	135	4
N		5	4	5	5		5	4	5		5	5	5	5	5	4	5	5		5	5	5
$\bar{X}$ 1997-2002		1332	278	108	3449	351	151	372	133	93	10	90	167	51	207	96	39	3964		88	541	67
CV		48	55	28	43	4	52	26	36	27	53	27	60	30	27	37	73	30		29	28	69
95% UCL		1999	439	140	7116	387	234	492	192	124	16	115	271	67	265	133	69	6959		115	700	115
95% LCL		665	117	76	-218	315	69	253	73	62	5	64	63	35	148	59	9	970		61	381	18
N		6	6	6	3	3	6	5	5	5	6	6	6	6	6	6	6	3		6	6	6
% change 2003 vs.																						
2002		50	24	46			7	21		142	450	-6			-69	91	-13		-20	24	-17	-51
1984-1991 mean		482		678			233	158			-54	645			-85					208	259	4500
1992-1996 mean		38	-45	37			-33	-18			-20	65			-60	36	-38			9	-10	-12
1997-2002 mean		0	-45	29			-51	-12		193	6	-19			-75	73	-49			-12	-39	-66

1. Main River (Sop's Arm)
2. Exploits River (Bishop's Falls)
3. Campbellton River
4. Salmon Brook (Gander River)
5. Gander River
6. Indian Bay Brook
7. Middle Brook
8. Terra Nova River (Lower)
9. Terra Nova River (Upper)
10. Northwest River, Port Blandford
11. Northeast Brook, Trepassey
12. Rocky River
13. Northeast River, Placentia
14. Little River
15. Conne River
16. Highlands River
17. Pinchgut Brook
18. Humber River
19. Trout River
20. Lomond River
21. Torrent River
22. Western Arm Brook

Table 5. Total returns of small salmon to rivers in insular Newfoundland 1984-2003 by Salmon Fishing Area (SFA). Also shown are means and 95% confidence intervals for 1984-1991, 1992-1996, and 1997-2002.

	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	19	20	21
1984	19028			1675	1534		89		459										986	1805	235
1985	17555			1283	2012		124		519										393	1621	470
1986	10343			1547	1459		158		879		8302								725	3155	528
1987	9481			1053	1404		91	80	350	64	10155								652	2647	437
1988	9496			1337	2114		97	313	637	65	7627								841	2388	422
1989	7577		7743	626	1377		62	168	809	102	4968								652	1510	455
1990	6995		7740	1070	1518		71	401	699	158	5368								777	2518	444
1991	5659		6745	763	1127		99	211	368	55	2411								731	1590	233
1992	13508		18179	1563	1780		49	237	956	104	2523							832	794	2829	480
1993	22253	4001	26205	2247	3050		79	292	980	169	2703	137						1663	816	4215	947
1994	17603	2857	18494	1751	1809		99	158	737	73	1533	145						1650	1292	3737	954
1995	16226	3035	22432	1390	2515	498	80	385	811	118	3502	172						2016	1529	6346	823
1996	30425	3208	24191	2044	2251	593	73	356	1532	674	4440	199	870	818	882		1233	1995	1242	7475	1230
1997	15263	1975	10637	1352	1732	466	50	435	749	399	3200	398	1168	1056	1107	863	1320	1747	1468	4158	509
1998	27093	3275	19060	2625	1868	540	91	423	1075	264	2931	96	494			205		1659	787	5388	1718
1999	28802	3076	18742	1948	1892	314	95	327	401	307	2358	146	717	563	1452	1264	2276	1713	1212	4857	1046
2000	12063	1798	14074	1749	1629	272	83	277	622	564	5177	58	1027	1142	1501	1800	2397	1271	1072	4154	1492
2001	19370	2151	12517	1525	2261	102	56	233	313	125	1503	75	688	937	1909	248	1150	1028	572	2637	563
2002	15589	1974	13444	916	1435	443	65	276	534	487	2573	169	630	548	998	414	1560	1640	895	4750	1465
2003	29070	2219	13657	1182	2279	1012	115	402	-	322	1953	294	1107	735	1260	1071	1641	2334	921	3875	1406
$\bar{X}$ 1984-1991	10767		7409	1169	1568		99	235	590	89	6472								720	2154	403
95% CI	4100		1429	304	277		25	155	166	53	2902								143	507	91
N	8		3	8	8		8	5	8	5	6								8	8	8
$\bar{X}$ 1992-1996	20003	3275	21900	1799	2281	546	76	286	1003	228	2940	163						1631	1135	4920	887
95% CI	8232	803	4368	433	657	604	22	114	388	313	1356	45						596	397	2390	337
N	5	4	5	5	5	2	5	5	5	5	5	4						5	5	5	5
$\bar{X}$ 1997-2002	19697	2375	14746	1686	1803	356	73	329	616	358	2957	157	787	849	1393	799	1741	1510	1001	4324	1132
95% CI	7158	665	3593	609	294	167	20	88	287	167	1295	132	269	345	447	668	701	306	335	996	536
N	6	6	6	6	6	6	6	6	6	6	6	6	6	5	5	6	5	6	6	6	6

1. Exploits River (Bishop's Falls)
2. Campbellton River
3. Gander River
4. Middle Brook
5. Terra Nova River (Lower)
6. Northwest River, Port Blandford
7. Northeast Brook, Trepassey
8. Rocky River
9. Northeast River, Placentia
10. Little River
11. Conne River
12. Highlands River
13. Crabbes River
14. M. Barachois River
15. Robinsons River
16. Fischells River
17. Flat Bay Brook
18. Harry's River
19. Lomond River
20. Torrent River
21. Western Arm Brook

Table 6. Total returns of large salmon to rivers in insular Newfoundland 1984-2003 by Salmon Fishing Area (SFA). Also shown are means and 95% confidence intervals for 1984-1991, 1992-1996, and 1997-2002.

	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	19	20	21
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								19	82	0
1991	99		670	14	114		13	16	8	6	89								21	71	1
1992	314		4162	43	270		10	46	46	21	159							15	86	170	8
1993	627	145	1734	88	472		17	72	65	11	100	78						104	38	224	8
1994	916	191	1072	91	243		15	19	70	11	100	148						116	64	334	31
1995	945	218	1121	169	637	135	12	39	74	17	110	120						72	103	617	33
1996	2057	560	1753	161	467	203	15	45	123	127	179	142	249	38	138		132	138	101	517	50
1997	881	321	1883	262	528	182	9	89	185	79	185	157	361	189	195	89	174	201	78	676	55
1998	1959	402	3649	196	394	104	11	130	287	49	294	117	239			72		191	128	761	128
1999	2236	493	4815	130	344	93	18	77	167	49	241	82	265	66	204	246	235	176	120	421	22
2000	684	208	1942	190	232	106	14	104	258	52	216	67	156	155	320	276	494	49	90	596	120
2001	1347	119	1682	62	330	50	8	60	65	36	140	65	180	142	232	45	176	132	75	443	28
2002	890	123	1898	69	271	114	2	78	40	41	167	87	136	165	206	42	202	285	66	433	48
2003	1336	152	1853	74	330	273	11	73	-	13	51	166	264	101	182	180	200	422	82	341	23
$\bar{X}$ 1984-1991	229		550	22	128		24	10	20	6	355								28	92	1
95% CI	130		261	12	36		9	8	13	6	153								17	68	0
N	8		3	8	8		8	5	8	5	6								8	8	8
$\bar{X}$ 1992-1996	972	279	1968	110	418	169	14	44	76	37	130	122						89	78	372	26
95% CI	817	302	1575	66	202	432	3	24	35	62	46	50						59	34	237	22
N	5	4	5	5	5	2	5	5	5	5	5	4						5	5	5	5
$\bar{X}$ 1997-2002	1333	278	2645	152	350	108	10	90	167	51	207	96	223	143	231	128	256	172	93	555	67
95% CI	669	161	1350	83	109	45	6	26	104	16	58	37	88	58	64	110	168	82	27	151	48
N	6	6	6	6	6	6	6	6	6	6	6	6	6	5	5	6	5	6	6	6	6

1. Exploits River (Bishop's Falls)
2. Campbellton River
3. Gander River
4. Middle Brook
5. Terra Nova River (Lower)
6. Northwest River, Port Blandford
7. Northeast Brook, Trepassey
8. Rocky River
9. Northeast River, Placentia
10. Little River
11. Conne River
12. Highlands River
13. Crabbes River
14. M. Barachois River
15. Robinsons River
16. Fischells River
17. Flat Bay Brook
18. Harry's River
19. Lomond River
20. Torrent River
21. Western Arm Brook

Table 7. Percentage change in total returns of small salmon in 2003 in relation to 2002, the 1984-1991, 1992-1996 and 1997-2002 means.

Counting Facility	Total Returns Small Salmon 2003*	Percent Change from 2002	1984-1991 mean	1992-1996 mean	1997-2002 mean
SFA 4					
Exploits River	29070	86	170	45	48
Campbellton River	2219	12		-32	-7
Gander River	13657	2	84	-38	-7
SFA 5					
Middle Brook	1182	29	1	-34	-30
Terra Nova River (Lower)	2279	59	45	0	26
Northwest River (TNNP)	1012	128		86	184
SFA 9					
Northeast Bk. (Trep.)	115	77	16	51	57
Rocky River	402	46	71	41	22
SFA 11					
Little River	322	-34	263	41	-10
Conne River	1953	-24	-70	-34	-34
SFA 13					
Highlands River	294	74		80	87
Crabbes River	1107	76			41
M. Barachois River	735	34			-13
Robinsons River	1260	26			-10
Fischells River	1071	159			34
Flat Bay Brook	1641	5			-6
Harry's River	2334	42		43	55
SFA 14A					
Lomond River	921	3	28	-19	-8
Torrent River	3875	-18	80	-21	-10
Western Arm Brook	1406	-4	249	59	24

*preliminary

Table 8. Percentage change in total returns of large salmon in 2003 in relation to 2002, the 1984-1991, 1992-1996 and 1997-2002 means.

Counting Facility	Total Returns Large Salmon 2003*	Percent Change from 2002	1984-1991 mean	1992-1996 mean	1997-2002 mean
SFA 4					
Exploits River	1336	50	483	37	0
Campbellton River	152	24		-45	-45
Gander River	1853	-2	237	-6	-30
SFA 5					
Middle Brook	74	7	233	-33	-51
Terra Nova River (Lower)	330	22	159	-21	-6
Northwest River (TNNP)	273	139		62	152
SFA 9					
Northeast Bk. (Trep.)	11	450	-54	-20	6
Rocky River	73	-6	645	65	-19
SFA 11					
Little River	13	-68	103	-65	-75
Conne River	51	-69	-86	-61	-75
SFA 13					
Highlands River	166	91		36	73
Crabbes River	264	94			18
M. Barachois River	101	-39			-30
Robinsons River	182	-12			-21
Fischells River	180	329			40
Flat Bay Brook	200	-1			-22
Harry's River	422	48		43	145
SFA 14A					
Lomond River	82	24	28	-19	-8
Torrent River	341	-21	80	-21	-10
Western Arm Brook	23	-52	249	59	24

*preliminary

Table 9. Proportions of large salmon in total returns to rivers in insular Newfoundland during 1992-2003 and mean proportions for 1984-1991, 1992-1996, and 1997-2002.

	Proportion of large salmon														
River Name	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	1984-1991 mean	1992-1996 mean	1997-2002 mean
SFA 4															
Explotis River (Bishop's Falls)	0.023	0.027	0.049	0.055	0.063	0.055	0.067	0.072	0.054	0.065	0.054	0.044	0.021	0.046	0.063
Campbellton River	-	0.035	0.063	0.067	0.149	0.140	0.109	0.138	0.104	0.052	0.059	0.064	-	0.078	0.105
Gander River	0.186	0.062	0.055	0.048	0.068	0.150	0.161	0.204	0.121	0.118	0.124	0.119	0.069	0.082	0.152
SFA 5															
Middle Brook	0.027	0.038	0.049	0.108	0.073	0.162	0.069	0.063	0.098	0.039	0.070	0.059	0.019	0.058	0.082
Terra Nova River	0.132	0.134	0.118	0.202	0.172	0.234	0.174	0.154	0.125	0.127	0.159	0.126	0.075	0.155	0.163
Northwest River (Port Blandford)	-	-	-	0.213	0.255	0.281	0.161	0.229	0.280	0.329	0.205	0.212	-	0.237	0.233
SFA 9															
Northeast Brook (Trepassey)	0.169	0.177	0.132	0.130	0.170	0.153	0.108	0.159	0.144	0.125	0.030	0.087	0.196	0.154	0.124
Rocky River	0.163	0.198	0.107	0.092	0.112	0.170	0.235	0.191	0.273	0.205	0.220	0.154	0.040	0.134	0.214
SFA 10															
Northeast River (Placentia)	0.046	0.062	0.087	0.084	0.074	0.198	0.211	0.294	0.293	0.172	0.070	-	0.032	0.070	0.213
SFA 11															
Little River	0.168	0.061	0.131	0.126	0.159	0.165	0.157	0.138	0.084	0.224	0.078	0.039	0.067	0.141	0.125
Conne River	0.059	0.036	0.061	0.030	0.039	0.055	0.091	0.093	0.040	0.085	0.061	0.025	0.052	0.042	0.065
SFA 13															
Highlands River	-	0.363	0.505	0.411	0.416	0.283	0.549	0.360	0.536	0.464	0.340	0.361	-	0.428	0.379
Crabbes River	-	-	-	-	0.223	0.236	0.326	0.270	0.132	0.207	0.178	0.193	-	-	0.221
M. Barachois River	-	-	-	-	0.044	0.152	-	0.105	0.120	0.132	0.231	0.121	-	-	0.144
Robinsons River	-	-	-	-	0.135	0.150	-	0.123	0.176	0.108	0.171	0.126	-	-	0.142
Fischells River	-	-	-	-	-	0.093	0.260	0.163	0.133	0.154	0.092	0.144	-	-	0.138
Flat Bay Brook	-	-	-	-	0.097	0.116	-	0.094	0.171	0.133	0.115	0.109	-	-	0.128
Harry's River	0.018	0.059	0.066	0.034	0.065	0.103	0.103	0.093	0.037	0.114	0.148	0.153	-	0.052	0.102
SFA 14A															
Lomond River	0.098	0.044	0.047	0.063	0.075	0.050	0.140	0.090	0.077	0.116	0.069	0.082	0.037	0.065	0.085
Torrent River	0.057	0.050	0.082	0.089	0.065	0.140	0.124	0.080	0.125	0.144	0.084	0.081	0.041	0.070	0.114
Western Arm Brook	0.016	0.008	0.031	0.039	0.039	0.098	0.069	0.021	0.074	0.047	0.032	0.016	0.001	0.028	0.056

Table 10. Summary of the conservation egg requirement achieved for various rivers for years prior to the commercial salmon fishing moratorium (1984-1991) and years during the moratorium (1992-2003) in insular Newfoundland. Also shown are the means for 1984-1991,1992-1996, and 1997-2002.

		Percentage conservation level met																						
SFA	River	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	Mean 1984-1991	Mean 1992-1996	Mean 1997-2002
4	Exploits River	39	37	32	33	37	36	26	16	31	43	31	39	69	24	47	44	21	34	27	54	32.0	42.6	32.8
	Lower	123	100	66	62	59	46	45	34	101	157	103	121	210	72	134	116	56	91	64	156	66.9	138.4	88.8
	Middle	20	17	8	9	12	14	12	16	20	23	18	24	43	15	35	35	16	27	23	39	13.5	25.6	25.2
	Upper	29	53	72	97	125	119	88	0	2	6	7	12	26	10	6	7	2	5	3	7	72.9	10.6	5.5
	Campbellton River										311	239	277	329	187	311	326	152	148	133	182		289.0	209.5
	Gander River						44	38	36	118	128	84	89	115	61	110	121	86	84	91	81	39.3	106.8	92.2
5	Indian Bay Brook														113	183	161							152.3
	Middle Brook	131	84	89	90	55	49	74	51	148	238	176	116	258	193	301	222	217	132	101	134	77.9	187.2	194.3
	Terra Nova River	18	23	17	14	28	19	19	15	28	53	25	44	35	31	33	33	27	36	28	42	19.1	37.0	31.3
	Northwest River (TNNP)												37	55	46	42	28	27	11	37	81		46.0	31.8
9	Biscay Bay River	156	126	230	119	117	87	122	38	141	97	143	77	117								124.4	115.0	
	Northeast Brook (Trepassey)	229	312	368	227	213	173	156	249	126	193	239	194	196	135	256	248	216	157	156	285	240.9	189.6	194.7
	Rocky River	64	29	59	22	30	17	40	22	28	34	25	56	34	56	54	39	34	33	40	50	35.4	35.4	42.7
10	Northeast River (Placentia)	204	152	352	166	247	302	269	175	555	527	430	412	766	482	489	276	449	168	243		233.4	538.0	351.2
11	Little River				29	30	60	106	47	44	80	37	56	288	200	231	38	263	69	224	144	54.4	101.0	170.8
	Conne River - Conservation			262	394	285	185	201	93	87	110	72	147	204	125	150	122	210	67	113	81	236.7	124.0	131.2
	Management			146	219	159	103	112	51	48	61	40	82	114	70	84	68	117	37	63	45	131.7	69.0	73.2
13	Highlands River										46	77	67	79	105	59	49	34	34.8	53	99		67.3	55.8
	Crabbes River									34	13	41		68	95	53	66	63	53	43	81		39.0	62.2
	Middle Barachois Brook									53	48	74		52	95		43	95	80	61	61		56.8	74.8
	Robinsons River									57	23	65		67	91		118	135	142	82	94		53.0	113.6
	Fischells River									14	24	71			44	23	110	142	18	28	86		36.3	60.8
	Flat Bay Brook									18	14	19	45	85	89		149	167	71	97	99		36.2	114.6
	Harry's River									12	37	46	48	52	50	49	49	29	33	60	82		39.0	45.0
	Pinchgut Brook									36	117	145	150	130	140	136	138	82	36	116			115.6	108.0
	Humber River							60	27	117	96	40	128	186	115	120	201					43.5	113.4	145.3
14A	Trout River																		25	25				25.0
	Lomond River	74	31	59	56	70	61	62	64	121	118	142	187	143	161	151	181	140	88	111	129	59.6	142.2	138.7
	Torrent River	270	161	360	199	266	225	221	178	313	538	530	1033	1279	797	924	680	657	400	597	496	235.0	738.6	675.8
	Western Arm Brook	30	80	156	103	67	142	157	68	151	288	292	286	415	200	625	370	567	193	510	466	100.4	286.4	410.8

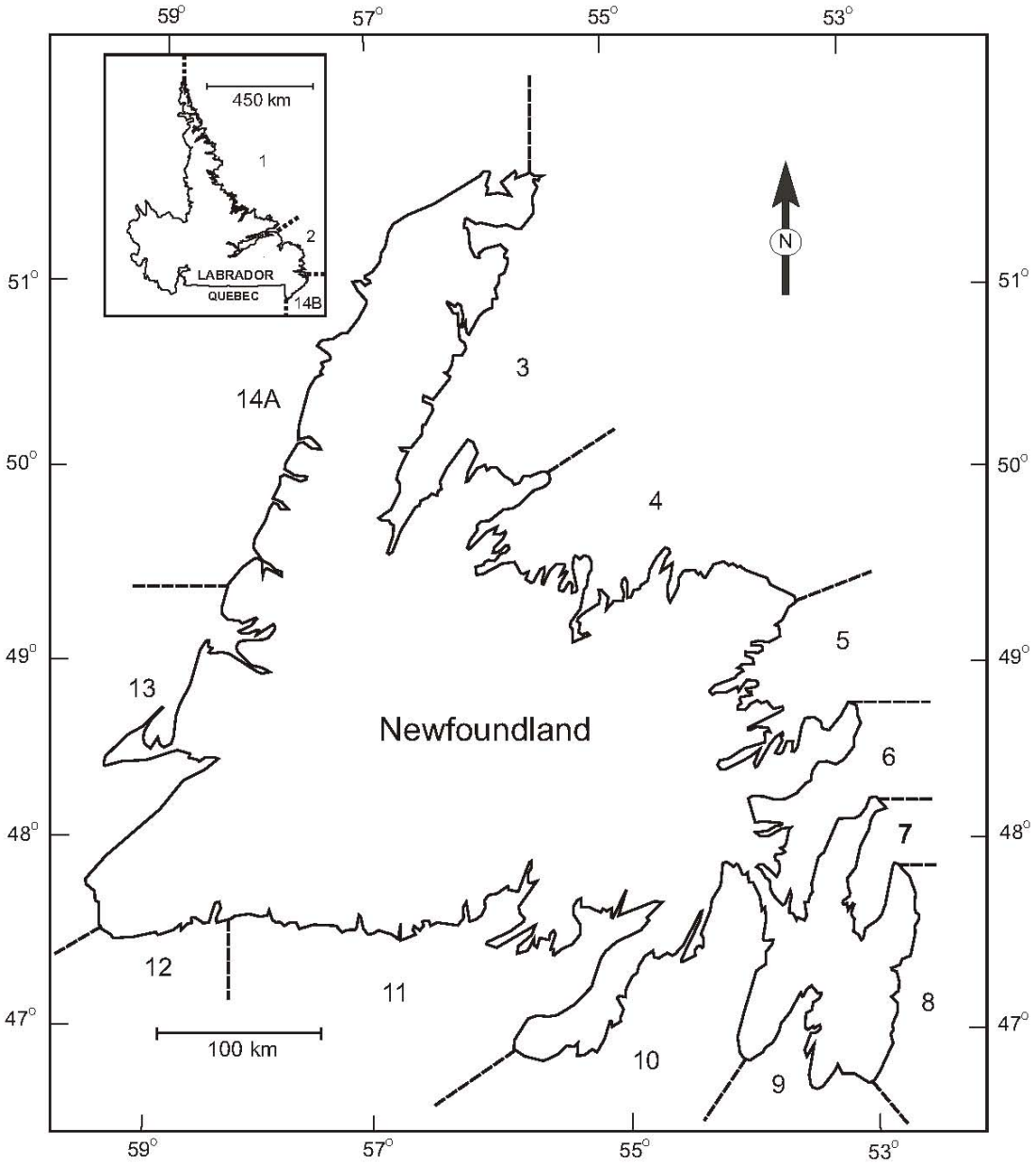

Fig. 1. Map showing the 14 Salmon Fishing Areas of the Newfoundland Region.

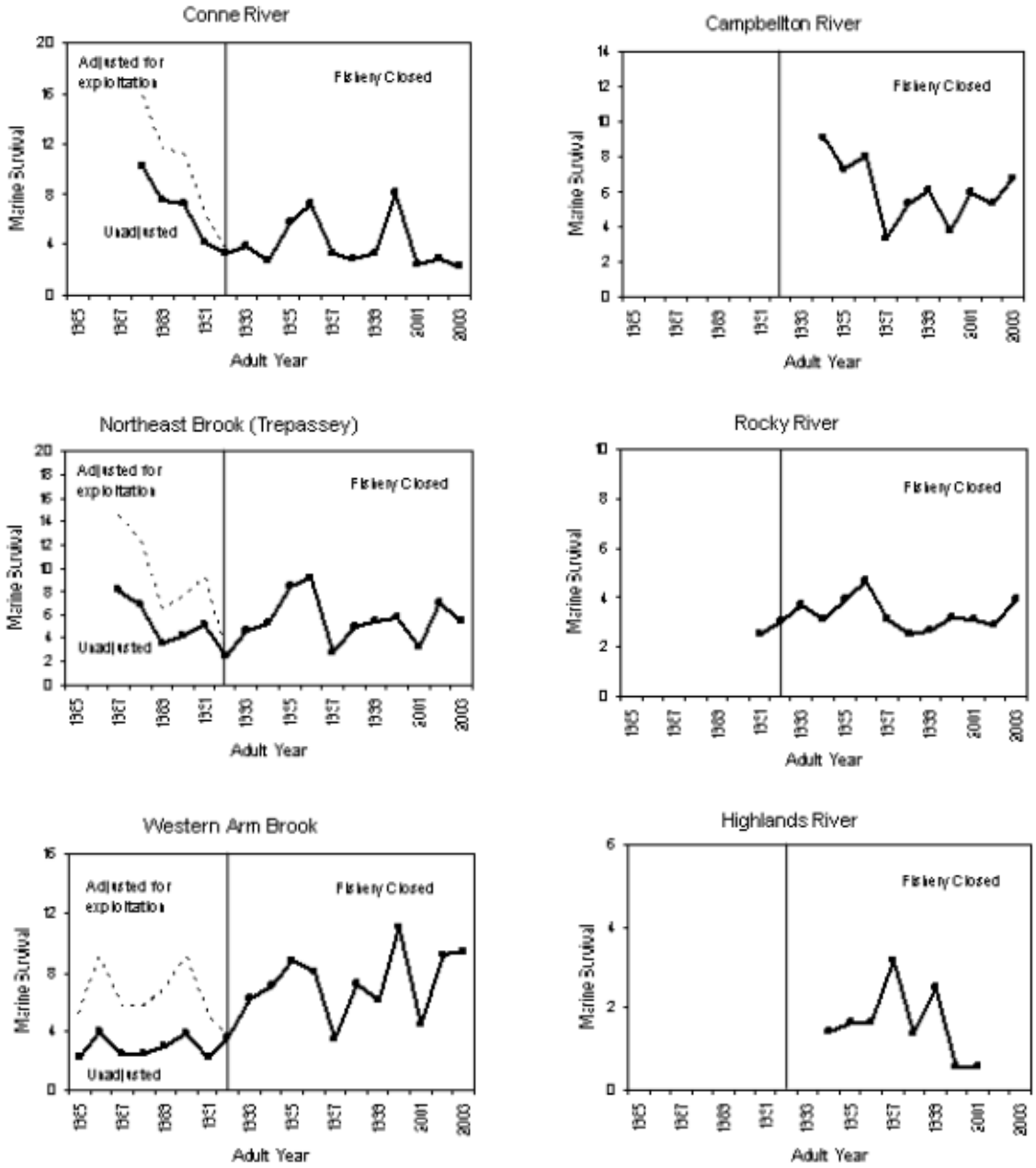

Fig. 2. Estimates of marine survival from smolts in year i to adult small salmon in year i+1. Dashed line represents marine survival adjusted for average marine exploitation rate (from Dempson et al. MS 1998).

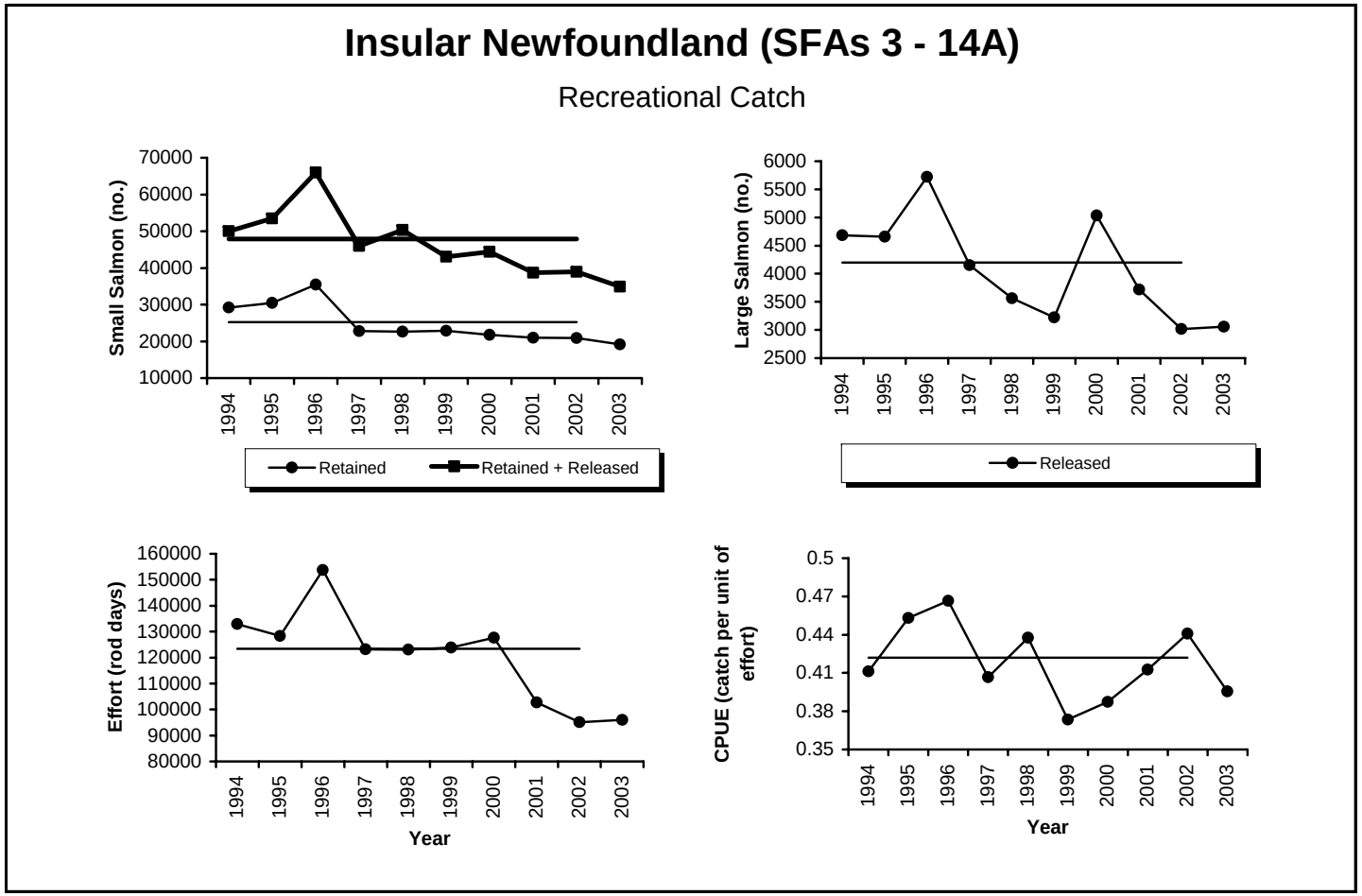

Fig. 3. Recreational catch of small salmon (retained and retained plus released), large salmon released, effort, and CPUE, 1994-2003, for Insular Newfoundland (SFAs 3-14A). The thin horizontal line represents the 1994-2002 mean for small salmon retained, large released, effort and CPUE, and the thick horizontal line the 1994-2002 mean for retained and released small salmon combined.

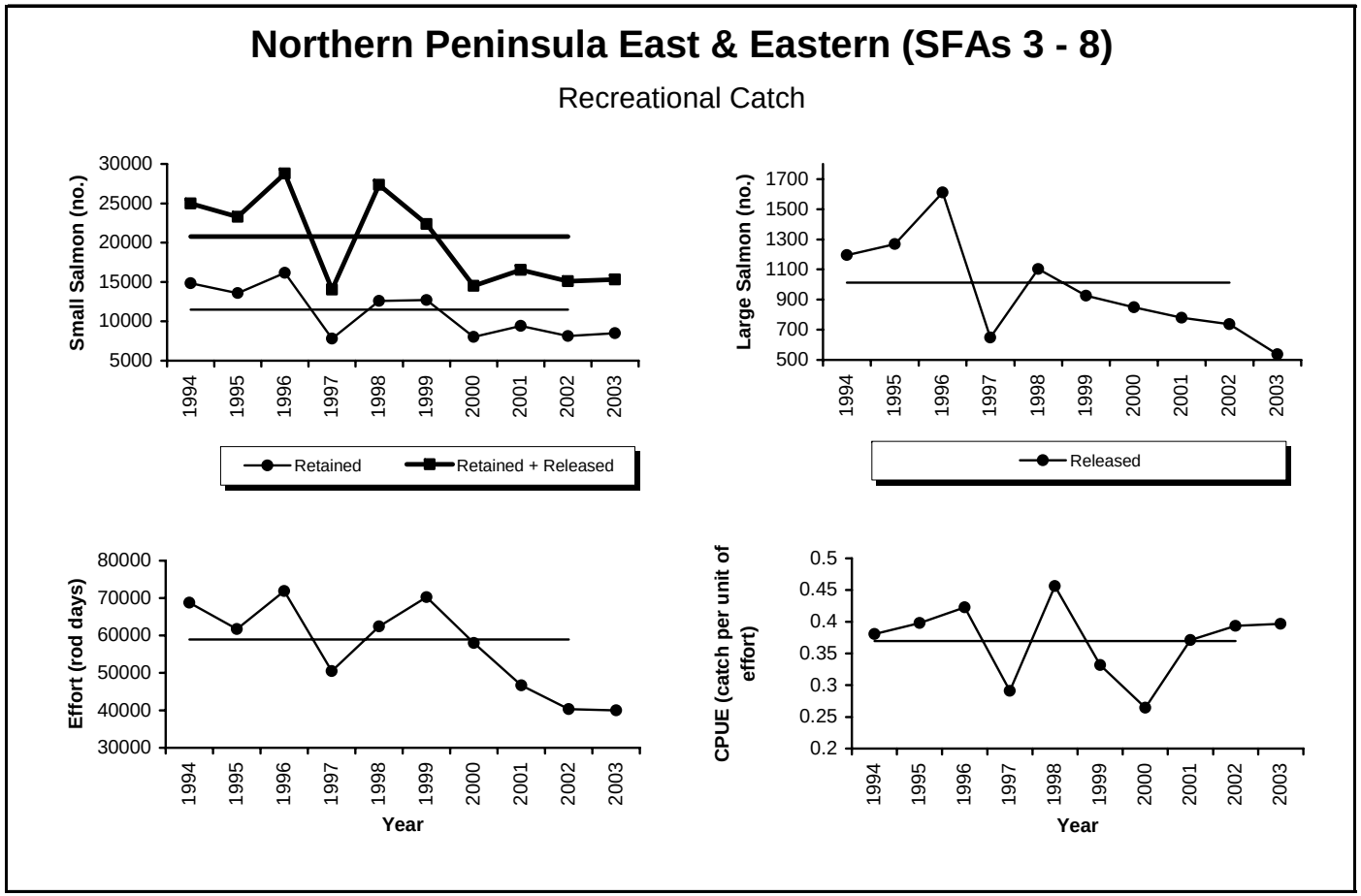

Fig. 4. Recreational catch of small salmon (retained and retained plus released), large salmon released, effort, and CPUE, 1994-2003, for Northern Peninsula East & Eastern (SFAs 3-8). The thin horizontal line represents the 1994-2002 mean for small salmon retained, large released, effort and CPUE, and the thick horizontal line the 1994-2002 mean for retained and released small salmon combined.

NORTHEAST COAST

Total Returns

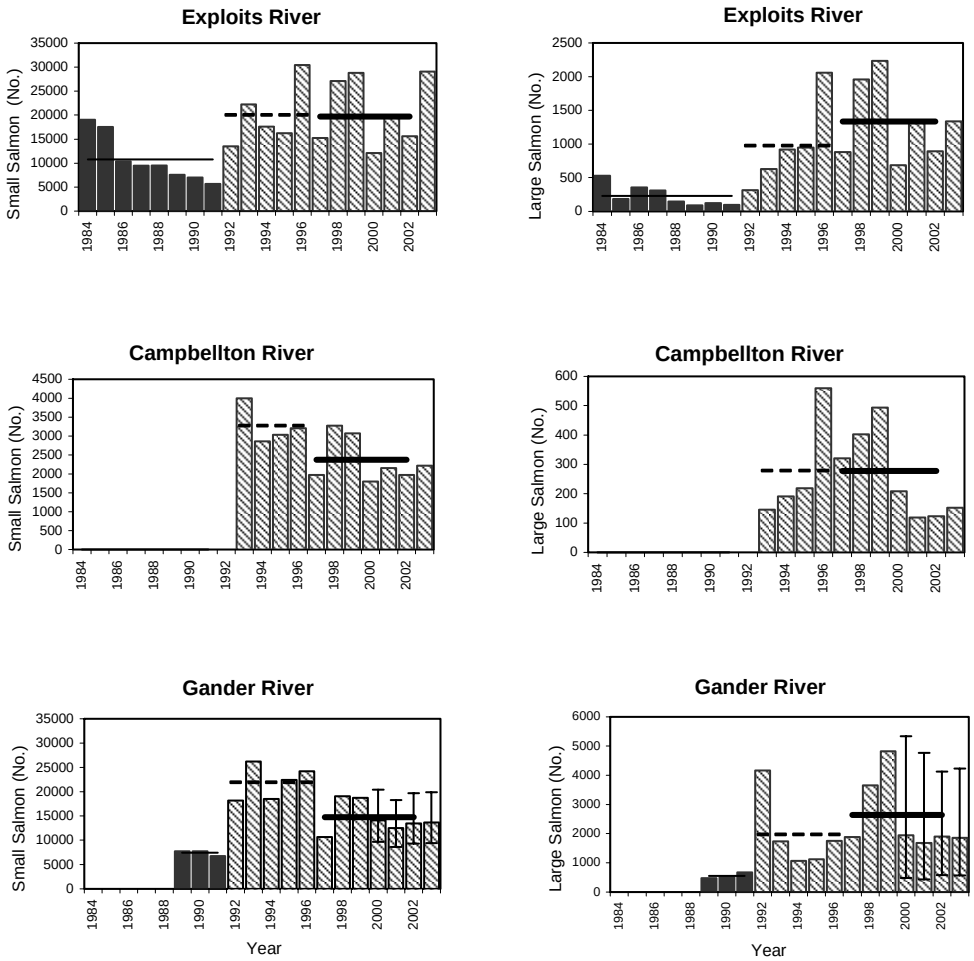

Fig. 5. Total returns of small and large salmon to Exploits River, Campbellton River and Gander River (northeast coast), 1984-2003. The thin solid horizontal line represents the 1984-1991 mean, the broken line the 1992-1996 mean, and the thick solid line the 1997-2002 mean. The dark gray bars represent the pre-moratorium years and the cross-hatched bars the moratorium years. Vertical lines are estimates of the 5th to 95th percentiles.

Northeast Coast

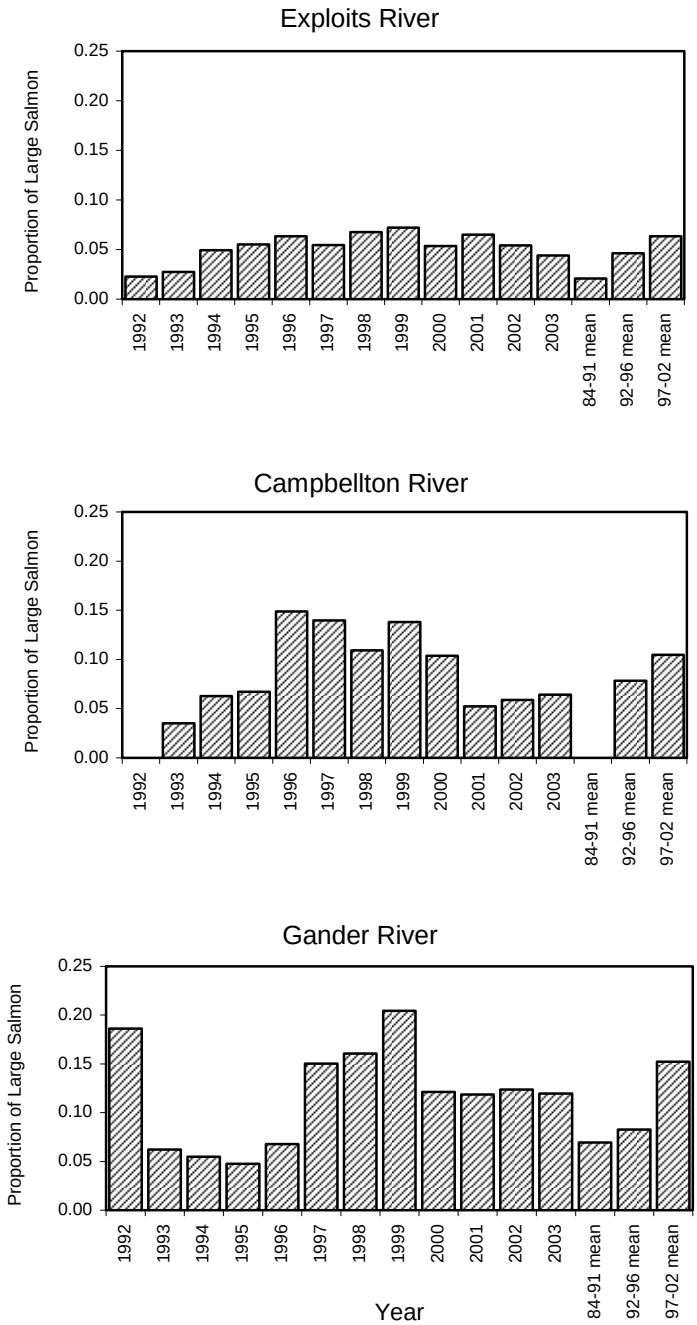

Fig. 6. Proportion of large salmon in total returns to Exploits River, Campbellton River and Gander River, (northeast coast), 1992-2003, and the 1984-1991, 1992-1996 and 1997-2002 means.

EAST COAST
Total Returns

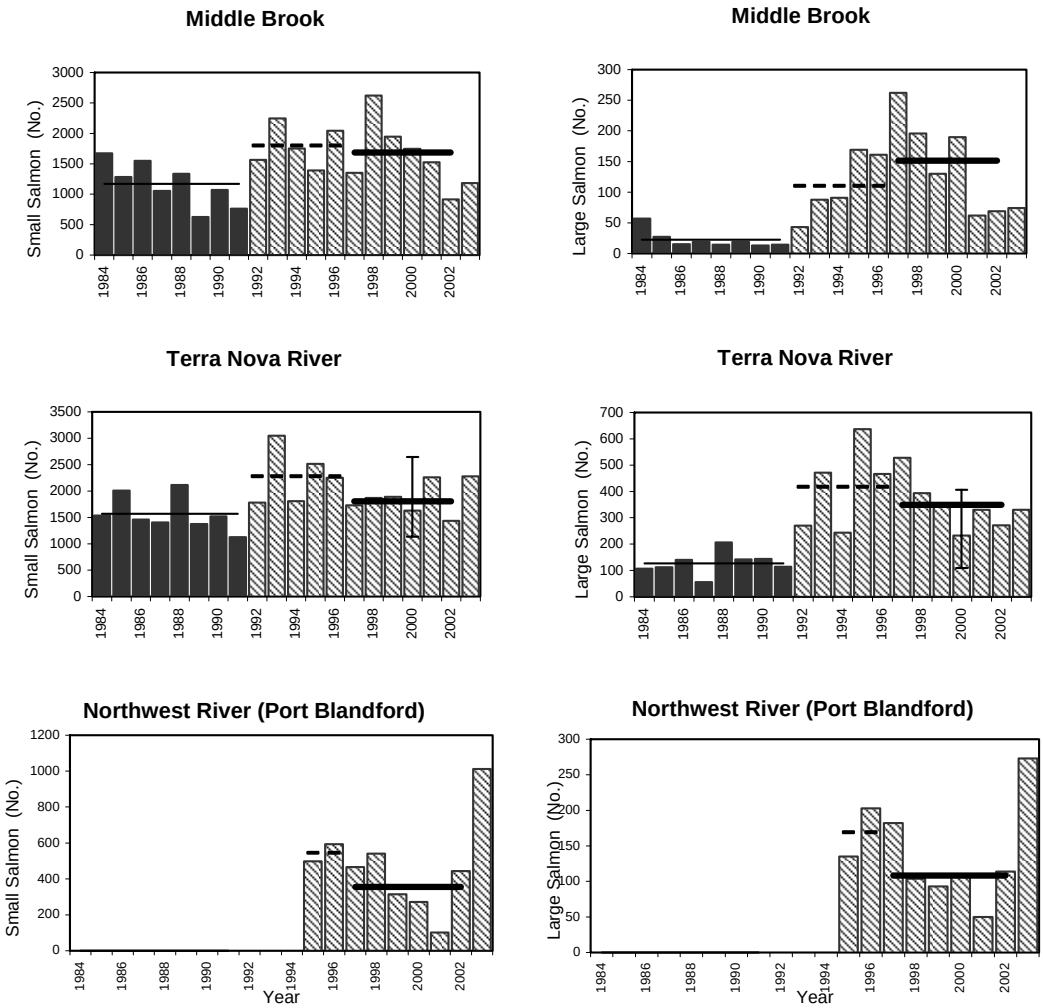

Fig. 7. Total returns of small and large salmon to Middle Brook, Terra Nova River and Northwest River, Port Blandford (east coast), 1984-2003. The thin solid horizontal line represents the 1984-1991 mean, the broken line the 1992-1996 mean, and the thick solid line the 1997-2002 mean. The dark gray bars represent the pre-moratorium years and the cross-hatched bars the moratorium years. Vertical lines are estimates of the 5th to 95th percentiles.

East Coast

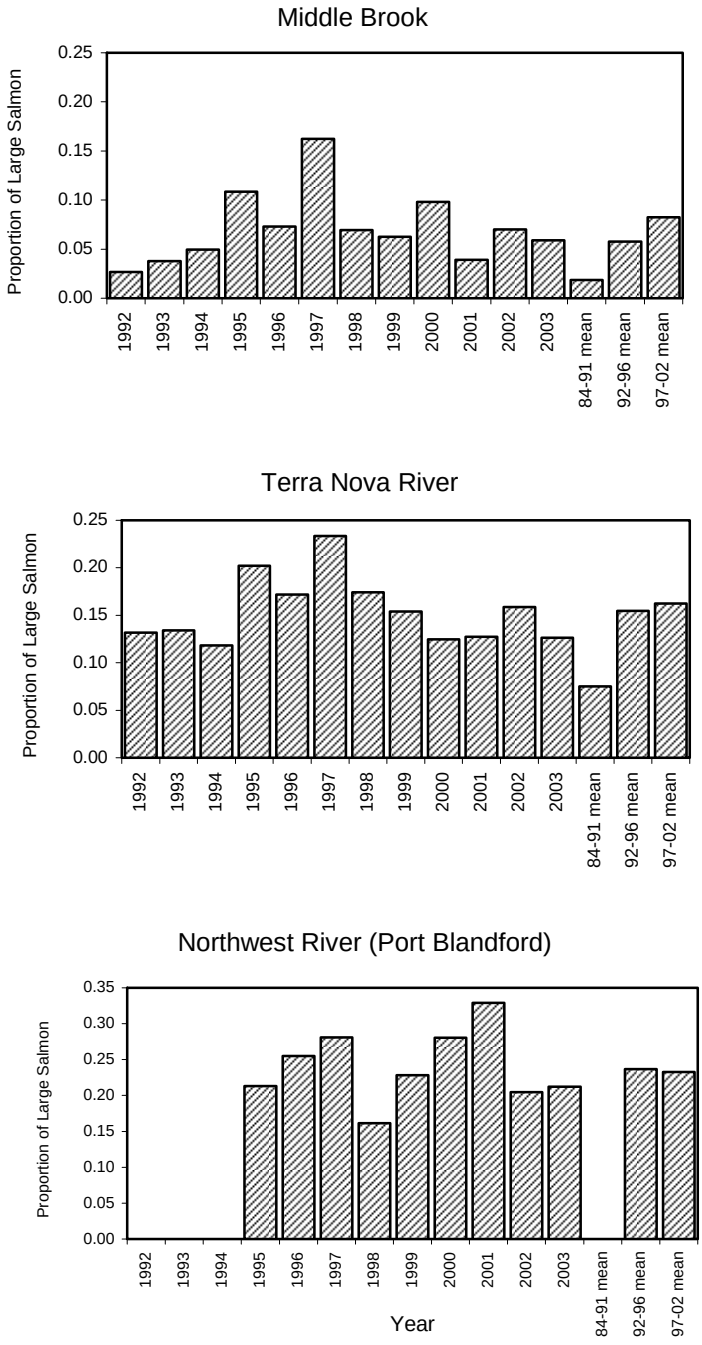

Fig. 8. Proportion of large salmon in total returns to Middle Brook, Terra Nova River and Northwest River, Port Blandford, (northeast coast), 1992-2003, and the 1984-1991, 1992-1996 and 1997-2002 means.

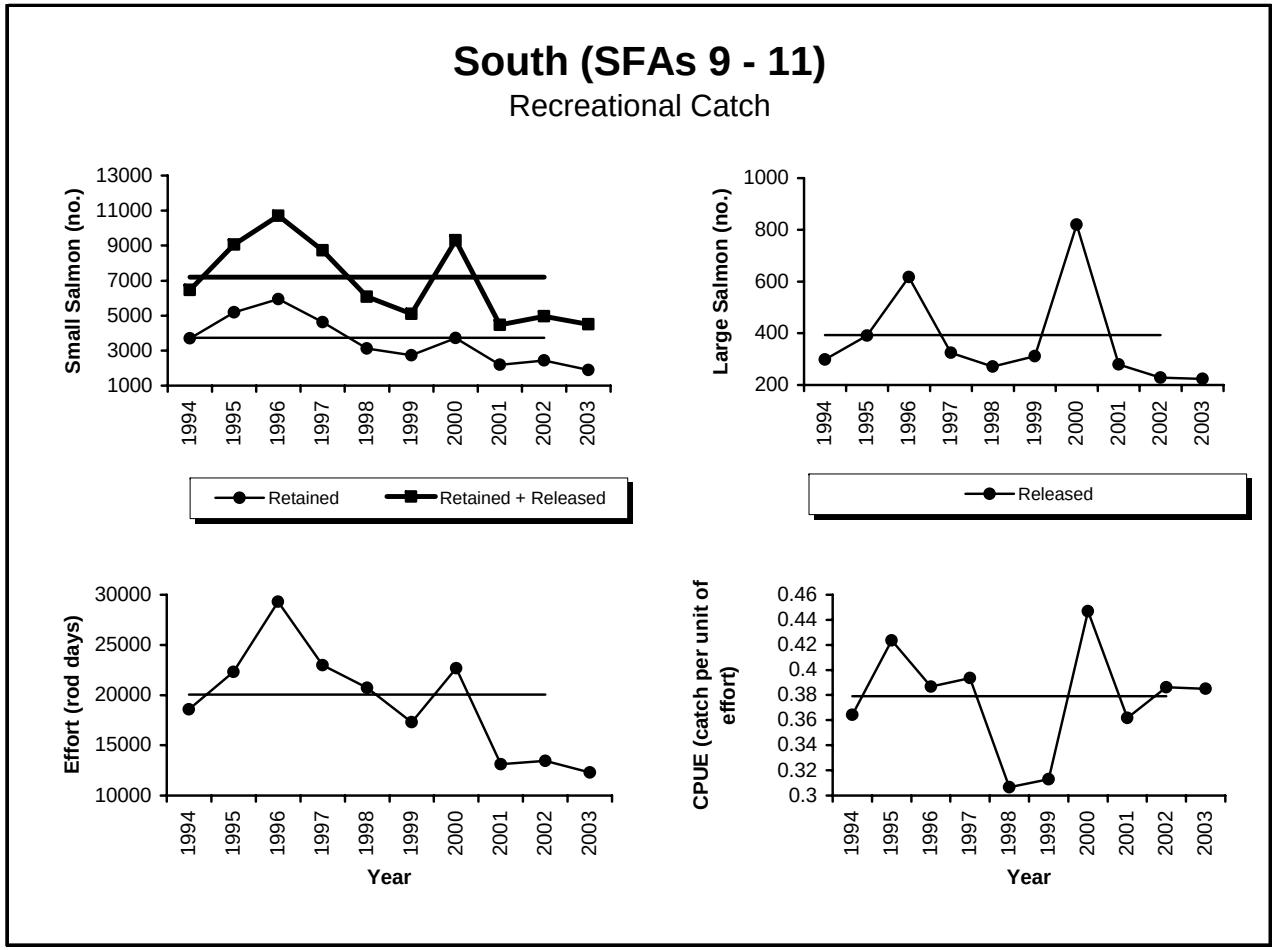

Fig. 9. Recreational catch of small salmon (retained and retained plus released), large salmon released, effort, and CPUE, 1994-2003, for South (SFAs 9-11). The thin horizontal line represents the 1994-2002 mean for small salmon retained, large released, effort and CPUE, and the thick horizontal line the 1994-2002 mean for retained and released small salmon combined.

SOUTH COAST
Total Returns

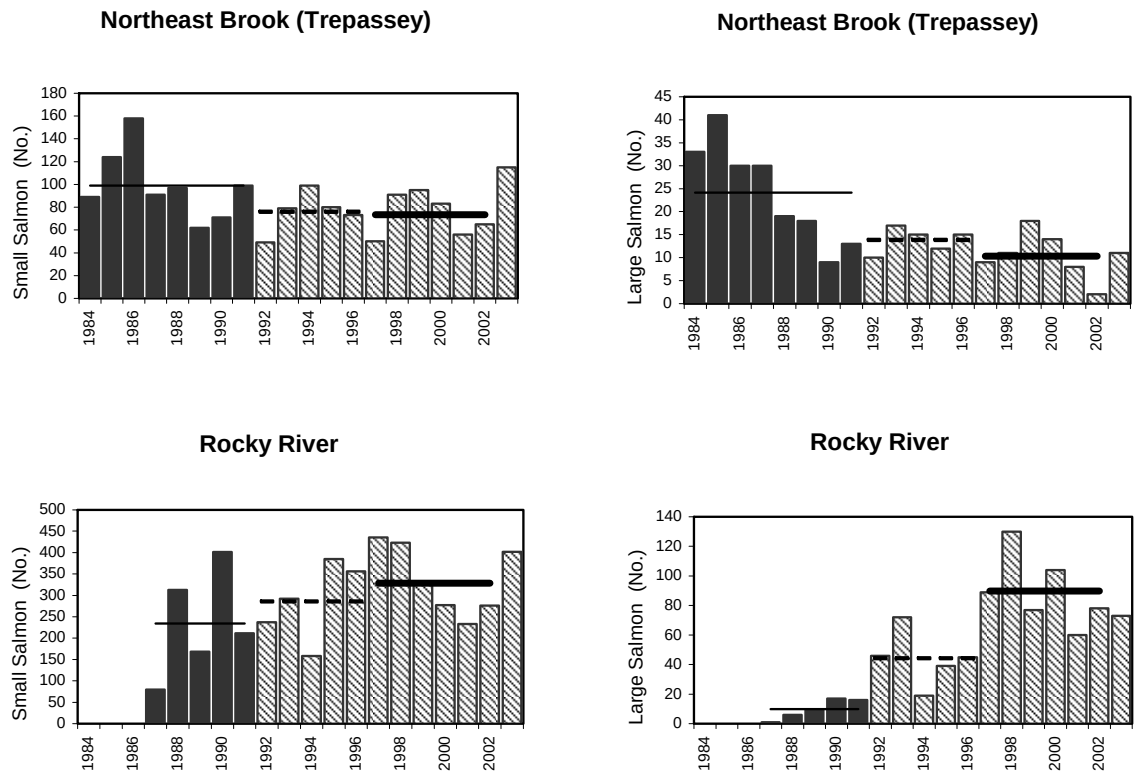

Fig. 10. Total returns of small and large salmon to Northeast Brook (Trepassey), Rocky River, Little River and Conne River (south coast), 1984-2003. The thin solid horizontal line represents the 1984-1991 mean, the broken line the 1992-1996 mean, and the thick solid line the 1997-2002 mean. The dark gray bars represent the pre-moratorium years and the cross-hatched bars the moratorium years. Vertical lines are estimates of the 5th to 95th percentiles.

SOUTH COAST
Total Returns

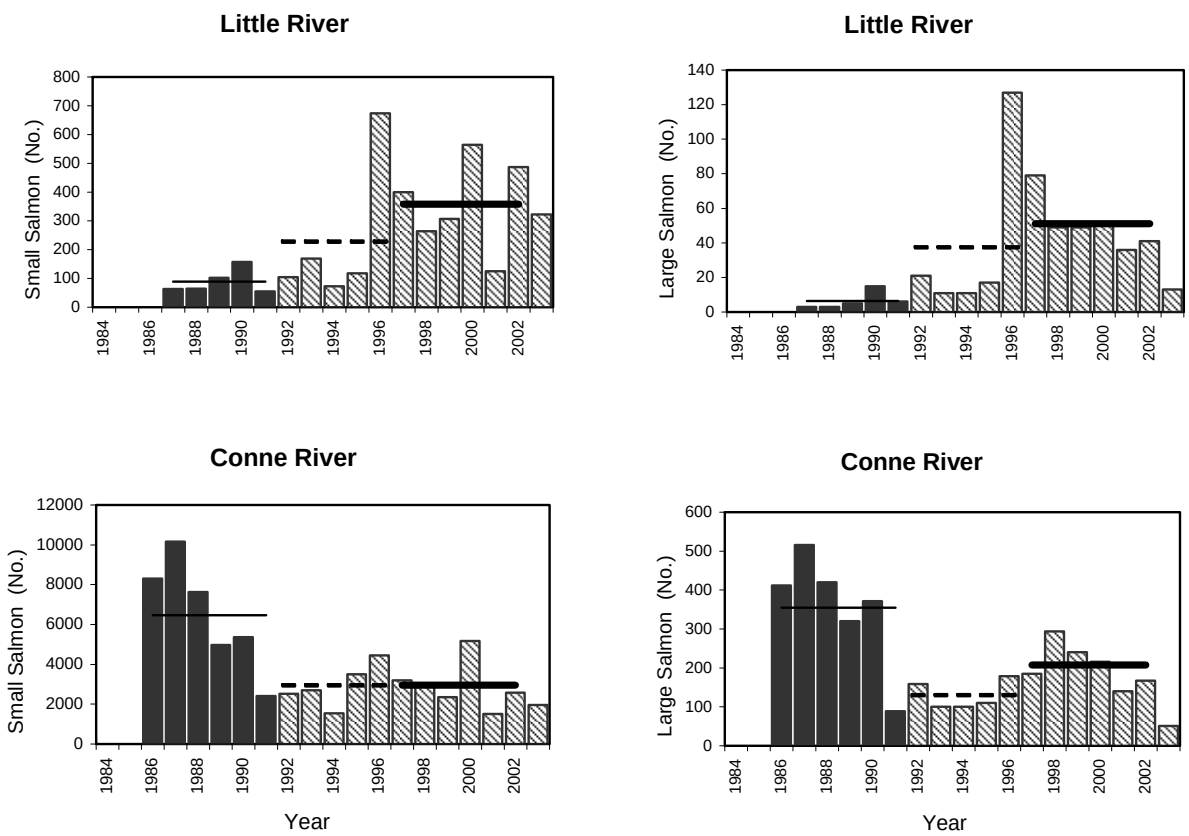

Fig. 10 cont'd

South Coast

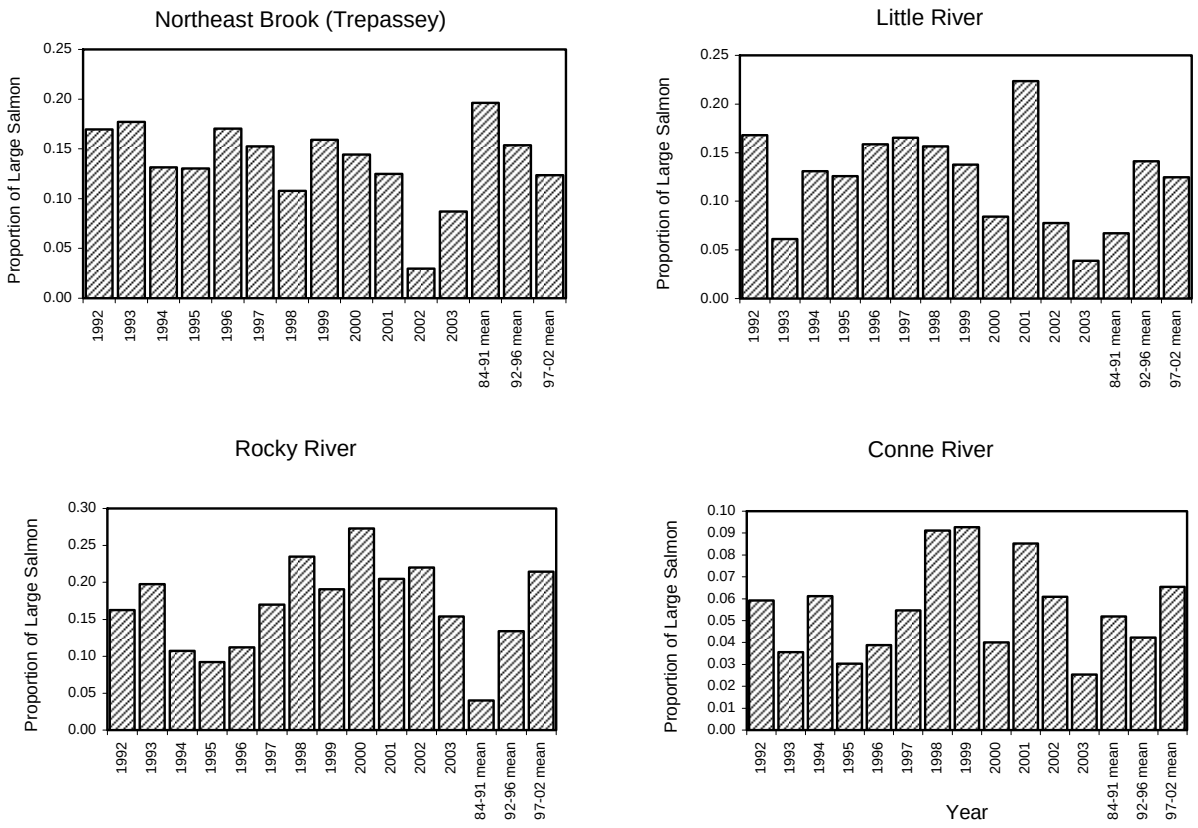

Fig. 11. Proportion of large salmon in total returns to Northeast Brook (Trepassey), Rocky River, Little River and Conne River, (south coast), 1992-2003, and the 1984-1991, 1992-1996 and 1997-2002 means.

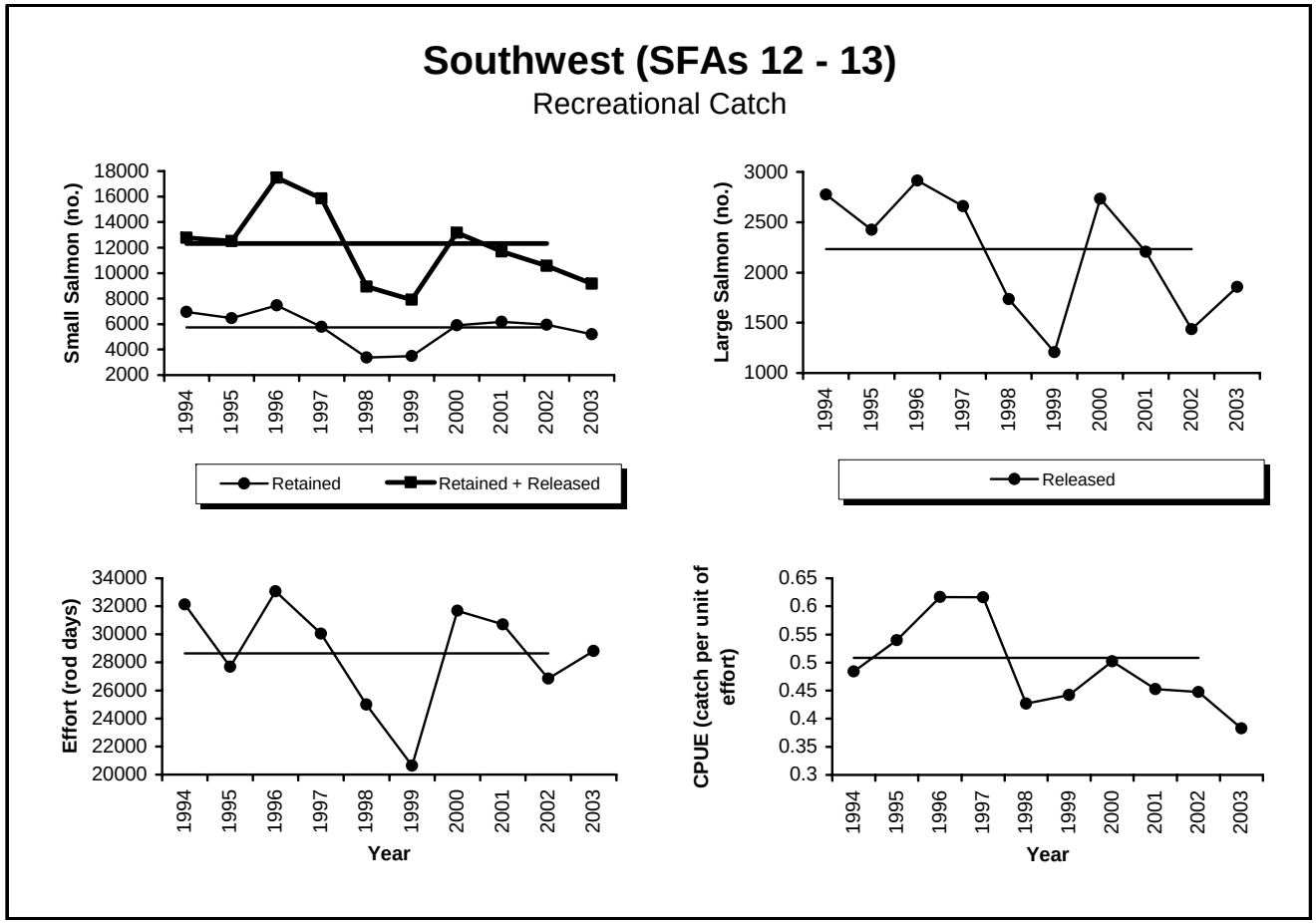

Fig. 12. Recreational catch of small salmon (retained and retained plus released), large salmon released, effort, and CPUE, 1994-2003, for Southwest (SFAs12-13). The thin horizontal line represents the 1994-2002 mean for small salmon retained, large released, effort and CPUE, and the thick horizontal line the 1994-2002 mean for retained and released small salmon combined.

SOUTHWEST COAST
Total Returns

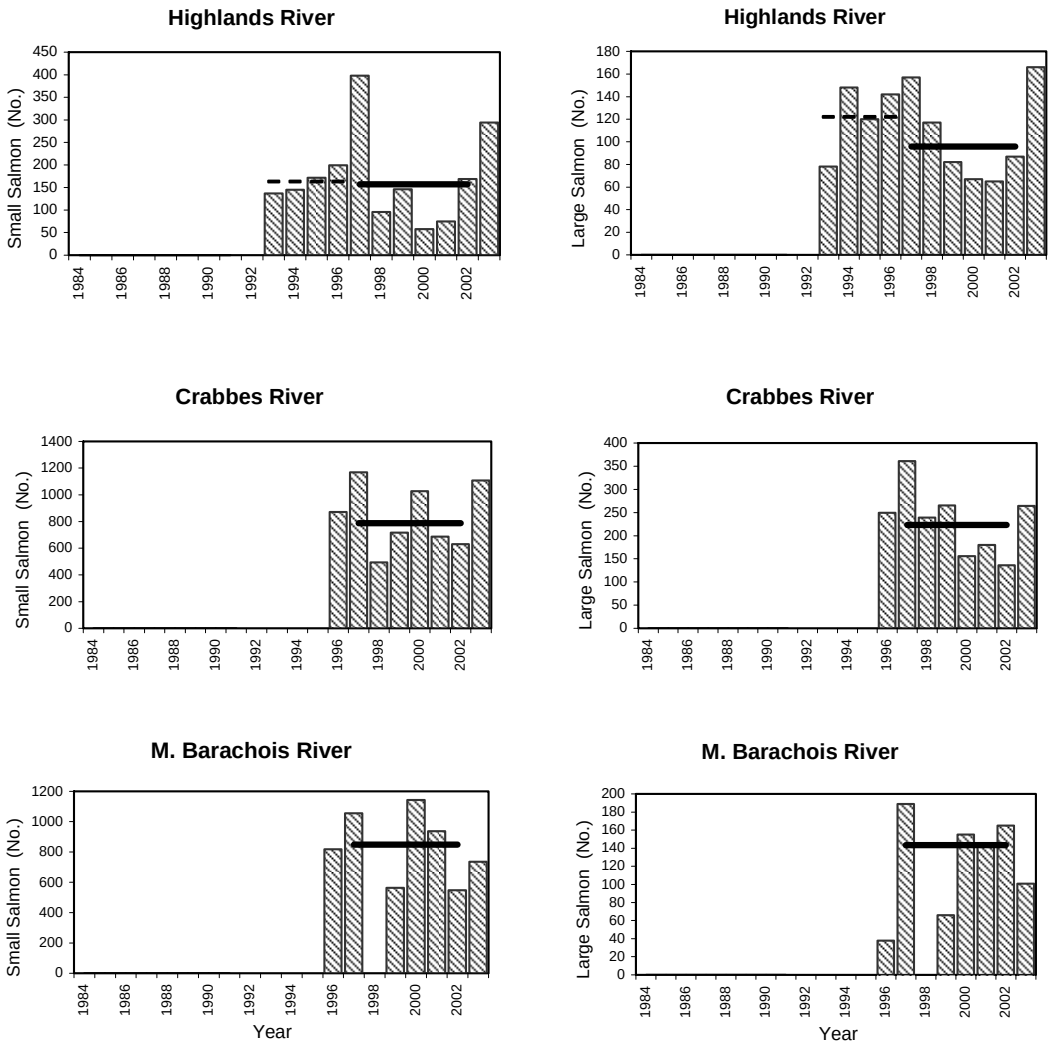

Fig. 13. Total returns of small and large salmon to Highlands River, Crabbes River, M. Barachois River, Robinsons River, Fischells River, Flat Bay Brook and Harry's River (southwest coast), 1984-2003. The broken horizontal line represents the 1992-1996 mean and the thick solid line the 1997-2002 mean.

SOUTHWEST COAST

Total Returns

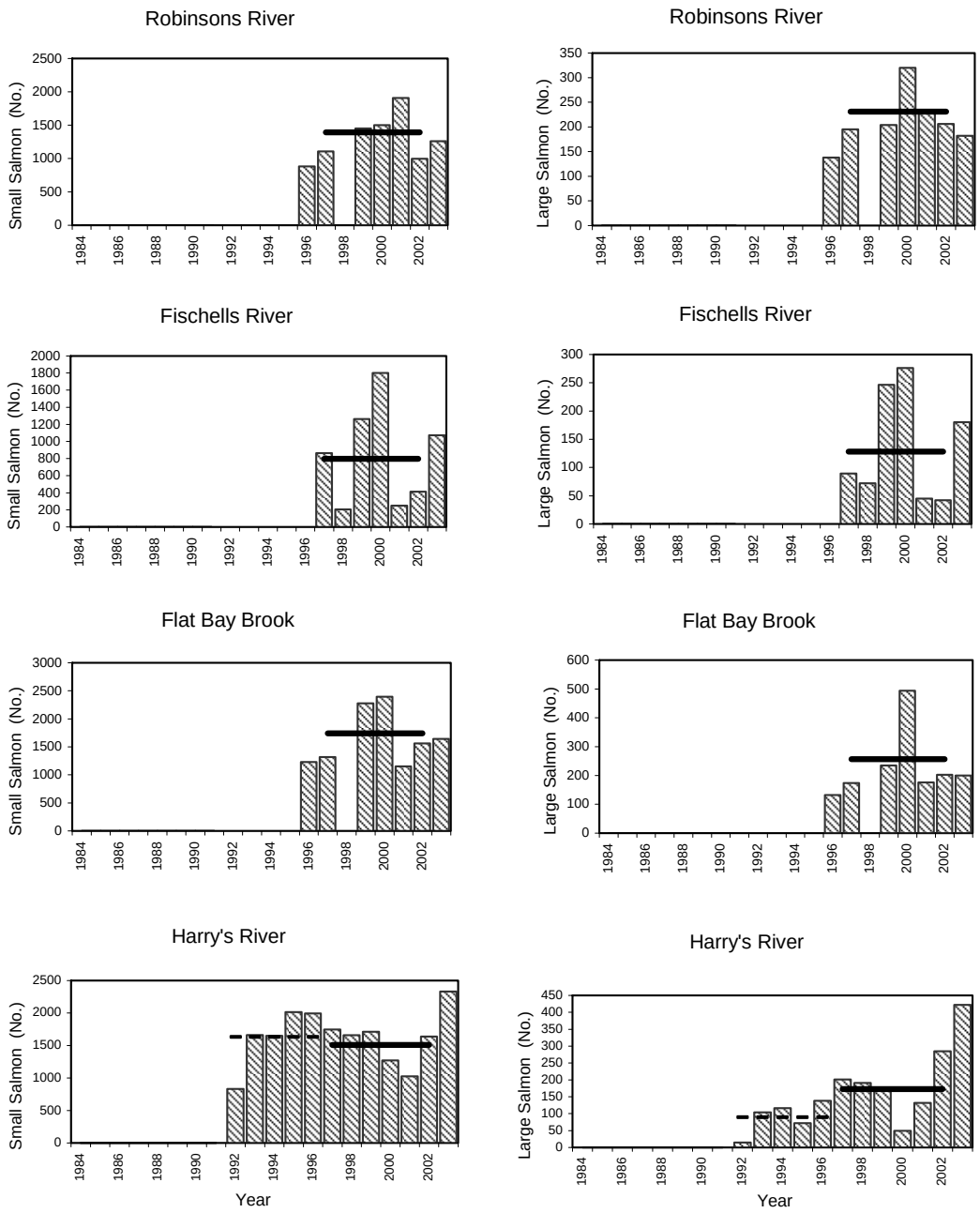

Fig. 13 cont'd

Southwest Coast

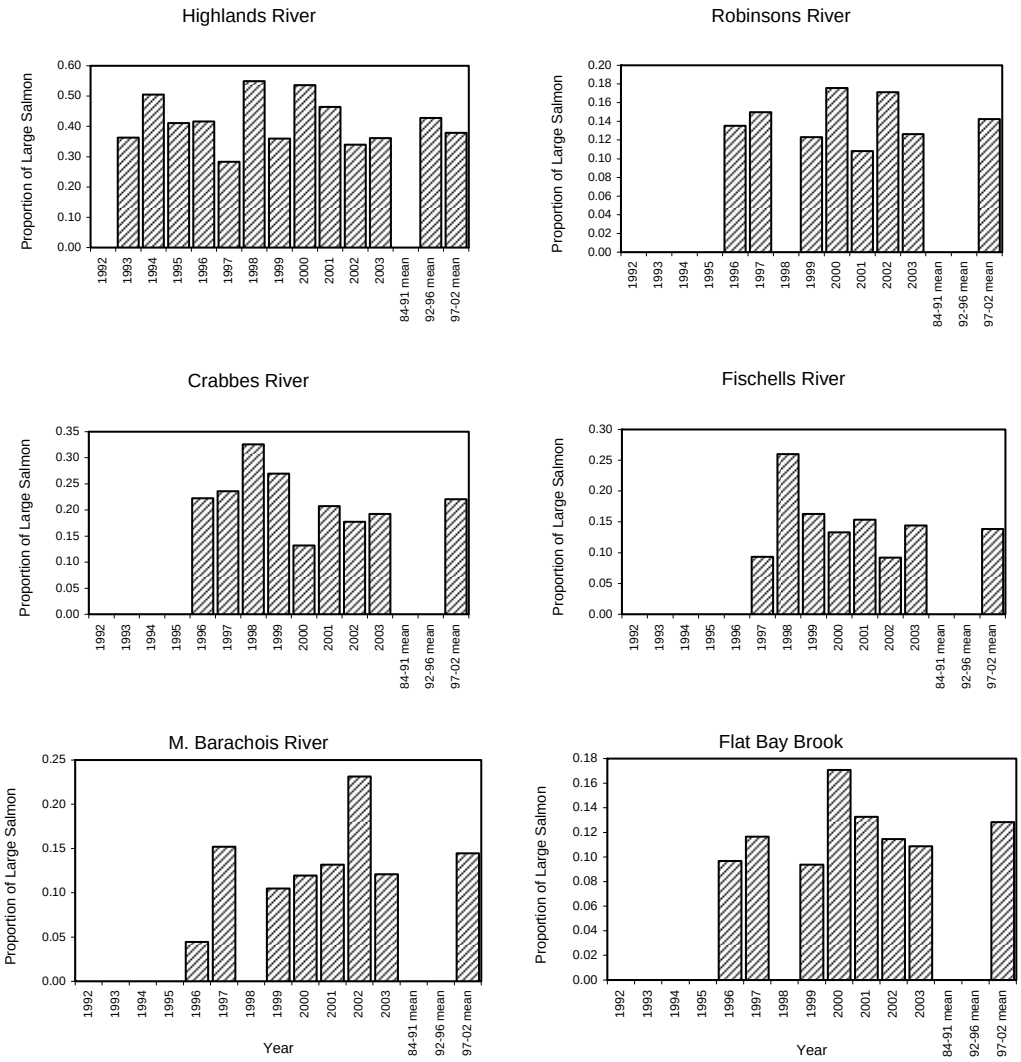

Fig. 14. Proportion of large salmon in total returns to Highlands River, Crabbes River, M. Barachois River, Robinsons River, Fischells River, Flat Bay Brook and Harry's River, (southwest coast), 1992-2003, and the 1984-1991, 1992-1996 and 1997-2002 means.

Southwest Coast

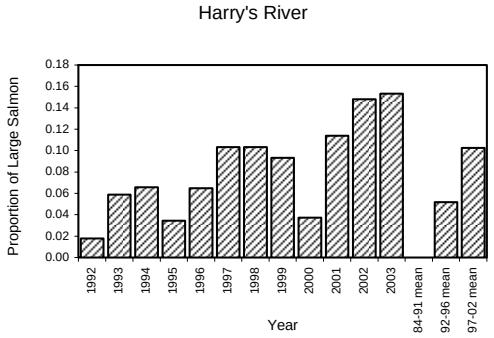

Fig. 14. cont'd

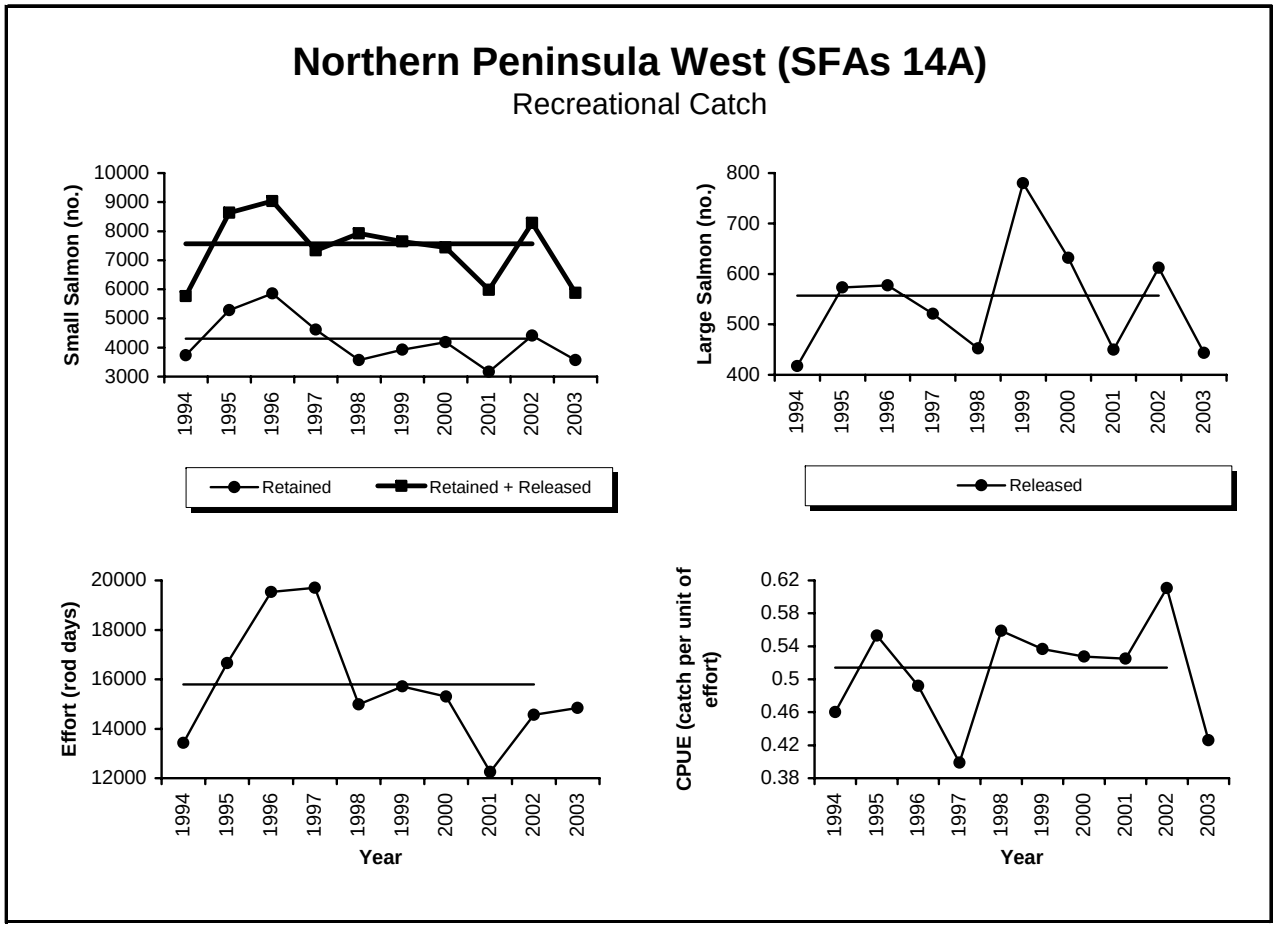

Fig. 15. Recreational catch of small salmon (retained and retained plus released), large salmon released, effort, and CPUE, 1994-2003, for Northern Peninsula West (SFA 14A). The thin horizontal line represents the 1994-2002 mean for small salmon retained, large released, effort and CPUE, and the thick horizontal line the 1994-2002 mean for retained and released small salmon combined.

NORTHWEST COAST
Total Returns

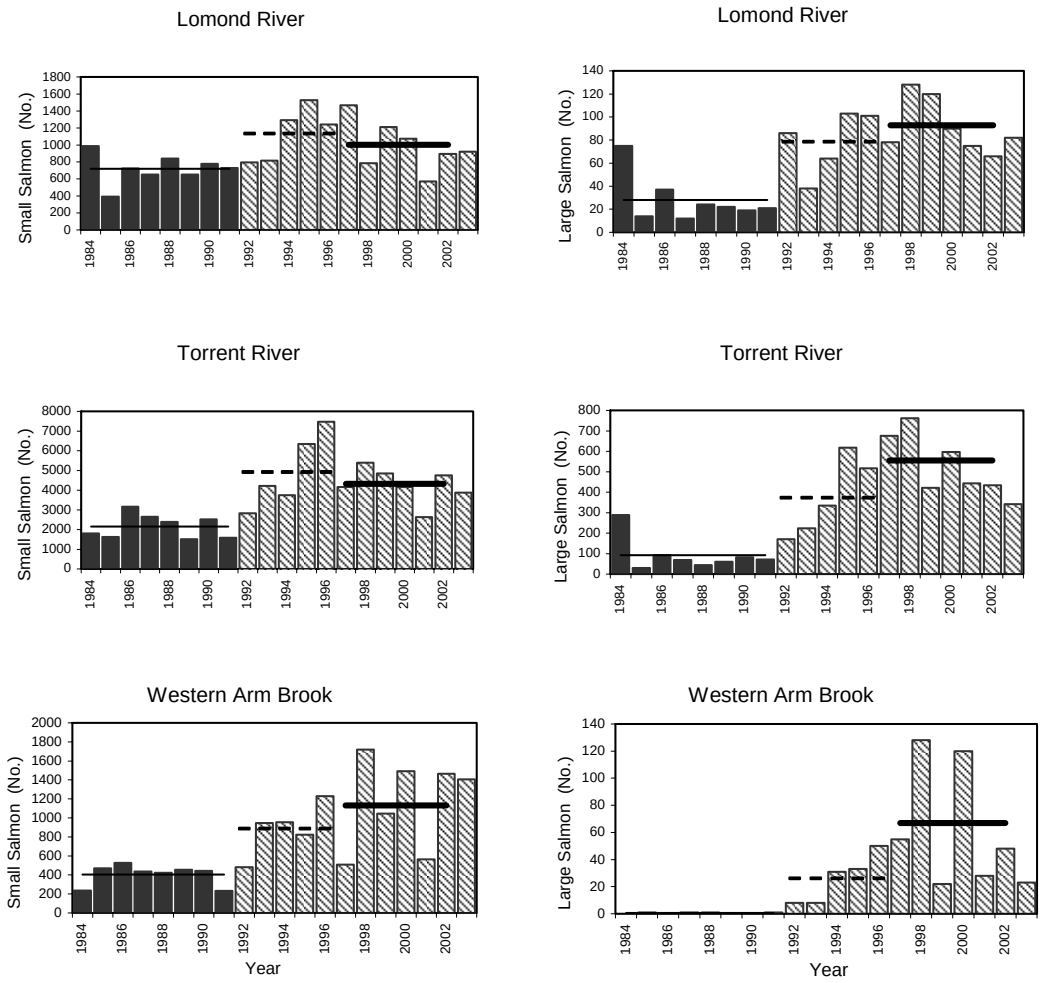

Fig. 16. Total returns of small and large salmon to Lomond River, Torrent River, and Western Arm Brook (northwest coast), 1984-2003. The thin horizontal line represents the 1984-1991 mean, the broken line the 1992-1996 mean and the thick solid line the 1997-2002 mean. The dark gray bars represent the pre-moratorium years and the cross-hatched bars the moratorium years.

Northwest Coast

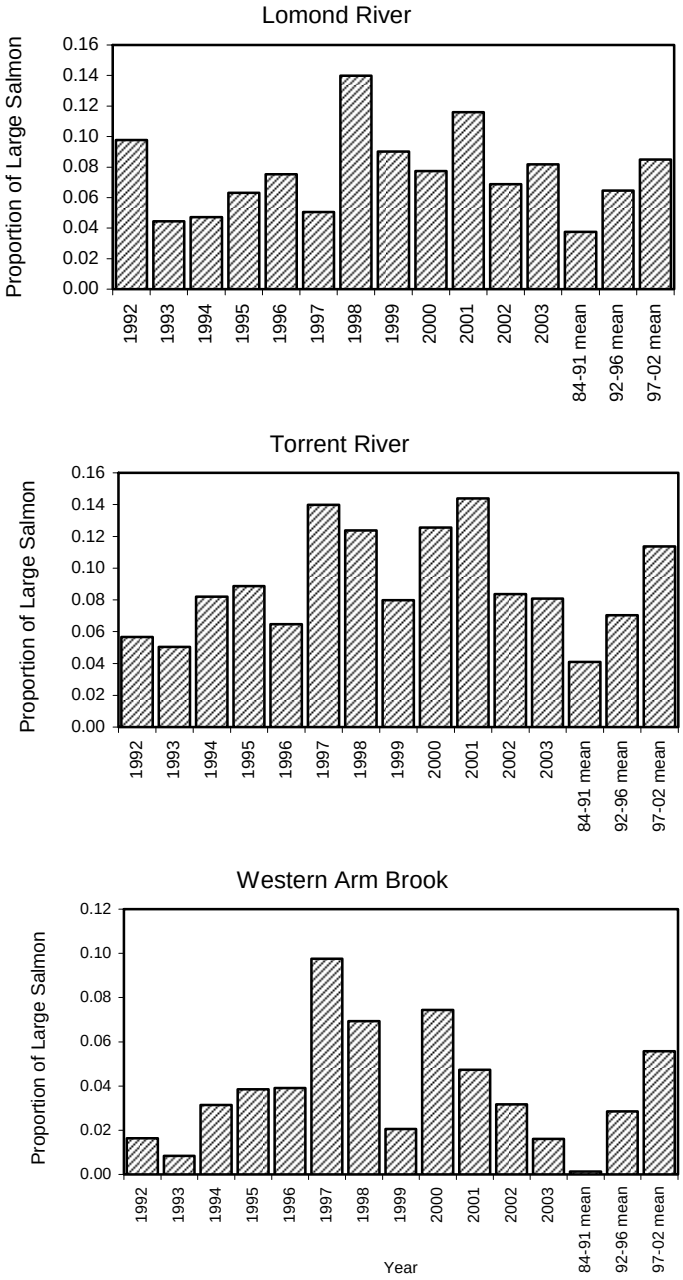

Fig. 17. Proportion of large salmon in total returns to Lomond River, Torrent River and Western Arm Brook, (northwest coast), 1992-2003, and the 1984-1991, 1992-1996 and 1997-2002 means.

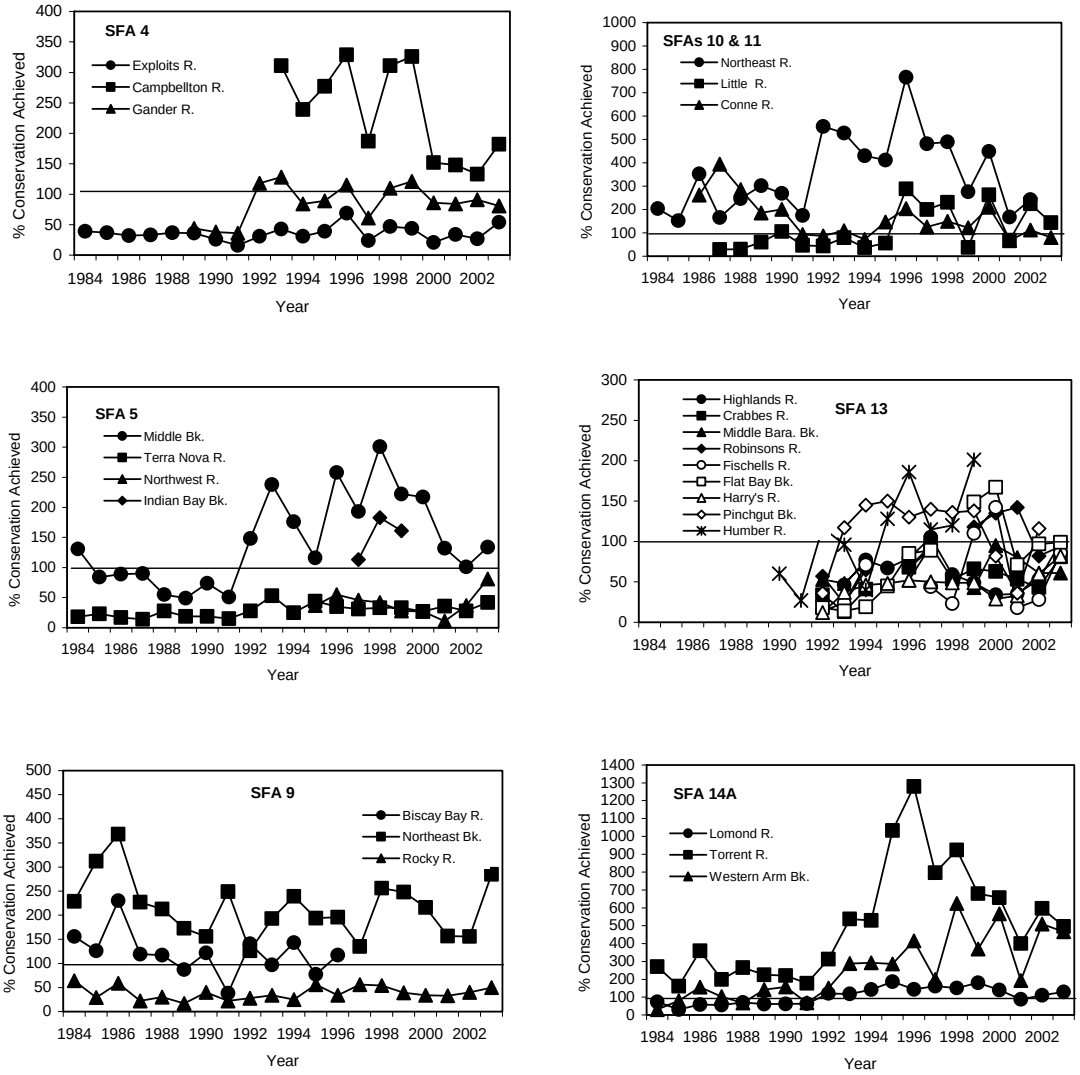

Fig. 18. Percent of conservation egg requirement achieved since 1984 for rivers in insular Newfoundland, by SFA. Horizontal line represents 100% of conservation requirement.

Appendix 1a. Atlantic salmon recreational fishery catch and effort data for insular Newfoundland (SFAs 3 - 14A), 1994-2003. 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
1994	132935	29225	20761	49986	*	4685	4685	29225	25446	54671	0.41
1995	128309	30512	22971	53483	*	4658	4658	30512	27629	58141	0.45
1996	153759	35440	30566	66006	*	5720	5720	35440	36286	71726	0.47
1997	123165	22819	23129	45948	*	4154	4154	22819	27283	50102	0.41
1998	123041	22668	27610	50278	*	3561	3561	22668	31171	53839	0.44
1999	123840	22870	20160	43030	*	3222	3222	22870	23382	46252	0.37
2000	127639	21808	22610	44418	*	5033	5033	21808	27643	49451	0.39
2001	102768	20977	17708	38685	*	3716	3716	20977	21424	42401	0.41
2002	95143	20913	18019	38932	*	3014	3014	20913	21033	41946	0.44
2003	95965	19141	15753	34894	*	3059	3059	19141	18812	37953	0.40
1994-2002 mean	123400	25248	22615	47863	.	4196	4196	25248	26811	52059	0.42
95% CL	12974	3980	3252	6511	.	691	691	3980	3710	7054	0.03
N	9	9	9	9	.	9	9	9	9	9	9

IN THE ABOVE TABLE A PERIOD INDICATES NO DATA FOR THAT YEAR.
CPUE IS IN TERMS OF SMALL AND LARGE SALMON COMBINED (RETAINED + RELEASED FISH).
* NOT ALLOWED TO RETAIN LARGE SALMON IN INSULAR NEWFOUNDLAND.

Appendix 1b. Atlantic salmon recreational fishery catch and effort data for Northern Peninsula East & Eastern (SFAs 3 - 8), 1994-2003. 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
1994	68793	14838	10145	24983	*	1196	1196	14838	11341	26179	0.38
1995	61670	13587	9693	23280	*	1269	1269	13587	10962	24549	0.40
1996	71876	16179	12604	28783	*	1611	1611	16179	14215	30394	0.42
1997	50451	7790	6253	14043	*	648	648	7790	6901	14691	0.29
1998	62367	12606	14742	27348	*	1103	1103	12606	15845	28451	0.46
1999	70198	12708	9651	22359	*	925	925	12708	10576	23284	0.33
2000	57989	8021	6480	14501	*	848	848	8021	7328	15349	0.26
2001	46684	9441	7096	16537	*	780	780	9441	7876	17317	0.37
2002	40296	8128	6992	15120	*	737	737	8128	7729	15857	0.39
2003	40014	8488	6847	15335	*	536	536	8488	7383	15871	0.40
1994-2002 mean	58925	11478	9295	20773	.	1013	1013	11478	10308	21786	0.37
95% CL	8513	2454	2257	4453	.	237	237	2454	2439	4665	0.05
N	9	9	9	9	.	9	9	9	9	9	9

IN THE ABOVE TABLE A PERIOD INDICATES NO DATA FOR THAT YEAR.
CPUE IS IN TERMS OF SMALL AND LARGE SALMON COMBINED (RETAINED + RELEASED FISH).
* NOT ALLOWED TO RETAIN LARGE SALMON IN INSULAR NEWFOUNDLAND.

Appendix 1c. Atlantic salmon recreational fishery catch and effort data for South (SFAs 9 - 11), 1994-2003. 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
1994	18587	3700	2772	6472	*	298	298	3700	3070	6770	0.36
1995	22293	5188	3863	9051	*	391	391	5188	4254	9442	0.42
1996	29290	5939	4772	10711	*	617	617	5939	5389	11328	0.39
1997	22978	4630	4088	8718	*	325	325	4630	4413	9043	0.39
1998	20708	3120	2957	6077	*	271	271	3120	3228	6348	0.31
1999	17294	2735	2368	5103	*	311	311	2735	2679	5414	0.31
2000	22674	3717	5592	9309	*	820	820	3717	6412	10129	0.45
2001	13118	2186	2282	4468	*	279	279	2186	2561	4747	0.36
2002	13447	2429	2536	4965	*	228	228	2429	2764	5193	0.39
2003	12290	1898	2609	4507	*	224	224	1898	2833	4731	0.38
1994-2002 mean	20043	3738	3470	7208	.	393	393	3738	3863	7602	0.38
95% CL	3917	989	901	1743	.	151	151	989	1039	1858	0.04
N	9	9	9	9	.	9	9	9	9	9	9

IN THE ABOVE TABLE A PERIOD INDICATES NO DATA FOR THAT YEAR.
CPUE IS IN TERMS OF SMALL AND LARGE SALMON COMBINED (RETAINED + RELEASED FISH).
* NOT ALLOWED TO RETAIN LARGE SALMON IN INSULAR NEWFOUNDLAND.

Appendix 1d. Atlantic salmon recreational fishery catch and effort data for Southwest (SFAs 12 & 13), 1994-2003. Ret. = retained f ish; 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
1994	32127	6953	5816	12769	*	2774	2774	6953	8590	15543	0.48
1995	27696	6450	6066	12516	*	2425	2425	6450	8491	14941	0.54
1996	33068	7461	10022	17483	*	2915	2915	7461	12937	20398	0.62
1997	30041	5790	10063	15853	*	2660	2660	5790	12723	18513	0.62
1998	24986	3374	5560	8934	*	1735	1735	3374	7295	10669	0.43
1999	20635	3499	4419	7918	*	1206	1206	3499	5625	9124	0.44
2000	31679	5891	7278	13169	*	2733	2733	5891	10011	15902	0.50
2001	30709	6188	5509	11697	*	2207	2207	6188	7716	13904	0.45
2002	26834	5950	4613	10563	*	1437	1437	5950	6050	12000	0.45
2003	28818	5189	3981	9170	*	1856	1856	5189	5837	11026	0.38
1994-2002 mean	28642	5728	6594	12322	.	2232	2232	5728	8826	14555	0.51
95% CL	3085	1081	1631	2344	.	483	483	1081	2019	2775	0.06
N	9	9	9	9	.	9	9	9	9	9	9

IN THE ABOVE TABLE A PERIOD INDICATES NO DATA FOR THAT YEAR.
CPUE IS IN TERMS OF SMALL AND LARGE SALMON COMBINED (RETAINED + RELEASED FISH).
* NOT ALLOWED TO RETAIN LARGE SALMON IN INSULAR NEWFOUNDLAND.

Appendix 1e. Atlantic salmon recreational fishery catch and effort data for the Northern Peninsula West (SFA 14A), 1994-2003. 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
1994	13428	3734	2028	5762	*	417	417	3734	2445	6179	0.46
1995	16650	5287	3349	8636	*	573	573	5287	3922	9209	0.55
1996	19525	5861	3168	9029	*	577	577	5861	3745	9606	0.49
1997	19695	4609	2725	7334	*	521	521	4609	3246	7855	0.40
1998	14980	3568	4351	7919	*	452	452	3568	4803	8371	0.56
1999	15713	3928	3722	7650	*	780	780	3928	4502	8430	0.54
2000	15297	4179	3260	7439	*	632	632	4179	3892	8071	0.53
2001	12257	3162	2821	5983	*	450	450	3162	3271	6433	0.52
2002	14566	4406	3878	8284	*	612	612	4406	4490	8896	0.61
2003	14843	3566	2316	5882	*	443	443	3566	2759	6325	0.43
1994-2002 mean	15790	4304	3256	7560	.	557	557	4304	3813	8117	0.51
95% CL	1929	656	530	849	.	87	87	656	572	895	0.05
N	9	9	9	9	.	9	9	9	9	9	9

IN THE ABOVE TABLE A PERIOD INDICATES NO DATA FOR THAT YEAR.
CPUE IS IN TERMS OF SMALL AND LARGE SALMON COMBINED (RETAINED + RELEASED FISH).
* NOT ALLOWED TO RETAIN LARGE SALMON IN INSULAR NEWFOUNDLAND.

Appendix 1f. Atlantic salmon recreational fishery catch and effort data for Salmon Fishing Area 3, insular Newfoundland, 1994-2003. 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
1994	11809	3667	2690	6357	*	201	201	3667	2891	6558	0.56
1995	8920	2589	2069	4658	*	293	293	2589	2362	4951	0.56
1996	10947	3492	2981	6473	*	267	267	3492	3248	6740	0.62
1997	7925	2148	1938	4086	*	164	164	2148	2102	4250	0.54
1998	10152	2917	3092	6009	*	229	229	2917	3321	6238	0.61
1999	8557	2037	1393	3430	*	75	75	2037	1468	3505	0.41
2000	9772	2192	1179	3371	*	168	168	2192	1347	3539	0.36
2001	7591	1789	1043	2832	*	151	151	1789	1194	2983	0.39
2002	5036	1742	1386	3128	*	125	125	1742	1511	3253	0.65
2003	6264	1778	1683	3461	*	87	87	1778	1770	3548	0.57
1994-2002 mean	8968	2508	1975	4483	.	186	186	2508	2160	4669	0.52
95% CL	1553	546	606	1117	.	53	53	546	643	1155	0.08
N	9	9	9	9	.	9	9	9	9	9	9

IN THE ABOVE TABLE A PERIOD INDICATES NO DATA FOR THAT YEAR.
CPUE IS IN TERMS OF SMALL AND LARGE SALMON COMBINED (RETAINED + RELEASED FISH).
* NOT ALLOWED TO RETAIN LARGE SALMON IN INSULAR NEWFOUNDLAND.

Appendix 1g. Atlantic salmon recreational fishery catch and effort data for Salmon Fishing Area 4, insular Newfoundland, 1994-2003. 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
1994	39900	8241	5837	14078	*	847	847	8241	6684	14925	0.37
1995	36736	7976	5904	13880	*	755	755	7976	6659	14635	0.40
1996	44128	9395	7746	17141	*	1138	1138	9395	8884	18279	0.41
1997	31462	4396	3697	8093	*	420	420	4396	4117	8513	0.27
1998	40632	7784	10040	17824	*	588	588	7784	10628	18412	0.45
1999	50159	9054	6975	16029	*	674	674	9054	7649	16703	0.33
2000	35213	4262	4097	8359	*	474	474	4262	4571	8833	0.25
2001	28090	6073	4637	10710	*	571	571	6073	5208	11281	0.40
2002	28340	5692	5186	10878	*	581	581	5692	5767	11459	0.40
2003	28823	5994	4687	10681	*	409	409	5994	5096	11090	0.38
1994-2002 mean	37184	6986	6013	12999	.	672	672	6986	6685	13671	0.37
95% CL	5659	1486	1533	2810	.	168	168	1486	1617	2927	0.05
N	9	9	9	9	.	9	9	9	9	9	9

IN THE ABOVE TABLE A PERIOD INDICATES NO DATA FOR THAT YEAR.
CPUE IS IN TERMS OF SMALL AND LARGE SALMON COMBINED (RETAINED + RELEASED FISH).
* NOT ALLOWED TO RETAIN LARGE SALMON IN INSULAR NEWFOUNDLAND.

Appendix 1h. Atlantic salmon recreational fishery catch and effort data for Salmon Fishing Area 5, insular Newfoundland, 1994-2003. 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
1994	14727	2730	1547	4277	*	131	131	2730	1678	4408	0.30
1995	13557	2818	1672	4490	*	210	210	2818	1882	4700	0.35
1996	14328	3110	1786	4896	*	185	185	3110	1971	5081	0.35
1997	9690	1181	589	1770	*	58	58	1181	647	1828	0.19
1998	9683	1764	1556	3320	*	276	276	1764	1832	3596	0.37
1999	9591	1526	1156	2682	*	170	170	1526	1326	2852	0.30
2000	9581	1409	1080	2489	*	191	191	1409	1271	2680	0.28
2001	10257	1523	1392	2915	*	54	54	1523	1446	2969	0.29
2002	5799	642	338	980	*	23	23	642	361	1003	0.17
2003	4219	657	442	1099	*	36	36	657	478	1135	0.27
1994-2002 mean	10801	1856	1235	3091	.	144	144	1856	1379	3235	0.30
95% CL	2211	644	382	996	.	65	65	644	429	1037	0.05
N	9	9	9	9	.	9	9	9	9	9	9

IN THE ABOVE TABLE A PERIOD INDICATES NO DATA FOR THAT YEAR.
CPUE IS IN TERMS OF SMALL AND LARGE SALMON COMBINED (RETAINED + RELEASED FISH).
* NOT ALLOWED TO RETAIN LARGE SALMON IN INSULAR NEWFOUNDLAND.

Appendix 1i. Atlantic salmon recreational fishery catch and effort data for Salmon Fishing Area 6, insular Newfoundland, 1994-2003. 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
1994	1772	151	63	214	*	15	15	151	78	229	0.13
1995	1505	98	14	112	*	5	5	98	19	117	0.08
1996	1561	115	59	174	*	16	16	115	75	190	0.12
1997	923	43	21	64	*	2	2	43	23	66	0.07
1998	947	80	33	113	*	4	4	80	37	117	0.12
1999	1382	59	28	87	*	4	4	59	32	91	0.07
2000	2744	128	63	191	*	11	11	128	74	202	0.07
2001	550	45	3	48	*	2	2	45	5	50	0.09
2002	648	40	19	59	*	6	6	40	25	65	0.10
2003	588	44	32	76	*	4	4	44	36	80	0.14
1994-2002 mean	1337	84	34	118	.	7	7	84	41	125	0.09
95% CL	520	31	17	47	.	4	4	31	21	51	0.02
N	9	9	9	9	.	9	9	9	9	9	9

IN THE ABOVE TABLE A PERIOD INDICATES NO DATA FOR THAT YEAR.
CPUE IS IN TERMS OF SMALL AND LARGE SALMON COMBINED (RETAINED + RELEASED FISH).
* NOT ALLOWED TO RETAIN LARGE SALMON IN INSULAR NEWFOUNDLAND.

Appendix 1j. Atlantic salmon recreational fishery catch and effort data for Salmon Fishing Area 7, insular Newfoundland, 1994-2003. 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
1994	290	18	6	24	*	0	0	18	6	24	0.08
1995	624	59	6	65	*	3	3	59	9	68	0.11
1996	543	27	0	27	*	0	0	27	0	27	0.05
1997	179	11	0	11	*	4	4	11	4	15	0.08
1998	661	37	0	37	*	2	2	37	2	39	0.06
1999	166	10	3	13	*	0	0	10	3	13	0.08
2000	199	18	6	24	*	0	0	18	6	24	0.12
2001	179	8	21	29	*	2	2	8	23	31	0.17
2002	187	0	9	9	*	0	0	0	9	9	0.05
2003	93	10	3	13	*	0	0	10	3	13	0.14
1994-2002 mean	336	21	6	27	.	1	1	21	7	28	0.08
95% CL	161	14	5	13	.	1	1	14	5	14	0.03
N	9	9	9	9	.	9	9	9	9	9	9

IN THE ABOVE TABLE A PERIOD INDICATES NO DATA FOR THAT YEAR.
CPUE IS IN TERMS OF SMALL AND LARGE SALMON COMBINED (RETAINED + RELEASED FISH).
* NOT ALLOWED TO RETAIN LARGE SALMON IN INSULAR NEWFOUNDLAND.

Appendix 1k. Atlantic salmon recreational fishery catch and effort data for Salmon Fishing Area 8, insular Newfoundland, 1994-2003. 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
1994	295	31	2	33	*	2	2	31	4	35	0.12
1995	328	47	28	75	*	3	3	47	31	78	0.24
1996	369	40	32	72	*	5	5	40	37	77	0.21
1997	272	11	8	19	*	0	0	11	8	19	0.07
1998	292	24	21	45	*	4	4	24	25	49	0.17
1999	343	22	96	118	*	2	2	22	98	120	0.35
2000	480	12	55	67	*	4	4	12	59	71	0.15
2001	17	3	0	3	*	0	0	3	0	3	0.18
2002	286	12	54	66	*	2	2	12	56	68	0.24
2003	27	5	0	5	*	0	0	5	0	5	0.19
1994-2002 mean	298	22	33	55	.	2	2	22	35	58	0.19
95% CL	95	11	24	26	.	1	1	11	24	27	0.07
N	9	9	9	9	.	9	9	9	9	9	9

IN THE ABOVE TABLE A PERIOD INDICATES NO DATA FOR THAT YEAR.
CPUE IS IN TERMS OF SMALL AND LARGE SALMON COMBINED (RETAINED + RELEASED FISH).
* NOT ALLOWED TO RETAIN LARGE SALMON IN INSULAR NEWFOUNDLAND.

Appendix 1l. Atlantic salmon recreational fishery catch and effort data for Salmon Fishing Area 9, insular Newfoundland, 1994-2003. 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
1994	5708	843	403	1246	*	48	48	843	451	1294	0.23
1995	7194	1350	843	2193	*	138	138	1350	981	2331	0.32
1996	7701	1076	704	1780	*	123	123	1076	827	1903	0.25
1997	5928	664	452	1116	*	65	65	664	517	1181	0.20
1998	5104	698	592	1290	*	100	100	698	692	1390	0.27
1999	5034	585	291	876	*	103	103	585	394	979	0.19
2000	6611	891	458	1349	*	147	147	891	605	1496	0.23
2001	3161	311	237	548	*	64	64	311	301	612	0.19
2002	2751	318	364	682	*	63	63	318	427	745	0.27
2003	2299	210	388	598	*	42	42	210	430	640	0.28
1994-2002 mean	5466	748	483	1231	.	95	95	748	577	1326	0.24
95% CL	1291	259	151	399	.	28	28	259	170	418	0.04
N	9	9	9	9	.	9	9	9	9	9	9

IN THE ABOVE TABLE A PERIOD INDICATES NO DATA FOR THAT YEAR.
CPUE IS IN TERMS OF SMALL AND LARGE SALMON COMBINED (RETAINED + RELEASED FISH).
* NOT ALLOWED TO RETAIN LARGE SALMON IN INSULAR NEWFOUNDLAND.

Appendix 1m. Atlantic salmon recreational fishery catch and effort data for Salmon Fishing Area 10, insular Newfoundland, 1994-2003. 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
1994	4872	713	270	983	*	56	56	713	326	1039	0.21
1995	5921	1109	446	1555	*	82	82	1109	528	1637	0.28
1996	10641	1475	825	2300	*	161	161	1475	986	2461	0.23
1997	6723	926	588	1514	*	95	95	926	683	1609	0.24
1998	9425	1163	525	1688	*	88	88	1163	613	1776	0.19
1999	5903	745	552	1297	*	151	151	745	703	1448	0.25
2000	7434	867	1077	1944	*	454	454	867	1531	2398	0.32
2001	3731	445	432	877	*	104	104	445	536	981	0.26
2002	5172	616	477	1093	*	105	105	616	582	1198	0.23
2003	3617	349	449	798	*	43	43	349	492	841	0.23
1994-2002 mean	6647	895	577	1472	.	144	144	895	721	1616	0.24
95% CL	1702	242	184	358	.	93	93	242	270	411	0.03
N	9	9	9	9	.	9	9	9	9	9	9

IN THE ABOVE TABLE A PERIOD INDICATES NO DATA FOR THAT YEAR.
CPUE IS IN TERMS OF SMALL AND LARGE SALMON COMBINED (RETAINED + RELEASED FISH).
* NOT ALLOWED TO RETAIN LARGE SALMON IN INSULAR NEWFOUNDLAND.

Appendix 1n. Atlantic salmon recreational fishery catch and effort data for Salmon Fishing Area 11, insular Newfoundland, 1994-2003. 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
1994	8007	2144	2099	4243	*	194	194	2144	2293	4437	0.55
1995	9178	2729	2574	5303	*	171	171	2729	2745	5474	0.60
1996	10948	3388	3243	6631	*	333	333	3388	3576	6964	0.64
1997	10327	3040	3048	6088	*	165	165	3040	3213	6253	0.61
1998	6179	1259	1840	3099	*	83	83	1259	1923	3182	0.51
1999	6357	1405	1525	2930	*	57	57	1405	1582	2987	0.47
2000	8629	1959	4057	6016	*	219	219	1959	4276	6235	0.72
2001	6226	1430	1613	3043	*	111	111	1430	1724	3154	0.51
2002	5524	1495	1695	3190	*	60	60	1495	1755	3250	0.59
2003	6374	1339	1772	3111	*	139	139	1339	1911	3250	0.51
1994-2002 mean	7931	2094	2410	4505	.	155	155	2094	2565	4660	0.59
95% CL	1517	606	676	1164	.	68	68	606	730	1224	0.06
N	9	9	9	9	.	9	9	9	9	9	9

IN THE ABOVE TABLE A PERIOD INDICATES NO DATA FOR THAT YEAR.
CPUE IS IN TERMS OF SMALL AND LARGE SALMON COMBINED (RETAINED + RELEASED FISH).
* NOT ALLOWED TO RETAIN LARGE SALMON IN INSULAR NEWFOUNDLAND.

Appendix 1o. Atlantic salmon recreational fishery catch and effort data for Salmon Fishing Area 12, insular Newfoundland, 1994-2003. 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
1994	2665	774	385	1159	*	88	88	774	473	1247	0.47
1995	2119	582	232	814	*	67	67	582	299	881	0.42
1996	2750	899	439	1338	*	119	119	899	558	1457	0.53
1997	3199	832	699	1531	*	110	110	832	809	1641	0.51
1998	2456	351	415	766	*	108	108	351	523	874	0.36
1999	1304	166	151	317	*	26	26	166	177	343	0.26
2000	1859	299	440	739	*	45	45	299	485	784	0.42
2001	2062	335	485	820	*	80	80	335	565	900	0.44
2002	1803	385	395	780	*	42	42	385	437	822	0.46
2003	2122	381	480	861	*	58	58	381	538	919	0.43
1994-2002 mean	2246	514	405	918	.	76	76	514	481	994	0.44
95% CL	444	204	119	281	.	26	26	204	136	301	0.06
N	9	9	9	9	.	9	9	9	9	9	9

IN THE ABOVE TABLE A PERIOD INDICATES NO DATA FOR THAT YEAR.
CPUE IS IN TERMS OF SMALL AND LARGE SALMON COMBINED (RETAINED + RELEASED FISH).
* NOT ALLOWED TO RETAIN LARGE SALMON IN INSULAR NEWFOUNDLAND.

Appendix 1p. Atlantic salmon recreational fishery catch and effort data for Salmon Fishing Area 13, insular Newfoundland, 1994-2003. 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
1994	29462	6179	5431	11610	*	2686	2686	6179	8117	14296	0.49
1995	25577	5868	5834	11702	*	2358	2358	5868	8192	14060	0.55
1996	30318	6562	9583	16145	*	2796	2796	6562	12379	18941	0.62
1997	26842	4958	9364	14322	*	2550	2550	4958	11914	16872	0.63
1998	22530	3023	5145	8168	*	1627	1627	3023	6772	9795	0.43
1999	19331	3333	4268	7601	*	1180	1180	3333	5448	8781	0.45
2000	29820	5592	6838	12430	*	2688	2688	5592	9526	15118	0.51
2001	28647	5853	5024	10877	*	2127	2127	5853	7151	13004	0.45
2002	25031	5565	4218	9783	*	1395	1395	5565	5613	11178	0.45
2003	26696	4808	3501	8309	*	1798	1798	4808	5299	10107	0.38
1994-2002 mean	26395	5215	6189	11404	.	2156	2156	5215	8346	13561	0.51
95% CL	2839	951	1555	2105	.	469	469	951	1926	2522	0.06
N	9	9	9	9	.	9	9	9	9	9	9

IN THE ABOVE TABLE A PERIOD INDICATES NO DATA FOR THAT YEAR.
CPUE IS IN TERMS OF SMALL AND LARGE SALMON COMBINED (RETAINED + RELEASED FISH).
* NOT ALLOWED TO RETAIN LARGE SALMON IN INSULAR NEWFOUNDLAND.

Appendix 1q. Atlantic salmon recreational fishery catch and effort data for Salmon Fishing Area 14A, insular Newfoundland, 1994-2003. 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
1994	13428	3734	2028	5762	*	417	417	3734	2445	6179	0.46
1995	16650	5287	3349	8636	*	573	573	5287	3922	9209	0.55
1996	19525	5861	3168	9029	*	577	577	5861	3745	9606	0.49
1997	19695	4609	2725	7334	*	521	521	4609	3246	7855	0.40
1998	14980	3568	4351	7919	*	452	452	3568	4803	8371	0.56
1999	15713	3928	3722	7650	*	780	780	3928	4502	8430	0.54
2000	15297	4179	3260	7439	*	632	632	4179	3892	8071	0.53
2001	12257	3162	2821	5983	*	450	450	3162	3271	6433	0.52
2002	14566	4406	3878	8284	*	612	612	4406	4490	8896	0.61
2003	14843	3566	2316	5882	*	443	443	3566	2759	6325	0.43
1994-2002 mean	15790	4304	3256	7560	.	557	557	4304	3813	8117	0.51
95% CL	1929	656	530	849	.	87	87	656	572	895	0.05
N	9	9	9	9	.	9	9	9	9	9	9

IN THE ABOVE TABLE A PERIOD INDICATES NO DATA FOR THAT YEAR.
CPUE IS IN TERMS OF SMALL AND LARGE SALMON COMBINED (RETAINED + RELEASED FISH).
* NOT ALLOWED TO RETAIN LARGE SALMON IN INSULAR NEWFOUNDLAND.