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Proceedings of the Newfoundland
and Labrador Region Salmonid Stock
Assessment Meeting, November 2004

Compte rendu de l'évaluation des
stocks de salmonidés de la Région
de Terre-Neuve-et-Labrador en
novembre 2004

November 24, 2004
St. John's, NL

R. J. Poole [editor]

Fisheries and Oceans Canada
Science Branch
202 Kelland Drive
Goose Bay, NL
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SUMMARY

The twelfth annual Salmonid Stock Assessment Meeting for the Newfoundland and Labrador Region was held in St. John's, Newfoundland and Labrador, November 24, 2004. Overviews and updates were presented of the general status of Newfoundland and Labrador salmon stocks, based on scientific data compiled during 2004 as well as local knowledge and experiences of anglers and aboriginal fishers. The main focus was on a synthesis of trends in adult salmon returns, smolt production and marine survival in Newfoundland, and harvests of salmonids in Labrador. Other presentations included an update of salmon by-catch in legal and in illegal nets and another on rainbow trout observations. This proceedings report summarizes each of the various presentations and discussions and provides an account of the general status of Atlantic salmon stocks in Newfoundland and Labrador in 2004. Detailed summary sheets for the various salmon stocks assessed are appended.

SOMMAIRE

La douzième réunion annuelle d'évaluation des stocks de salmonidés de la Région de Terre-Neuve-et-Labrador a eu lieu le 24 novembre 2004 à St. John's (Terre-Neuve-et-Labrador). On y a présenté des aperçus et mises à jour de l'état général des stocks de saumon de Terre-Neuve et du Labrador, fondés sur les données scientifiques recueillies en 2004, ainsi que sur les connaissances locales et l'expérience des pêcheurs sportifs et des pêcheurs autochtones. La réunion a surtout été axée sur une synthèse des tendances des remontes d'adultes, de la production de saumoneaux et de la survie en mer à Terre-Neuve et des prises de salmonidés au Labrador. On y a aussi fait le bilan des prises accessoires de saumon dans les filets légaux et illégaux et présenté des observations sur la truite arc-en-ciel. Le présent compte rendu résume chacun des exposés présentés à la réunion et les discussions connexes et établit l'état général des stocks de saumon atlantique à Terre-Neuve et au Labrador en 2004. Y sont joints des tableaux récapitulatifs détaillés sur les divers stocks de saumon évalués.

INTRODUCTION

The twelfth annual Newfoundland and Labrador Region Salmonid Stock Assessment meeting was held at the Northwest Atlantic Fisheries Centre in St. John's, Newfoundland and Labrador, November 24, 2004, to review information on the status of Newfoundland and Labrador Atlantic salmon stocks in 2004. In addition to Department of Fisheries and Oceans (DFO) scientific staff the meeting was also attended by invited participants: DFO Fisheries Management Branch, Inland Fish and Wildlife, Parks Canada, Atlantic Salmon Federation, Salmonid Council of Newfoundland and Labrador, Indian Bay Ecosystem Corporation, Labrador Métis Nation, Miawpukek First Nation, Labrador Inuit Association, Department of Biology (MUN), Federation of Newfoundland Indians, and the Ocean Sciences Centre.

This report contains a synopsis of the status of salmon stocks in Newfoundland and Labrador in 2004 along with summaries of each of the presentations at the November 2004 meeting. Summary sheets for various salmon stocks assessed are appended.

Complete details of the data and methodologies used in the assessments are published in the Department of Fisheries and Oceans Canadian Science Advisory Secretariat Research Document series, while the overall report on the status of stocks is contained in Stock Status Report 2004/040, Newfoundland & Labrador Atlantic Salmon 2004 Stock Status Update which is available at www.dfo-mpo.gc.ca/csas.

A copy of the agenda for the November 2004 meeting is provided in Appendix 1. Participants attending the assessment sessions, in whole or in part are listed in Appendix 2. Individual stock status summary sheets are provided in Appendix 3.

SUMMARY OF SALMON STOCK STATUS

Newfoundland & Labrador

- Compared to 2003 returns of small and large salmon improved for most rivers. Returns of small salmon improved relative to the means of the moratorium years in most cases, but this was not as pronounced for large salmon.
- Abundance of salmon during the moratorium years continues to be lower than prior to the closure of the commercial fisheries.

Labrador (SFAs 1-2)

- Based on returns to four counting facilities, stocks appear low considering the management measures implemented to increase stock abundance.
- Total returns of small and large salmon in English River (SFA 1) have declined for the fourth consecutive year.
- For SFA 2, returns of small salmon increased in Muddy Bay Brook, Sand Hill River and Southwest Brook, compared to 2003. Large salmon declined in Muddy Bay Brook and Sand Hill River but increased in Southwest Brook. Total returns were records at Muddy Bay and Southwest brooks.
- Abundance of large salmon (mainly 2SW) remains low and is a cause of concern because of the large contribution they make to egg deposition.
- 2004 landings in Labrador subsistence fisheries increased greatly over previous years.
- Increased access provided by the Trans Labrador Highway has the potential to increase angling exploitation.
- The construction of the Trans Labrador Highway could have adverse habitat effects which should be mitigated.

Northeast and eastern Newfoundland (SFAs 3-8)

- In spite of greatly increased spawning in 1992-1996, subsequent returns of small and large salmon are still low.
- Conservation requirements were achieved in three of (Campbellton, Gander and Middle Brook) six assessed rivers.
- Exploits River, Terra Nova River and Northwest River (Port Blandford) have yet to achieve conservation requirements due mainly to habitat expansion.
- Campbellton River and Middle Brook have met or exceeded conservation requirements in each year of assessment during the commercial salmon fishery moratorium.
- Gander River has met or exceeded conservation requirements in only six of the last thirteen years.
- The lower Exploits River has achieved conservation requirements nine out of thirteen years. The number of spawners in the middle Exploits has increased since the moratorium whilst the number of spawners in the upper Exploits has declined since 1997.
- Northwest River (Port Blandford) had record returns in 2004.

Southern Newfoundland (SFAs 9-11)

- Stock size overall continues to be lower during the commercial salmon fishery moratorium than prior to the moratorium and there should be no increase in mortality.
- Conservation requirements were achieved in three out of four assessed rivers.
- Northeast Brook (Trepassey) and Rocky River returns declined compared to 2003 while Little River and Conne River increased over 2003.

Southwest Newfoundland (SFA 12-13)

- Increases in returns of small salmon were observed in all seven rivers assessed in SFA 13 in 2004 relative to 2003. Returns of small salmon to Highlands, Crabbes and Harrys rivers were the highest on record. Returns of large salmon were similar or higher than 2003 in five of the seven rivers.
- Total population sizes generally still remain low.
- Conservation requirements were achieved in five out of seven rivers assessed.

Northwest Newfoundland (SFA 14A)

- In spite of greatly increased spawning escapements for Lomond and Torrent rivers in 1992-1996, there has been no corresponding increase in adult (small salmon) recruitment, which should have started in 1997.
- Conservation requirements were exceeded in all three assessed rivers in 2003.

Smolt production

- Smolt production in insular Newfoundland increased in four out of five stocks, by comparison with 2003.
- Four of the five rivers experienced peak production in 1997, but since then substantive declines have occurred at Western Arm Brook, Campbellton and Rocky rivers.

Marine survival

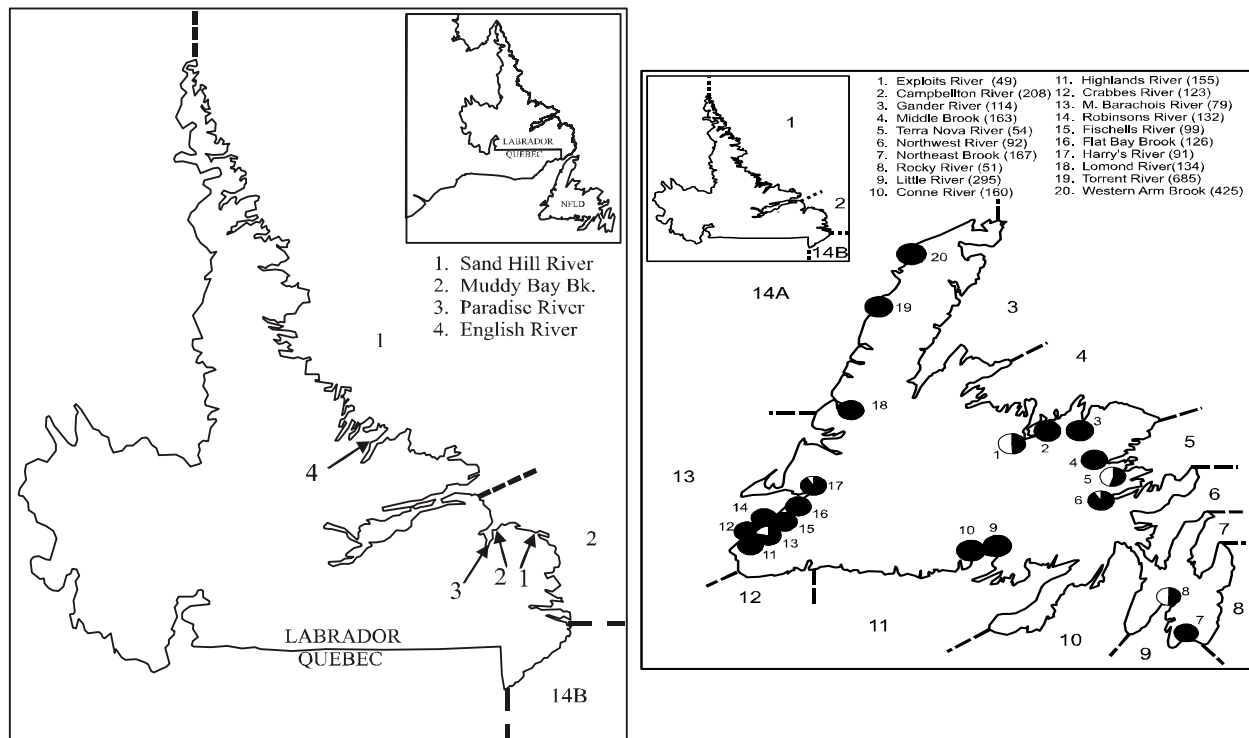
- Survival at sea (smolt to returns to rivers as small salmon) ranged from 3.8% to 9.5%, remaining highly variable but generally low. Northern stocks tend to have a higher survival.
- Higher survivals have occurred in the past, even in years when directed ocean fisheries for salmon were in existence.

OVERVIEW OF PRESENTATIONS

Six presentations were given along with two information items. Two of the presentations concerned Newfoundland salmon stocks, smolt production and marine survival and two dealt with Labrador salmon stocks, harvest of salmonids in various fisheries, and environmental conditions. There was concern regarding the low numbers of large salmon returning to the rivers and also near shore mortalities. There were also two presentation updates, one providing information on salmon caught as by-catch in legal and illegal nets and the other on rainbow trout observations from 1976 to 2004. One of the information items dealt with juvenile rainbow trout as an invader species in Trout River and the other concerned adult and juvenile salmon populations in Spruce Pond, Northwest Gander River. Additional meetings were held following the RAP session to review the topics of the General Status of Wild Species, recommendations made by the Salmonid Council of Newfoundland and Labrador, Conservation Limits for Labrador Salmon Stocks and Stewardship Management Plans.

Twenty (20) salmon stocks were assessed relative to conservation requirements in insular Newfoundland (plus three sections for Exploits River); four Labrador stocks (English River, Muddy Bay Brook, Paradise River and Sand Hill River) were not assessed relative to conservation. Results for individual rivers are provided in the Summary Sheets (Appendix 3).

The following maps illustrate the Salmon Fishing Areas of the Newfoundland and Labrador Region, the individual rivers assessed and percent of conservation egg requirements (in brackets) achieved in 2004.



SUMMARIES OF INFORMATION PRESENTED

1. Salmonid assessment activities in Labrador, 2004

Presenter: D. G. Reddin, Department of Fisheries and Oceans

Co-author: R. J. Poole, Department of Fisheries and Oceans

Summary: In 2004, environmental data were collected at several sites in Labrador, angling and food fishery catches were recorded, and returns to four counting fences were enumerated. Water flows in 2004 were above average early in the spring dropping in early summer to below average and remaining low well into the fall. Landings in the resident food fishery and three fisheries for Food, Social and Ceremonial (FSC) purposes totalled 29 tonnes in 2004 (as of October 2004), which is a 31% increase over the landings recorded for 2003. In Northern Labrador (SFA 1), angling catches increased for small while declining for large salmon. Effort decreased substantially and overall catch rates declined compared to those of 2003. In Southern Labrador, landings of small and large salmon were higher than in 2003 while overall effort increased and catch rate remained comparable to 2003.

A total of 56 small and 25 large salmon returned to English River in 2004. Returns of small were 58% lower than in 2003 while large were 32% higher. For Southwest Brook (Paradise River), a total of 615 small and 54 large salmon returned to the river in 2004. Returns of small were 289% higher than in 2003 while large were 238% higher than in 2003. For Muddy Bay Brook (Dykes River), a total of 454 small and 28 large salmon returned to the river in 2004. Returns of small salmon were 15% higher than in 2003 while large were 10% lower. For Sand Hill River, a total of 4,108 small and 605 large salmon returned to the mainstem of the river (exclusive of Northwest Tributary) in 2004. Returns of small increased by 30% over those of 2003 while large were 4% lower than in 2003. When landings in the former commercial fishery are taken into account, overall production appears to be growing although still lower than prior to the closure of the commercial fishery in 1998.

The standard egg deposition required for conservation in Eastern Canada is 240 eggs per unit (100 m²) of fluvial or stream parr rearing habitat. In Quebec, various values are used depending on the availability of local data and they are generally lower than the 240 egg standard used elsewhere. While stock and recruit data are generally unavailable for Labrador rivers with which to set specific conservation limits for Labrador salmon, a general model has been used in past assessments based on commercial catches and exploitation rates adjusted for non-local origin salmon.

At the RAP session the utility of using the 240 eggs per unit was discussed. It was agreed by all present that this egg deposition was not appropriate for Labrador Rivers. It was agreed that DFO staff would continue to develop an egg deposition rate to serve as a Management Target for Labrador Rivers. Senior scientists within the section would produce a research document outlining the results of their findings which would be

available for the 2005 RAP session. The Management Target could then be used in the future to judge the success of Labrador salmon stocks.

Comments:

- There continues to be a great deal of concern about the status of salmon stocks in Labrador rivers particularly in Lake Melville where there is high fishing effort in the food fisheries. Elsewhere, food and angling fisheries landings and particularly hook-and-release fishing continue to increase in Labrador. There have also been some changes in Management Plans that take into account increased effort. It is important to note that the food fisheries have moved closer to the communities than was the case during commercial fishing.
- Hook-and-release fishing is 75% of the angling in Labrador and if mortality rates are higher than the assumed 10% it could impact on spawning escapement. Where angling is frequently from a boat and where rivers descend quickly from higher mountain ranges, it is possible for hook-and-release fishing to result in higher mortality rates than the assumed value of 10%.
- Concern was raised about the increase in the landings in the food fisheries in 2004, particularly the increase in harvest of large salmon.
- It was expected that angling effort on the Eagle River would increase with the opening of the Trans-Labrador Highway; however, this did not occur. Although the recorded effort in 2004 was about 10% higher than in 2003. It is lower than that recorded from 1999 to 2002.
- What criteria are used to determine if Labrador salmon stocks are in difficulty biologically and when/how would it be evident there is a problem? The collection of data needs to be continued for the four index stocks and performance assessed.
- Considerable discussion took place on the appropriate conservation reference level for Labrador salmon rivers. There was agreement the 240 eggs/unit was inappropriate, and that priority should be given to deriving biological and management reference levels.
- A smolt count should be conducted on a river in Labrador where adult salmon are being monitored, in order to get a better understanding of freshwater productivity and survival of salmon at sea.
- The declining and low salmon returns to English River are of concern in northern Labrador. It is possible that catches by the approximately 60 food fishers are reducing returns to English River; however, this is only one river in a very large area. English River also has sea trout and charr stocks that complicate evaluations of salmon production. The benefits of the closure of the fishery in 1998 have not materialized at this point.
- Management efforts should be taken to increase the number of salmon spawners in English River.
- Catch statistics come from camp logbooks for northern Labrador and a mix of license stub return data and camp data in Southern Labrador. However, it is important to note that license stub data from 2004 is not yet available for southern Labrador. Current year estimate for southern Labrador comes from

camp data for Eagle and Sand Hill rivers compared to previous years License Stub Return data.

- Concerns were raised about the low numbers of large salmon returning to Labrador rivers as indicated on monitored rivers. Some participants felt that fishing mortality should be reduced.

Recommendations:

1. DFO should continue to support the assessment projects in Labrador at least at current levels. A river should be monitored for smolt and adults to provide an estimate of survival at sea and to better understand production in freshwater.
2. Stock assessments need to be undertaken in Northern Labrador to determine if other stocks are at low stock size, as in English River.
3. Management action needs to be taken to improve the spawning stock in English River.
4. Priority needs to be given to developing biological and management spawning stock reference levels for Labrador rivers.
5. A counting fence project should be started at a river in southern Labrador in 2004.
6. A stock inventory project should be initiated for a river(s) in Lake Melville where stock status remains largely unknown.
7. There should be a project in Labrador rivers to determine hook-and-release mortality rates taking into consideration the use of boats and large size of the rivers.

2. Status of Atlantic Salmon (*Salmo salar* L.) Stocks of Insular Newfoundland, (SFAs 3-14A), 2004

Presenter: M. F. O'Connell, Fisheries and Oceans Canada

Authors: M. F. O'Connell, J. B. Dempson, D. G. Reddin, C. E. Bourgeois, T. R. Porter, N. M. Cochrane, and D. Caines

Summary: The commercial Atlantic salmon fishery moratorium, implemented in insular Newfoundland in 1992, entered its 13th year in 2004. Returns of small salmon in 2004 improved over 2003 for most monitored rivers. Returns of small salmon also increased relative to the moratorium means in most cases, but this was not as pronounced for large salmon. The proportion of large salmon in total returns in 2004 decreased from 2003 for rivers on the northeast and east coasts and in Bay St. George, while the reverse was true for southern rivers (particularly Rocky River) and those on the northwest coast. The same pattern held more or less in relation to the moratorium means. Conservation egg requirements were met or exceeded in 15 out of 24 rivers or sections of rivers in 2004. Nearly all rivers in insular Newfoundland were closed to angling for varying periods in July and/or August in 2004, due to low water levels and high water temperatures. Sea survival in 2004 increased (Conne River; Northeast Brook, Trepassey; Campbellton River) or remained similar (Western Arm Brook; Rocky River) relative to 2003; increases were most pronounced for the two southern systems, Conne River and Northeast Brook, Trepassey. Smolt production in 2004 increased over 2003 in four out of five rivers, the exception being Campbellton River. When smolt production increases, returns of small salmon are expected to be higher in the following year, unless correspondingly there are decreases in marine survival that offset increased numbers of smolts. The converse holds when there are decreases in smolt production.

Comments: Nil

Recommendations: Nil

3. Summary of smolt production and marine survival – 2004

Presenter: J. B. Dempson, Department of Fisheries and Oceans

Summary: Information was presented on trends in Atlantic salmon (*Salmo salar*) smolt production and marine survival from five Newfoundland stocks. The time series of smolt data available ranged from 34 years at Western Arm Brook, to 12 years at Campbellton River. Smolt production and survival were found to vary among rivers, and among years within rivers. In general, survival remains low with 2004 values ranging from a high of 9.5% at Western Arm Brook, to a low of 3.8% at Rocky River. Overall, survival either increased (Conne River, Northeast Brook (Trepassey), Campbellton River), or remained approximately the same (Western Arm Brook, Rocky River) by comparison with the previous year. As noted in the past, higher survivals have occurred in previous years, when directed ocean fisheries for salmon were in existence.

Smolt production in 2004 increased in 4 out of 5 monitored stocks by comparison with 2003; production declined only at Campbellton River. Where smolt production increased in 2004, increases were from 9 to 62% greater than the 1999 to 2003 average. At Campbellton River, where smolt production declined, returns of small salmon in 2005 are expected to be lower unless there is a compensatory increase in marine survival. It was also noted that in many situations, higher smolt runs do not necessarily coincide with greater numbers of adult returns the following year. This is because sea survival is not constant.

Comments:

- Discussion on conservation requirements: comments we made that even though populations are meeting conservation requirements there may still be a concern because the population is still lower than in the past. Also, the population size is not low because of low spawning stock, therefore, there must be something else keeping returns lower than in the past.
- Discussion on the importance of understanding near shore survival: advice is constricted by lack of understanding of what happens when smolts leave the river system.
- Increase in smolt runs may coincide with lower marine survival

Recommendations:

- There should be research conducted to determine sources of near shore marine mortality.

4. Update on observations of salmon caught as by-catch in legal and in illegal nets

Presenter: T. Rex, Porter, Department of Fisheries and Oceans

Summary: A summary of the number of salmon observed in fishing nets by fisheries officers during coastal patrols, in 2002 and 2003, was tabled for information. The majority of the salmon observed were found in illegally set fishing gear: 141 salmon in 147 nets in 2002, and 283 salmon in 215 nets in 2003. In pelagic fishing gear, which includes bait-nets there were 29 salmon observed in a total of 767 nets checked in 2002, and 29 salmon in 858 nets checked in 2003.

Comments: None

5. Update on records of rainbow trout observations in 1976-2004

Presenter: T. Rex, Porter

Summary: A table of reported observations of rainbow trout in Newfoundland was updated and distributed. In 2004, rainbow trout were reported from six rivers on the west coast and one river on the south coast of Newfoundland. These reports consisted of 36+ rainbow trout in Conne River, 43 in Trout River, 1 in Little Barachois Brook, 1 in Parsons Pond, 5 in River of Ponds, 6 in Portland Creek, and 3 in Torrent River.

Comments: None

ACKNOWLEDGEMENTS

Thanks are extended to all who participated at the November meeting, particularly those from outside DFO who gave up their own time to attend and contribute to the sessions. Derek Osborne kindly assisted with co-ordinating the meeting.

APPENDIX 1

**Newfoundland Region
Salmon Stock Assessment 2004 Update Meeting**

Date: November 24, 2004
Location: E.B. Dunne Boardroom, NWAFC, St. John's, NL
Time: 0900 – 1600 hrs

AGENDA

November 24 (0900-1600)

- 1.0 0900 - Introduction (Bourgeois)

- 2.0 0915 - Data Review:
 - 2.1 Status of Atlantic Salmon (*Salmo salar* L.) Stocks of Insular Newfoundland, (SFAs 3-14A), 2004 Returns to Newfoundland Rivers (O'Connell)
 - 2.2 Summary of smolt production and marine survival – 2004, Spatial and Temporal Trends in abundance of NF salmon (Dempson)

Break

- 2.3 Juvenile Rainbow trout an invader species in Trout River (Information Item Only -Clarke)
- 2.4 Records of Rainbow trout observations 1976-2004 (Porter)
- 2.5 Update on observations of salmon caught as by-catch in legal and in illegal nets (Porter)
- 2.6 Harvests of salmonids in various fisheries in Labrador (Reddin)

1230 - 1300 Lunch

- 2.7 Returns to Labrador Rivers (Reddin)

Break

- 2.8 Adult and Juvenile salmon at Spruce Pond (Information Item Only - Knoechel)
- 2.9 Review of SSR
- 2.10 Other Business
 - General Status of Wild Species
 - SCNL Recommendations
 - Conservation Limits for Labrador Salmon Stocks
 - Stewardship Management Plans

APPENDIX 2

***List of individuals who participated, in whole or in part, at the November 2004
salmonid stock assessment meetings.***

NAME	AFFILIATION & ADDRESS	PHONE	FAX	E-MAIL
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Osborne, D.	DFO Science, St. John's	772-8892		osborned@dfo-mpo.gc.ca
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Poole, R.	DFO Science, Goose Bay	896-6154	896-8419	poolerj@dfo-mpo.gc.ca
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APPENDIX 3

Summary Sheets

STOCK: Muddy Bay Brook (Dykes River SFA 2)
215 km²

Year	2002	2003	2004 ²	MIN ¹	MAX ¹
Total returns to river					
Small	106	394	454	106	454
Large	11	31	28	11	31
Recreational harvest (small salmon)					
Retained	9	3	0	9	18
Released	4	4	0	3	34
Recreational harvest (large salmon)					
Retained	0	0	0	0	0
Released	0	2	0	0	2
Spawners					
Small	106	392	454	106	454
Large	2	28	28	11	31
¹ Min and max are for the period of record except recreational harvest is since 1994. ² Preliminary Note: Any changes from previous years are due to the updating of preliminary data.					

Recreational catches: catches are not recorded for Muddy Bay Brook

Data and methodology: complete counts of salmon were obtained at a fish counting fence. Counts were adjusted in 2003 for fence overshoots.

State of the stock: returns of small salmon have increased from 2002 to 2004, whereas, large salmon returns increase from 2002 to 2003 but decreased in 2004

Forecast: No forecast available.

STOCK: Southwest Brook (Paradise River SFA 2)385 km²

Year	1998	1999	2001	2002	2003	2004 ²	MIN ¹	MAX ¹
Total returns to river								
Small	110	331	323	235	158	615	110	615
Large	4	43	32	34	16	54	4	54
Recreational harvest (small salmon)								
Retained	0	0	0	0	0	0	0	0
Released	0	0	0	0	0	0	0	0
Recreational harvest (large salmon)								
Retained	0	0	0	0	0	0	0	0
Released	0	0	0	0	0	0	0	0
Spawners								
Small	110	331	321	231	156	615	110	615
Large	4	43	32	34	16	54	4	54
¹ Min and max are for the period of record except recreational harvest is since 1994.								
² Preliminary								
Note: Any changes from previous years are due to the updating of preliminary data and biological characteristics information.								

Recreational catches: catches are not recorded separately for Southwest Brook which is a tributary of Paradise River.

Data and methodology: complete counts of salmon were obtained at a fish counting fence. Counts were adjusted in 1998 and 2003 for fence overshoots.

State of the stock: 2004 returns show an increase over previous years

Forecast: No forecast available.

STOCK: Sand Hill River (SFA 2)1155 km²

Year	1994	1995	1996	2002	2003	2004 ²	MIN ¹	MAX ¹
Total returns to river								
Small	2180	2796	3319	3141	3171	4108	2038	4761
Large	730	560	414	561	627	605	138	730
Recreational harvest (small salmon)								
Retained	279	289	321	155	212	109	119	321
Released	326	340	702	679	608	647	326	814
Recreational harvest (large salmon)								
Retained	29	28	20	1	7	1	0	28
Released	7	14	36	68	60	86	0	86
Spawners								
Small	1868	2473	2928	2918	2898	3934	1819	4242
Large	700	531	390	553	614	595	136	700
¹ Min and max are for the period of record except recreational harvest which is since 1994.								
² Preliminary								
Note: Any changes from previous years are due to the updating of preliminary data and biological characteristics information.								

Recreational catches: catches are from angling camps on Sand Hill River.

Data and methodology: complete counts of salmon were obtained at a fish counting fence.

State of the stock: increasing in recent years

Forecast: No forecast available.

STOCK: English River (SFA 1)Accessible drainage area=125 km²

Year	1999	2000	2001	2002	2003	2004 ²	MIN ¹	MAX ¹
Total returns to river								
Small	59	367	224	190	108	56	56	367
Large	48	15	41	31	19	25	15	48
Recreational harvest (small salmon)								
Retained	5	8	5	1	0	2	0	15
Released	0	0	0	0	0	0	0	0
Recreational harvest (large salmon)								
Retained	2	0	0	0	0	0	0	2
Released	0	0	0	0	0	0	0	0
Other Removals								
Small	0	0	10	5	21	0	0	21
Large	0	0	2	2	2	0	0	4
Spawners								
Small	54	359	209	184	87	54	54	359
Large	46	15	39	29	17	25	15	46
¹ Min and max are for the period of record.								
² Preliminary								
Note: Any changes from previous years are due to the updating of preliminary data and biological characteristics information.								

Recreational catches: observations from counting fence workers.

Data and methodology: complete counts of salmon were obtained at fish counting fence. Due to small sample size % female salmon is based on combined data from Hunt River, Big Brooks and English River for the same time period. These are all rivers in SFA 1. Due to small sample sizes for biological characteristics in 1999-2000 mean FL for 1999-2004 for English River were used.

State of the stock: returns have been decreasing from previous years.

Forecast: No forecast available.

STOCK: Exploits River

Drainage area:

11602 km²

CONSERVATION REQUIREMENT: 95.9 million eggs (equivalent to 56,670 small salmon) calculated as fluvial area x 2.4 eggs/m² and lacustrine area x 368 eggs/ha.

Year	1999	2000	2001	2002	2003 * 2004*	MIN	MAX
Total returns:							
Small	28802	12063	19370	15589	29,070	26998	4470 29956
Large	2236	684	1347	890	1,336	949	89 2236
Recreational harvest (small salmon)							
Retained	4407	1467	2430	2730	2778	2778	577 4407
Released	5154	2899	2967	3551	2990	2990	1145 5672
Recreational harvest (large salmon)							
Retained	0	0	0	0	0	0	0 83
Released	350	252	289	331	224	224	0 350
Other Removals	117	40	59	51	55	0	0 117
Broodstock removal	0	0	0	0	0	0	0 5111
Spawners	25964	10925	17902	13309	27966	24848	2326 30559
Fry Stocked	0	0	0	0	0	0	0 6416567
Egg conservation requirement							
% met	44	21	34	27	54	49	6 69
Lower	116	56	91	64	156	142	26 215
Middle	35	16	27	23	39	37	2 43
Upper	7	2	5	3	7	2	0 125
Min and max are for the period of record since 1974.							
* Preliminary							

Data and methodology: There are 35 million m² units of fluvial habitat and 34,000 ha of lacustrine habitat. Conservation egg requirements are to come from small salmon. Previous fry releases are backcalculated to eggs for % of conservation egg deposition achieved in areas stocked. Total returns to the river are based on the count at Bishop Falls fishway plus angling below the fishway.

State of Stock: Overall returns to the Exploits River, have improved during the moratorium years; however returns to the upper section of the watershed are extremely low and all efforts should be made to increase escapement to this section of the watershed.

Forecast: No quantitative forecast available

STOCK: Campbellton River (SFA 4) **Drainage area:** 296 km² (accessible)

CONSERVATION REQUIREMENT: 2.916 million eggs (~ 1,480 small salmon) calculated as fluvial area x 2.4 eggs/m² and lacustrine area x 368 eggs/ha

Year	1998	1999	2000	2001	2002 ²	2003 ²	2004 ²	MIN ¹	MAX ¹
Total returns to river									
Small	3275	3076	1798	2151	1974	2219	2726	1798	4001
Large	402	493	208	119	123	152	161	119	560
Recreational harvest (small salmon)									
Retained	337	433	226	148	136	139	269	13	365
Released	209	242	176	29	57	37	136	29	372
Recreational harvest (large salmon)									
Retained	-	-	-	-	-	-	-	0	0
Released	4	46	51	9	6	0	21	0	51
Precocious post smolts									
	51	83	208	228	253	147	365	13	365
Spawners									
Small	2866	2536	1345	1772	1579	1929	2078	1346	3675
Large	401	491	203	118	122	152	159	118	557
Egg conservation requirement									
% met	315	312	152	148	138	193	208	138	316
Smolt count									
	50441	47256	35596	37170	32630	35089	32780	31577	62050
% Sea survival (corrected)									
(Adult return year)	4.88	5.03	3.66	5.35	5.14	6.02	7.28	2.25	7.28
¹ Min and max are for the period of record since 1993.									
² Preliminary									
Note: Any changes from previous reports are due to the updating of preliminary data and biological characteristics information.									

Recreational catches: A total of 269 small salmon was retained in 2004 and 136 were released. Angling catches for 2004 are the means for the period 1997-2002.

Data and methodology: Smolts were enumerated at a counting fence. Returning adults salmon are enumerated at a fish counting fence with a video camera system. A hook-and-release mortality rate of 10 % was used in the calculations of spawning escapements for the years 1993-03. Recreational data for 1997-04 were from the License Stub Return System and are preliminary. Sea survival is corrected to exclude previous spawners in the upstream migration. Previous spawners were estimated patterns in 1999 from survival patterns in previous years. The egg conservation requirement for years of low sample numbers from the recreational fishery was calculated using the average whole weight of females and percent female by combining samples from 1993 to 2002.

State of the stock: Conservation requirements were met from 1993 to 2004.

Forecast: No forecast available.

STOCK: Gander River (SFA 4) Drainage area: 6,398 km²

CONSERVATION REQUIREMENT: 46.211 million eggs (21,828 small salmon) calculated as fluvial area x 2.4 eggs/m² and lacustrine area x 368 eggs/ha

Year	1996	1997	1998	1999	2000	2001	2002	2003 ²	2004 ²	MIN ¹	MAX ¹
Total returns to river											
Small	24191	10637	19060	18742	14074	12517	13444	13657	18521	6745	26205
Large	1753	1883	3649	4815	1942	1682	1898	1853	2668	473	4815
Recreational harvest (small salmon)											
Retained	4537	1381	2737	2429	1318	1865	1726	1823	1909	1318	4537
Released	3323	1522	2531	848	684	756	678	1005	1170	678	3323
Recreational harvest (large salmon)											
Retained	-	-	-	-	-	-	-	-	-	-	-
Released	685	236	284	215	110	180	184	124	202	110	685
Spawners											
Small	19322	9103	16070	16228	12756	10471	11650	11734	16495	5565	24739
Large	1685	1860	3621	4794	1931	1735	1880	1840	2648	473	4794
Egg conservation requirement											
% met	115	61	110	121	86	84	91	81	114	36	128

¹ Min and max are for the period of record since 1984 except recreational harvest is since 1994.
² Preliminary
Note: Any changes from previous years are due to the updating of preliminary data and biological characteristics information.

Recreational catches: The number of small salmon retained in 2004 was 1909 and the number released was 1170. Angling catches for 2004 are the means for the period 1997-2002.

Data and methodology: Complete counts of salmon were obtained at a fish counting fence during 1989-99, and have historically been counted at a fishway located on a tributary, Salmon Brook. Returns to the entire Gander River for 2000 - 2004 were estimated from relationships between counts at the Salmon Brook fishway and total returns to the counting fence for the period 1989-1999. Recreational fishery data for 1994-2004 are from the License Stub Return System; data for 2003 and 2004 are preliminary. Data for large salmon for 1997 are incomplete. A hook-and-release mortality of 10% was used in the calculation of total returns and spawning escapements for the years 1993-2004.

State of the stock: Conservation requirement was achieved in 2004 for the first time since 1999. Conservation egg requirement was achieved in six of the 12 moratorium years. In terms of small salmon, conservation requirement was met only in 1993. Using Salmon Brook as an indicator of returns to the entire river, it is likely that returns of small salmon of a magnitude similar to or greater than those in 1992-2004 occurred in pre-moratorium years.

Forecast: No forecast available.

STOCK: Middle Brook (SFA 5) **Drainage area:** 276 km²

CONSERVATION REQUIREMENT: 2.3 million eggs (~ 1,012 small salmon) calculated as fluvial area x 2.4 eggs/m² and lacustrine area x 368 eggs/ha

Year	1997	1998	1999	2000	2001	2002	2003 ²	2004 ²	MIN ¹	MAX ¹
Total returns to river										
Small	1352	2625	1948	1749	1525	916	1182	1539	626	2625
Large	262	196	130	190	62	69	74	88	13	262
Recreational harvest (small salmon)										
Retained	163	275	180	112	391	117	95	206	84	391
Released	54	73	83	25	458	28	37	120	19	458
Recreational harvest (large salmon)										
Retained	-	-	-	-	-	-	-	-	-	-
Released	9	8	15	23	13	1	2	12	2	31
Spawners										
Small	1184	2342	1760	1635	1088	796	1083	1321	461	2342
Large	261	195	129	187	61	69	74	87	13	261
Egg conservation requirement										
% met	193	301	222	217	132	101	134	163	49	301

¹ Min and max are for the period of record since 1984 except recreational harvest is since 1994.

² Preliminary

Note: Any changes from previous years are due to the updating of preliminary data and biological characteristics information.

Recreational catches: A total of 206 small salmon was retained in 2004 and 120 were released. Angling catches for 2004 are the means for the period 1997-2002.

Data and methodology: Complete counts are available from a fishway located on the lower river. Recreational fishery data were obtained from the License Stub Return System; data for 2003 and 2004 are preliminary. A hook-and-release mortality of 10% was used in the calculation of total returns and spawning escapements for the years 1993-2004.

State of the stock: Conservation requirement in terms of eggs and small salmon was met for all years since the moratorium started in 1992 except for small salmon (79%) in 2002. Egg deposition was below conservation requirement for pre-salmon moratorium years 1985-1991. Counts of small salmon similar to or higher than those observed during the moratorium years occurred in pre-salmon moratorium years. The 2004 count of 1370 small salmon is 24% higher than 2003, 9% lower than the 1992-1996 mean and 6% lower than the 1997-2003 mean.

Forecast: No forecast available.

STOCK: Terra Nova River (SFA 5) **Drainage area:** 1,883 km²

CONSERVATION REQUIREMENT: 14.3 million eggs (~ 7,094 small salmon) calculated as fluvial area x 2.4 eggs/m² and lacustrine area x 368 eggs/ha

Year	1997	1998	1999	2000	2001	2002	2003 ²	2004 ²	MIN ¹	MAX ¹
Total returns to river										
Small	1732	1868	1892	1629	2261	1435	2279	3036	1127	3050
Large	528	394	344	232	330	271	330	399	56	637
Recreational harvest (small salmon)										
Retained	389	187	120	146	254	146	108	207	108	645
Released	221	365	229	464	312	142	274	289	142	464
Recreational harvest (large salmon)										
Retained	-	-	-	-	-	-	-	-	-	-
Released	13	66	10	71	4	7	21	29	4	71
Broodstock removal ³										
Small	352	270	239	132	254	0	0	0	64	352
Large	29	0	3	5	21	0	0	0	0	44
Spawners										
Small	1063	1425	1542	1425	1786	1311	2174	2854	815	2854
Large	497	387	340	224	309	271	328	396	56	588
Egg conservation requirement										
% met	31	33	33	27	36	28	42	54	14	54

¹ Min and max are for the period of record since 1984 except recreational harvest is since 1994.

² Preliminary

³ In 1994-2001, a number of adults were removed as broodstock for an incubation facility for subsequent fry stocking back to Terra Nova River above Mollyguaeck Falls; these adults were deducted from spawning escapements and the calculation of percent of conservation requirement presented above.

Note: Any changes from previous years are due to the updating of preliminary data and biological characteristics information.

Recreational catches: A total of 207 small salmon was retained in 2004 and 289 were released. Angling catches for 2004 are the means for the period 1997-2002.

Data and methodology: Counts are available from a fishway located on the lower river. The 2004 count of 2945 small salmon is 32% higher than in 2003. Returns to the river in 2000 were estimated based on the relationship between counts at the upper fishway and total returns to the lower fishway for previous years. Recreational fishery data for 1997-2004 are from the License Stub Return System; data for 2003 and 2004 are preliminary. A hook-and-release mortality of 10% was used in the calculation of total returns and spawning escapements for the years 1993-2004.

State of the stock: The proportion of conservation requirement achieved in 2004 was 54%. This is the highest on record and is similar to 1993 when a 53% conservation requirement was attained. Although this river has never achieved conservation requirement, egg depositions during the moratorium years 1992-2004 were generally higher than in pre-moratorium years. It should be noted that accessible rearing habitat for anadromous Atlantic salmon above the lower fishway more than doubled in 1985 with the opening of the area above Mollyguaeck Falls.

Forecast: No forecast available.

STOCK:

Northwest River (SFA 5)

Drainage Area:

CONSERVATION REQUIREMENT:4.07 million eggs (equivalent to 1,726 small salmon)
Management Target 2002-2005 700 salmon

Year	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Total returns:										
Small	498	593	466	540	314	272	102	443	1,012	1207
Large	135	203	182	104	93	106	50	114	273	265
Recreational Harvest(small salmon)								0		
retained	97	0	0	0	0	0	0	0	51	65
released	0	7	0	0	0	0	0	0	0	0
Recreational Harvest(large salmon)										
retained	0	0	0	0	0	0	0	0	0	0
released	0	0	0	0	0	0	0	0	0	0
Other removals										
Small	5	1	0	0	1	2	0	1	2	3
Large	1	8	0	0	1	0	0	1	0	1
Spawners										
Small	396	592	466	540	313	270	102	442	959	1163
Large	134	195	182	104	92	106	50	113	273	264
Conservation Requirement										
% eggs met	37	55	46	42	28	27	11	37	81	92
Smolt Count	-	-	-	-	-	11281	-	-	-	-
Smolt-to-adult Survival	-	-	-	-	-	1	-	-	-	-

Note: Any changes from previous reports are due to the updating of preliminary data and biological characteristics information.

Data and methodology:

Counts of adults have been available from a counting fence since 1995.
A smolt population estimate was conducted in 2000.
Angling data for 2003 provided by Parks Canada.

State of the stock:

Conservation egg deposition has not been met during the time series from 1995. A single smolt population estimate resulted in the lowest sea survival recorded on any river studied.

Forecast:

No forecast available.

STOCK: Northeast Brook, Trepassey (SFA 9) Drainage area: 21 km²

CONSERVATION REQUIREMENT: 0.14 million eggs (~ 51 small salmon) calculated as fluvial area x 2.4 eggs/m² and lacustrine area x 368 eggs/ha

Year	1996	1997	1998	1999	2000	2001	2002	2003 ²	2004 ²	MIN ¹	MAX ¹
Total returns to river											
Small	73	50	91	95	83	56	65	115	70	49	158
Large	15	9	11	18	14	8	2	11	11	9	41
Recreational harvest (small salmon)											
Retained											
Released											
Recreational harvest (large salmon)											
Retained											
Released											
Spawners											
Small	73	50	91	95	83	56	65	115	70	49	158
Large	15	9	11	18	14	8	2	11	11	2	41
Egg conservation requirement											
% met	196	135	256	248	216	157	156	285	167	126	368
Smolt count											
	1749	1829	1727	1419	1740	916	2076	1064	1571	792	2076
% Sea survival											
(Adult return year)	9.2	2.9	5.0	5.5	5.8	3.2	7.1	5.5	6.6	2.6	9.2
¹ Min and max are for the period of record since 1984.											
² Preliminary											

Data and methodology: Counts of adults and smolts have been available from a counting fence since 1984 and 1986. Up until a few years ago, this small system was part of a group of experimental rivers involved in research on stock-recruitment relationships and definition of smolt production in terms of various habitat types. The system has become an important indicator of smolt (year i) to (small salmon year i + 1) survival (repeat spawners included).

State of the stock: Conservation egg requirement has been met every year in the time series, but the lowest level achieved occurred in 1992. In terms of small salmon, the lowest percentage of conservation requirement achieved also occurred in 1992. The maximum number of smolts counted was 2,076 in 2002 while the lowest was 792 in 1995. Highest sea survival prior to the commercial salmon-fishing moratorium (8.1%) was recorded in 1987. Lowest survival (2.6%) occurred in 1992. Since the start of the moratorium in 1992, sea survival rose to a peak of 9.2% in 1996 only to plummet to 2.9% in 1997; an improvement over this low was noted for 1998-2000 but dropped again to 3.2% in 2001. Sea survival in 2004 increased 20% from that of 2003 but was 7% lower than 2002.

Forecast: No forecast available.

STOCK: Rocky River (SFA 9) **Drainage area:** 296 km²

CONSERVATION REQUIREMENT: 3.4 million eggs (~ 881 small salmon) calculated as fluvial area x 2.4 eggs/m² and lacustrine area x 368 eggs/ha

Year	1999	2000	2001	2002	2003	2004	MIN ¹	MAX ¹
Total returns to river								
Small	327	277	233	276	402	169	80	435
Large	77	104	60	78	73	235	1	235
Recreational harvest (small salmon)								
Retained				0	0	0		
Released				5	5	0		
Recreational harvest (large salmon)								
Retained				0	0	0		
Released				0	0	0		
Broodstock removal	0	0	0	0	0		0	76
Spawners								
Small	327	277	233	276	401	169	158	435
Large	77	104	60	78	73	235	1	89
Fry stocked	0	0	0	0	0	0	81983	434500
Egg conservation requirement								
% met	39	34	33	40	50	51	17	56
Smolt count	8625	7616	9392	10144	4440	13047	5115	16900
% Sea survival								
(Adult return year)	2.9	2.1	3	3	4	4	1.8	4.2
¹ Min and max are for the period of record since 1987.								
² Preliminary								
smolt to adult survival for 2001 -2004 is smolt to small salmon								

Background: Rocky River was stocked with salmon fry from 1983 to 1987 with the first returns to the reconstructed fishway realized in 1987. Also in 1987 140 adult salmon were transferred into Rocky River from Little Salmonier River.

Data and Methodology: Fluvial habitat consists of 1.08 million m² and lacustrine habitat includes 2200 ha. Biological characteristics used in calculations are those for Rocky River stock. Previous fry releases are backcalculated to eggs for % of target egg achieved in areas stocked. Complete adult counts are available from a trap installed in the fishway. Smolts have been enumerated annually since 1990. Sea survival is smolt to 1SW salmon returns to the fishway.

Recreational fisheries: 2002 was the first time a recreational fishery (hook and release only) was opened on Rocky River.

State of the stock: Stock is still in the development phase.

Forecast: There is no forecast for this stock.

STOCK: Conne River (SFA 11) Drainage area: 602 km²

MANAGEMENT TARGET: 7.8 million eggs (~ 4,000 small salmon) calculated as
fluvial area x 2.4 eggs/m² and lacustrine area x 368 eggs/ha

CONSERVATION REQUIREMENT: 4.34 million eggs (~ 2,475 small salmon)

Year	1999	2000	2001	2002	2003	2004 ²	MIN ¹	MAX ¹
Total returns to home waters								
Small	2358	5177	1503	2573	1953	3818	1503	10155
Large	241	216	140	167	51	175	51	516
First Peoples' harvest								
Small	0	0	0	0	0	0	0	948
Large	0	0	0	0	0	0	0	11
Recreational harvest (small salmon)								
Retained	-	730	215	275	180	444	108	3302
Released	-	-	-	-	-	-	0	80
Recreational harvest (large salmon)								
Retained	-	-	-	-	-	-	0	27
Released	-	-	2	-	-	-	0	0
Broodstock removal								
Small	0	0	0	0	0	0	25	245
Large	0	0	0	0	0	0	0	1
Spawners								
Small	2349	4431	1286	2295	1770	3366	1286	7823
Large	240	216	140	167	51	174	51	488
Management Target								
% met	68	117	37	63	45	89	37	219
Egg conservation requirement								
% met	122	210	67	113	81	160	67	394
Smolt estimate								
	63658	60777	86898	81806	71479	79667	55765	100983
% Sea survival								
(Adult return year)	3.4	8.1	2.5	3.0	2.4	5.3	2.4	10.2
¹ Min and max are for the period of record since 1974. First Peoples' harvest in salt water includes some salmon from other rivers. First Peoples' fishery quota of 1200 fish has been in effect since 1986, but was reduced to 500 fish for 1993. First Peoples' fishery and recreational fishery were closed again in 1998 and 1999. ² Preliminary								

Data and methodology: Smolt estimates are derived from mark-recapture surveys. Returning adult salmon are enumerated at a fish counting fence. Angling harvests for Conne River are from DFO statistics. A video camera system was introduced in 1993.

State of the stock: The Management Target, which is higher than the conservation egg requirement, was met from 1986 to 1990 and again in 1996 and 2000, with 89% achieved in 2004. Sea survival to small salmon returns increased from 2.4% (2003 returns) to 5.3% (2004), the highest value since 2000. In contrast with the Management Target, the Conservation egg requirement was met or exceeded from 1986-1990, in 1993, and again from 1995 - 2000, and again in 2002. In 2004, 160% of the conservation requirement was attained.

Forecast: Based on the point estimate of the number of smolts that migrated in 2004, a marine survival rate of 3.1% would be required in order for the conservation requirement to be attained in 2005, while a survival of 5.0% would be needed to meet the Management Target. In view of the sea survival rates that have resulted over the past 16 years, and without any consideration of the trend for lower survivals during the past decade, the probability of achieving the above returns are 71% and 41%, for the conservation and management targets, respectively. These probabilities drop to 64% and 40%, respectively, if survival values during the past 10 years only are considered.

STOCK:

Little River (SFA 11)

Drainage Area:

CONSERVATION REQUIREMENT: 0.306 million eggs (equivalent to 230 small salmon)

Year	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Total returns:	84	135	801	478	313	356	616	161	528	335	687
Small	73	118	674	399	264	307	564	125	487	322	656
Large	11	17	127	79	49	49	52	36	41	13	31
Recreational Harvest(small salmon)	-	-	-	-	-	-	-	-	-	-	-
retained	-	-	-	-	-	-	-	-	-	-	-
released	-	-	-	-	-	-	-	-	-	-	-
Recreational Harvest(large salmon)	-	-	-	-	-	-	-	-	-	-	-
retained	-	-	-	-	-	-	-	-	-	-	-
released	-	-	-	-	-	-	-	-	-	-	-
Other removals	0	5	19	14	9	10	3	0	6	0	0
Small	0	5	18	13	7	8	3	0	5	0	0
Large	0	0	1	1	2	2	0	0	1	0	0
Brood stock removals:	0	85	119	3	188	258	352	0	0	0	0
Spawners	84	45	663	461	116	88	261	161	522	335	687
Small	73	33	538	383	N/A	57	N/A	125	482	322	656
Large	11	12	125	78	N/A	31	N/A	36	40	13	31
Fry Stocked	118472	0	92528	145921	0	306180	298458	288897	0	0	0
Conservation Requirement % eggs met	37	56	288	200	231	38	263	69	224	144	295
Smolt Count	501	2712	4449	2521	3320	1177	2703	4983	9963	8570	4640

Note: Any changes from previous reports are due to the updating of preliminary data and biological characteristics information.

Recreational catches: The river is presently closed to angling.

Data and methodology: Returns to the river are assessed by a counting fence.

State of the stock: Returns of salmon are considered to be minimum values as salmon are often observed spawning below the counting fence.

Forecast: No forecast available.

STOCK: Highlands River (SFA 13) Drainage area: 183 km²

CONSERVATION REQUIREMENT: 1.5 million eggs calculated as fluvial area x 2.4 eggs/m² and lacustrine area x 368 eggs/ha

Year	1999	2000	2001	2002	2003	2004 ²	MIN ¹	MAX ¹
Total returns to home waters								
Small	146	58	75	169	294	507	58	507
Large	82	67	65	87	166	252	29	252
Recreational harvest (small salmon)								
Retained								
Released								
Recreational harvest (large salmon)								
Retained								
Released								
Spawners								
Small	146	58	75	169	294	507	58	507
Large	82	67	65	87	166	252	29	252
Conservation requirement								
% met	49	34	35	53	99	155	28	155
Smolt count	9634	13120	-	-	-	-	5922	15839
% Sea survival								
Small	2.5	0.6	0.6	-	-	-	0.6	3.2
Large	1.2	1.1	0.7	0.7	-	-	0.4	1.4
(Adult return year)								
¹ Min and max are for the period of record since 1974.								
² Preliminary								

Data and methodology: Counts of smolt and adult salmon were obtained with a fish counting fence in 1980 - 82 and in 1993 - 2000. Adults salmon only have been enumerated since 2001. Sea survival was calculated for small salmon returning in year $i + 1$ and for large salmon returning in year $i + 2$, by dividing the number of returning adults by the number of smolts in year i .

State of the stock: The number of large salmon returning increased coincident with the closure of the commercial salmon fishery in 1992, but fell in each of the next four years following the peak in 1997. Returns of small and large salmon are highly variable, but have increased in each of the past several years. Returns of small and large salmon in 2004 were the highest recorded. The conservation spawning requirements were achieved in 1997, essentially met in 2003 (99%), and exceeded in 2004.

Forecast: No forecast was made as smolts have not been monitored since 2000.

STOCK: Crabbes River (SFA 13) Drainage area: 551 km²

CONSERVATION REQUIREMENT: 4.6 million eggs (spawners not defined) calculated as fluvial area x 2.4 eggs/m² and lacustrine area x 368 eggs/ha

Year	1999	2000	2001	2002	2003	2004	MIN ¹	MAX ¹
Total returns to river								
Small	717	1027	688 ³	627	1105 ²	2135 ²	111	2135
Large	265	156	180 ³	134	265 ²	272 ²	15	397
Recreational harvest (small salmon)								
Retained	-	-	- -				26	561
Released	76	31	46	129	70 ²	70 ²	0	278
Recreational harvest (large salmon)								
Retained	-	-	-	-	-		14	127
Released	18	42	42	52	47 ²		0	119
Spawners								
Small	709	1024	683 ³	614	1098	2128	64	2128
Large	263	152	176 ³	129	260	268	15	346
Egg conservation requirement								
% met	66	63	53 ³	43	81	123	3	123
¹ Min and max are for the period of record since 1974.								
² Preliminary								
³ Minimum								

Data and methodology:

Visual counts of salmon were made by snorkellers in August, 1996 to 2004. Adjustment factors were applied to the visual counts to give an estimate of the total number of salmon in the river. Angling data are from the License Stub Return System. The 2003 angling data are preliminary; and the 2004 is the mean catch data 1999-2003. A 10% hook-and-release mortality was assumed.

State of the stock:

In 2004, at the time of the survey, Crabbes River had attained 123% of its egg deposition conservation level. This estimate is the highest recorded since surveys began in 1996 and higher than previous estimates since 1974. It is 89% higher than the average percentage 1996-03. The estimated total returns of small salmon, in 2004, is 155% higher than the average returns 1996-03, and the number of large salmon is 18% higher than the average returns.

Forecast:

There is insufficient information available to forecast the abundance of Atlantic salmon in 2004. However, the increase in returns in 2004 is encouraging, and if survival rates are similar to those for the 2004 returning salmon, conservation requirements could be met in 2005.

STOCK:**Middle Barachois Brook (SFA 13)****Drainage area:** 241 km²**CONSERVATION REQUIREMENT:**2.1 million eggs (spawners not defined) calculated as fluvial area x 2.4 eggs/m² and lacustrine area x 368 eggs/ha

Year	1999	2000	2001	2002	2003	2004	MIN ¹	MAX ¹
Total returns to river								
Small	563	1142	937 ³	569	740 ²	1082 ²	134	1619
Large	66	155	142 ³	164	104 ²	98 ²	0	1159
Recreational harvest (small salmon)								
Retained	-	-	-	43	-	-	51	534
Released	22	3	26	107	65 ²	45 ²	0	195
Recreational harvest (large salmon)								
Retained	-	-	-	-	-	-	0	117
Released	2	0	9	40	30 ²	16 ²	0	81
Spawners								
Small	560	1142	934 ³	515	733	1078	83	1329
Large	66	155	141 ³	160	101	96	0	1057
Egg conservation requirement								
% met	43	95	80 ³	61	61	79	9	254
¹ Min and max are for the period of record since 1974.								
² Preliminary								
³ Minimum								

Data and methodology:

Visual counts of salmon were made by snorkellers in August 1996, 1997, 1999 to 2004. Adjustment factors were applied to visual counts to give estimates of the total numbers of salmon in the river. Angling data are from the License Stub Return System, 1996-2003. The angling catch of small salmon in 2004 is assumed to be equivalent to the average catch 1999-2003. A 10% hook-and-release mortality was also assumed.

State of the stock:

In 2004, at the time of the survey, Middle Barachois Brook had attained 79% of its egg deposition conservation level. The estimate is higher than observed in 2002 and 2003, and similar to 2001, and 13% lower than the average 1996-2003. The returns of small salmon were 30% higher than the average returns 1996-2003, and the returns of large salmon were 20% lower than the average.

Forecast:

There is insufficient information available to forecast the abundance of Atlantic salmon in 2005.

STOCK: **Robinsons River (SFA 13)** **Drainage area:** 439 km²

CONSERVATION REQUIREMENT: 3.3 million eggs (spawners not defined) calculated as fluvial area x 2.4 eggs/m² and lacustrine area x 368 eggs/ha

Year	1999	2000	2001	2002	2003 ²	2004	MIN ¹	MAX ¹
Total returns to river								
Small	1452	1501	1909 ³	998	1212 ²	1993 ²	274	3186
Large	204	320	232 ³	201	182 ²	167 ²	21	733
Recreational harvest (small salmon)								
Retained	0	153	106	188	108 ²	139 ²	3	905
Released	529	553	268	523	381 ²	431 ²	0	634
Recreational harvest (large salmon)								
Retained	-	-	-	-	-	-	0	210
Released	38	44	134	34	90 ²	76 ²	7	184
Spawners								
Small	1399	1293	1776 ³	758	1066	1811	158	2281
Large	200	316	219 ³	198	173	159	21	604
Egg conservation requirement								
% met	118	135	142 ³	82	94	132	9	174

¹ Min and max are for the period of record since 1974.
² Preliminary
³ Minimum

Data and methodology: Visual counts of salmon were made by snorkellers in August 1996, 1997, 1999 to 2004. Adjustment factors were applied to visual counts to give estimates of the total numbers of salmon in the river. Angling data are from the License Stub Return System, 1996-2003. The 2004 angling catch is assumed to be the same as the average catch 1999-2003. A 10% hook-and-release mortality was assumed.

State of the stock: In 2004, at the time of the survey, Robinsons River had attained 132% of its egg deposition conservation level. The estimate is the 40% higher than in 2003, and 27% higher than the average, 1996-2003. The total returns of both small salmon to the river increased by 64% from 2003 and is the highest since monitoring began in 1996. The returns of large salmon declined by 8% from 2003 and were 20% below the average returns 1996-2003.

Forecast: There is insufficient information available to forecast the abundance of Atlantic salmon in 2004. However, given the high egg depositions in 1999 and 2000, it is likely that the egg returns will exceed the conservation requirements for the river.

STOCK: Fischells Brook (SFA 13) Drainage area: 360 km²

CONSERVATION REQUIREMENT: 3.6 million eggs (spawners not defined) calculated as fluvial area x 2.4 eggs/m² and lacustrine area x 368 eggs/ha

Year	1998	1999	2000	2001	2002	2003	2004 ²	MIN ¹	MAX ¹
Total returns to river									
Small	205	1264	1800	248 ³	414 ⁴	1071	1254	42	1800
Large	72	246	276	45 ³	42	180	190	0	455
Recreational harvest (small salmon)									
Retained	8	-	-	34	-	-		17	374
Released	27	-	-	3	-	-		0	162
Recreational harvest (large salmon)									
Retained	-	-	-	-	-	-		0	66
Released	4	-	-	7	-	-		0	150
Spawners									
Small	194	1264	1800	214 ³	399	1046	1254	25	1800
Large	72	246	276	44 ³	42	180	190	0	415
Egg conservation requirement									
% met	23	110	142	18 ³	28	86	99	1	142
¹ Min and max are for the period of record since 1974. ² Preliminary ³ Minimum ⁴ Includes 15 salmon removed from poachers net in 2002 and 25 in 2003									

Data and methodology: Visual counts of salmon were made by snorkellers in August each year 1997 to 2004. Adjustment factors were applied to visual counts to give estimates of the total numbers of salmon in the river at the time of the survey. Angling data are from the License Stub Return System. The River was closed to angling in 1999, 2000, 2002 to 2004. A 10% hook-and-release mortality was assumed.

State of the stock: In 2004, it is estimated that, at the time of the survey, Fischells Brook had attained 99% of its egg deposition conservation level, which is 55% higher than the average 1997-2003. The total return (11254) of small salmon is a 17% increase from 2003, and is the third highest in the 8 -year time series.

Forecast: There is insufficient information available to forecast the abundance of Atlantic salmon in 2005. However, based on the high spawning stock in 1999 and 2000, the returns to the river may be similar to 2004.

STOCK: Flat Bay Brook (SFA 13) Drainage area: 635 km²

CONSERVATION REQUIREMENT: 3.8 million eggs (spawners not defined) calculated as fluvial area x 2.4 eggs/m² and lacustrine area x 368 eggs/ha

Year	1999	2000	2001	2002	2003 ²	2004 ²	MIN ¹	MAX ¹
Total returns to river								
Small	2276	2397	1150 ³	1612	1537 ²	2122 ²	179	2308
Large	235	494	176 ³	198	189 ²	192 ²	5	477
Recreational harvest (small salmon)								
Retained	-	146	170	224	92 ²	158 ²	0	609
Released	389	1165	280	150	204 ²	450 ²	0	1081
Recreational harvest (large salmon)								
Retained	-	-	-	-	-	-	0	59
Released	36	276	34	33	24 ²	92 ²	0	257
Spawners								
Small	2237	2134	952 ³	1373	1425	1919	107	2237
Large	231	466	173 ³	195	187	183	1	466
Egg conservation requirement								
% met	149	167	71 ³	97	99	126	4	167

¹ Min and max are for the period of record since 1974.
² Preliminary
³ Minimum

Data and methodology: Visual counts of salmon were made by snorkellers in August each year 1996, and 1998 to 2004. Adjustment factors were applied to the visual counts to derive an estimate of the number of salmon in the river at the time of the survey. Angling data are from the License Stub Return System. The 2004 angling catch is assumed to be the same as the average catch 1999-2003. A 10% hook-and-release mortality was assumed.

State of the stock: In 2004, at the time of the survey, Flat Bay Brook had attained 126% of its egg deposition conservation level. This estimate is 27% higher than estimated for 2003 and 17% above the average egg deposition 1996-2003. The return of small salmon was the third highest recorded since 1996. The total return of large salmon was similar to 2003.

Forecast: There is insufficient information available to forecast the abundance of Atlantic salmon in 2004. However the high egg deposition in 1999 and 2000 could contribute to an improved returns in 2005.

STOCK: Harry's River (SFA 13) **Drainage area:** 816 km²

CONSERVATION REQUIREMENT: 7.8 million eggs calculated as fluvial area x 2.4 eggs/m² and lacustrine area x 368 eggs/ha

Year	1997	1998	1999	2000	2001	2002 ²	2003	2004	MIN ¹	MAX ¹
Total returns to river										
Small	1747	1659	1713	1271	1028	1640	2334	2828	888	2828
Large	201	191	176	49	132	285	422	498	16	498
Recreational harvest (small salmon)										
Retained	2	-	-	-	-	-	80	80	2	319
Released	884	625	702	796	518	400	352	352	23	1411
Recreational harvest (large salmon)										
Retained	-	-	-	-	-	-	-	-	0	0
Released	174	138	47	78	51	75	96	96	28	220
Spawners										
Small	1657	1596	1643	1191	976	1600	2095	2713	573	2713
Large	184	177	171	41	127	277	405	488	13	411
Egg conservation requirement										
% met	50	49	49	29	33	60 ³	82	91	13	91
Spawners on Pinchgut Brook tributary										
Small	613	593	608	441	200	592	352	292	200	749
Large	68	63	63	15	3	23	22	15	3	68
¹ Min and max are for the period of record since 1974. ² Preliminary ³ The percent met in 2002 is at least 60% based on information suggesting that a higher proportion of large salmon spawn below George's Lake than in the tributaries. The percentage met is likely between 60 & 77% if an adjustment could also be made small salmon spawning in the mainstem below George's Lake. There is considerable uncertainty with such and adjustment for small at this time because the dispersion of spawners from the mainstem into the lower tributaries may be later than for Pinchgut Brook. Note: Any changes from previous reports are due to the updating of preliminary data and biological characteristics information.										

Recreational catches: The fishery was limited to catch and release angling from 1996-2002 but the fishery was expanded in 2003 & 2004 to permit a limited retention fishery as part of an overall conservation/recovery/stewardship program. The retention fishery was restricted to one small salmon retained and the daily hooking and release limit of one per day from 22 July to 7 September.

Data and methodology: Total returns to Harry's River in 2003 & 2004 were determined from a counting fence operated at the mouth of the river from 11 June to 15 August. Spawning escapements were determined by subtracting estimated angling removals. Estimates of total spawners in 1992-2002 were derived from counts of small and large salmon at a fish counting fence operated on Pinchgut Brook tributary adjusted for the percentage of the total spawning activity observed on Pinchgut Brook tributary during surveys conducted in the fall of 1995-1997. Recreational fishery data for 1994-2002 are from the License Stub Return System; data for 2003 are preliminary. Spawners in 2001-2002 include an adjustment for small and large salmon observed in snorkel surveys of the lower part of the mainstem below George's Lake in mid-August. A hook-and-release mortality of 10% was used in the calculation of total returns and spawning escapements for the years 1993-2003.

State of the stock: The stock has shown some major signs of improvement since 1992 with increased juvenile densities and proportion of large salmon but growth has been slow in spite of fisheries management changes. The conservation requirement was not achieved in 2003 or 2004, but the percent met increased over the previous year. The low water levels experienced in recent years, incidence of poaching and the unknown effects of forest spraying and other human activity in the area create continued uncertainty for the stock.

Forecast: No forecast available.

STOCK: Lomond River (SFA 14A) **Drainage area:** 470 km²

CONSERVATION REQUIREMENT: 1.1 million eggs (~ 658 small salmon) calculated as
fluvial area x 2.4 eggs/m² and lacustrine area x 368 eggs/ha

Year	1998	1999	2000	2001	2002	2003 ³	2004 ³	MIN ¹	MAX ¹
Total returns to river ²									
Small	787	1212	1072	572	815	972	928	259	1529
Large	128	120	90	75	66	81	101	3	128
Recreational harvest (small salmon)									
Retained	214	359	392	227	282	367	353	214	644
Released	314	239	220	123	105	159	235	105	464
Recreational harvest (large salmon)									
Retained	-	-	-	-	-	-	-	-	-
Released	21	69	87	33	44	38	53	21	139
Known removals above fishway									
Small	1	10	3	0	0	5	0	0	22
Large	1	3	0	0	0	0	0	0	3
Spawners									
Small	541	819	655	333	522	584	551	1	983
Large	125	110	81	72	62	77	96	0	125
Egg conservation requirement									
% met	151	181	140	88	112	129	134	31	187
¹ Min and max are for the period of record since 1974 except recreational harvest is since 1994. ² Total returns are approximate because of spawning below the fishway. ³ Preliminary. Note: Any changes from previous reports are due to the updating of preliminary data and biological characteristics information.									

Recreational catches: The river quota in place since 1986 was dropped in 1999.

Data and methodology: Returns to the river above the fishway are determined from counts at the fishway and recreational catch data below the fishway. With the exception of 1968-1970 and 1989-1991 the fishway has been monitored since 1961. Recreational fishery data for 1994-2004 are from the License Stub Return System; data for 2003 and 2004 are preliminary. Angling catches for 2004 are the means for the period 1997-2002. A hook-and-release mortality of 10% was used in the calculation of spawning escapements for the years 1985-2004.

State of the stock: Returns of small salmon in 2004 decreased slightly (5%) from those in 2003 while returns of large salmon were 25% higher. The area above the fishway represents about 40% of the total river area. The conservation requirement above the fishway was achieved in 2004. The percent met was 4% higher than in 2003.

Forecast: No forecast available.

STOCK: **Torrent River (SFA 14A)** **Drainage area:** 619 km²

CONSERVATION REQUIREMENT: 1.5 million eggs (~ 656 small salmon) calculated as fluvial area x 2.4 eggs/m² and lacustrine area x 368 eggs/ha

Year	1998	1999	2000	2001	2002	2003 ³	2004 ³	MIN ¹	MAX ¹
Total returns to river ²									
Small	5388	4857	4154	2637	4861	3938	4927	96	7475
Large	761	421	596	443	432	336	546	7	761
Recreational harvest (small salmon)									
Retained	341	720	359	376	822	583	508	31	755
Released	480	1294	330	449	1299	582	759	75	1299
Recreational harvest (large salmon)									
Retained	-	-	-	-	-	-	-	1	18
Released	42	224	85	57	111	64	103	0	224
Spawners									
Small	4999	4008	3762	2216	3909	3297	4343	121	6923
Large	757	399	587	437	421	330	536	3	757
Egg conservation requirement									
% met	924	680	657	400	597	496	685	161	1279

¹ Min and max are for the period of record since 1974.
² Total returns are approximate because of spawning below the fishway.
³ Preliminary.
Note: Any changes from previous reports are due to the updating of preliminary data and biological characteristics information.

Recreational catches: The restriction of hook-and-release angling only until a minimum spawning escapement of 750 salmon had passed through the fishway was dropped in 1999. The area above the fishway has open to catch and release angling since 2002.

Data and methodology: Returns to the river above the fishway are determined from counts at the fishway and recreational catch data below the fishway. The fishway has been monitored since 1966. Recreational fishery data for 1994-2004 are from the License Stub Return System; data for 2003 and 2004 are preliminary. Angling catches for 2004 are the means for the period 1997-2002. A hook-and-release mortality of 10% was used in the calculation of spawning escapements for the years 1985-2004.

State of the stock: Returns of small and large salmon were higher in 2004 than in 2003 (25% and 63% respectively). Returns to Torrent River have shown an increasing trend since the late 1970s with the highest returns occurring since 1992. It is estimated that the Torrent River stock has achieved conservation requirement every year since 1978. This is due to the successful enhancement program carried out in 1972-1976 when adult salmon were used to colonize new habitat opened up above the fishway. The conservation requirement was achieved above the fishway again in 2004, and was 38% higher than in 2003.

Forecast: No forecast available.

STOCK: **Western Arm Brook (SFA 14A)** Drainage area: 149 km²

CONSERVATION REQUIREMENT: 0.91 million eggs (~ 292 small salmon) calculated as fluvial area x 2.4 eggs/m² and lacustrine area x 105 eggs/ha

Year	1998	1999	2000	2001	2002	2003 ³	2004 ³	MIN ¹	MAX ¹
Total returns to home waters									
Small	1718	1046	1492	563	1465	1406	1151	233	1718
Large	128	22	120	28	48	23	74	0	128
Recreational harvest (small salmon) ⁴									
Retained	-	-	21	24	0	0	0	0	171
Released	-	-	0	0	0	0	0	0	52
Recreational harvest (large salmon)									
Retained	-	-	0	0	0	0	0	0	2
Released	-	-	0	0	0	0	0	0	2
Known removals above counting fence									
Small	68	1	3	6	2	20	2	0	346
Large	0	0	0	0	0	2	1	0	3
Spawners									
Small	1650	1045	1468	533	1463	1386	1149	117	1650
Large	128	22	120	28	48	21	73	0	128
Egg conservation requirement									
% met	625	370	567	193	510	466	425	30	625
Smolt count									
	17139	13500	12706	16013	14999	12086	17323	6232	23845
% Sea survival ²									
(Adult return year)	7.2	6.1	11.1	4.4	9.1	9.4	9.5	2.2	12.1
¹ Min and max are for the period of record since 1974.									
² Sea survival is from smolt to returns as small salmon.									
³ Preliminary									
⁴ Biological sampling by angling									
Note: Any changes from previous reports are due to the updating of preliminary data and biological characteristics information.									

Recreational catches: The river has been closed to angling since 1989. The angling that took place in 2000-2001 from the mouth of the river to 0.5km upstream was part of a biological sampling experiment. The purpose of this experiment was to collect biological information from up to 100 small salmon.

Data and methodology: Counts of smolts and adult salmon were obtained at a fish counting fence located at the mouth of the river in 1971-2004. A hook-and-release mortality of 10% was used in the calculation of spawning escapements for the years 1985-89 when there was a recreational fishery.

State of the stock: Returns of small salmon in 2004 were 18% lower than those in 2003 while returns of large salmon were 222% higher. The percentage of the conservation requirement achieved in 2004 was 9% lower than in 2003 but more than twice that in 2001 which was the second lowest year since 1992. The low percentage of conservation requirement achieved in 2001 and 1997 indicates that the status of this stock can fluctuate widely from one year to the next. Smolt production in 2004 was 43% higher than in 2003 but was 27% lower than the maximum production value achieved in 1997.

Forecast: No forecast available.