REPORT OF THE

ELEVENTH ANNUAL MEETINGS

OF THE

NORTH AMERICAN COMMISSION

6-10 JUNE 1994
OSLO, NORWAY

NORTH-EAST ATLANTIC COMMISSION

6-10 JUNE 1994
OSLO, NORWAY

WEST GREENLAND COMMISSION

6-10 JUNE 1994
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CHAIRMAN:	MR JEAN-PAUL DUGUAY (CANADA)
VICE-CHAIRMAN:	MR ALLEN E PETERSON (USA)
RAPPORTEUR:	DR DEAN SWANSON (USA)
SECRETARY:	DR MALCOLM WINDSOR

NAC(94)13

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NAC(94)13

REPORT OF THE ELEVENTH ANNUAL MEETING OF THE NORTH AMERICAN COMMISSION OF THE NORTH ATLANTIC SALMON CONSERVATION ORGANIZATION 6-10 JUNE 1994, GRAND HOTEL, OSLO, NORWAY

1. OPENING OF THE MEETING

1.1 The Eleventh Annual Meeting of the North American Commission was opened by the Chairman, Mr Jean-Paul Duguay (Canada), who welcomed delegates to Oslo and commented on both the successes of and challenges before the Commission.

1.2 A list of participants is given in Annex 1.

2. ADOPTION OF THE AGENDA

2.1 The Commission adopted its agenda, NAC(94)12, (Annex 2).

3. NOMINATION OF A RAPPORTEUR

3.1 The Commission nominated Dr Dean Swanson (USA) as its Rapporteur for the meeting.

4. ELECTION OF OFFICERS

4.1 The Commission re-elected Mr Jean-Paul Duguay (Canada) as its Chairman.

4.2 The Commission elected Mr Clinton Townsend (USA) as Vice-Chairman. The Commission expressed its regret that Mr Allen Peterson (USA) could not continue to serve as Vice-Chairman and thanked him for his service.

5. NON-GOVERNMENT OBSERVERS AT COMMISSION MEETINGS

5.1 At its Tenth Annual Meeting the Commission endorsed a recommendation from the Council to permit attendance of Non-Government Organizations at its meetings for a trial period of two years commencing in 1994. The Chairman welcomed the representatives of these Organizations to the Eleventh Annual Meeting of the Commission.

6. ACFM REPORT FROM ICES ON SALMON STOCKS IN THE COMMISSION AREA

6.1 The Chairman of the ACFM, Mr Eskild Kirkegaard, presented the Scientific Advice from ICES relevant to the North American Commission, CNL(94)13, prepared in response to a request from the Commission at its Tenth Annual Meeting. The ACFM report from ICES, which contains the scientific advice relevant to all three Commissions, is included on page 197 of this document.

7. REVIEW OF THE 1993 FISHERY

7.1 The representative of the USA tabled paper NAC(94)8, (Annex 3) describing the status of Atlantic salmon stocks in the United States in 1993. The representative of Canada made available a document describing the status of Atlantic salmon stocks in Canada in 1993. Copies of this document are available on request.

8. REVIEW AND DISCUSSION OF THE PROPOSED 1994 CANADIAN AND US SALMON MANAGEMENT MEASURES AS THEY RELATE TO THE MANDATE OF THE COMMISSION AND TO THE FINDINGS OF THE ACFM REPORT FROM ICES

8.1 The representative of the United States reported on the next step in the increasingly stringent US management measures implemented for 1994. The representative of Canada tabled paper NAC(94)10, (Annex 4) the Canadian Atlantic Salmon Management Plan for 1994.

9. SALMON FISHERIES ON ST PIERRE ET MIQUELON

9.1 The Secretary introduced a paper, NAC(94)4, (Annex 5) providing catch statistics for the salmon fisheries on St Pierre et Miquelon. The catch in 1993 was the highest in the series of data since 1987 provided by the Ministère de l'Agriculture et de la Pêche in Paris. Recognising a discrepancy between these statistics and those provided to ICES, the Commission requested the Secretary to seek clarification. Tag returns from previous years indicate that salmon of Canadian and USA origin have been caught in the fisheries of St Pierre et Miquelon.

10. REPORT OF THE NAC SCIENTIFIC WORKING GROUP ON SALMONID INTRODUCTIONS AND TRANSFERS

10.1 The Co-Chairman of the NAC Scientific Working Group on Salmonid Introductions and Transfers, Mr Rex Porter (Canada), presented a report on the activities of the group in 1993/94, NAC(94)7, (Annex 6). The Group had: reviewed and updated the Inventory of Introductions and Transfers in the NAC area; reviewed the implementation of the 1992 NAC Protocols; and considered comments and proposed amendments to the Protocols. The Commission accepted NAC(94)7 and agreed with the recommended amendments to the Protocols which would be incorporated into a revised Protocol document and circulated for acceptance via correspondence by the Commission. Members would then take steps to implement the provisions of the revised Protocols in their respective domestic laws, regulations or policies.

10.2 The Commission agreed to request the information as given in NAC(94)9, (Annex 7) of the Scientific Working Group on Salmonid Introductions and Transfers.

11. IMPACT OF ACID RAIN ON ATLANTIC SALMON

11.1 There was no new information on this subject.

12. RECOMMENDATIONS TO THE COUNCIL ON SCIENTIFIC RESEARCH

12.1 At its Ninth Annual Meeting the Commission had appointed Dr Kevin Friedland (USA) and Dr Wilfred Carter (Canada) to represent the Commission on the Standing Scientific Committee.

12.2 The Commission reviewed document SSC(94)4, and agreed to recommend it to the Council as part of the annual request to ICES for scientific advice. The request to ICES for scientific advice agreed by the Council, CNL(94)58, is contained in Annex 8.

13. REPORT ON THE NASCO TAG RETURN INCENTIVE SCHEME AND ANNOUNCEMENT OF AWARDS

13.1 The Chairman announced that the draw for the prizes in the Tag Return Incentive Scheme was made by the Auditor at NASCO Headquarters on 26 May 1994. The winner of the first prize was Glendon Irving, New Brunswick, Canada. A list of all prize winners was presented to the Commission, NAC(94)5, (Annex 9). The Commission offered its congratulations to all of the winners.

14. OTHER BUSINESS

14.1 There was no other business.

15. DATE AND PLACE OF THE NEXT MEETING

15.1 The Commission agreed to hold its next annual meeting during the Twelfth Annual Meeting of the Council, 12-16 June 1995 in Glasgow. It also agreed to hold open the possibility to meet in the Spring of 1995 as warranted.

16. CONSIDERATION OF THE DRAFT REPORT OF THE MEETING

16.1 The Commission agreed the draft report of the meeting, NAC(94)6.

ANNEX 1

NORTH ATLANTIC SALMON CONSERVATION ORGANIZATION
ELEVENTH ANNUAL MEETING
OF THE NORTH AMERICAN COMMISSION
6-10 JUNE 1994, OSLO, NORWAY

LIST OF PARTICIPANTS

* Denotes Head of Delegation

MEMBERS OF THE COMMISSION

CANADA

*MR JEAN E HACHE	Representative Department of Fisheries and Oceans, Ottawa, Ontario
DR WILFRED CARTER	Representative Atlantic Salmon Federation, St Andrews, New Brunswick
MR JEAN-PAUL DUGUAY	Representative Gaspé, Quebec
MR GEORGE ARSENAULT	Department of Environment and Wildlife, Government of Quebec, Quebec City
MR DAVID CLARK	Atlantic Salmon Federation, St Andrews, New Brunswick
MR RICHARD HEGAN	Department of Fisheries and Oceans, Ottawa, Ontario
MR DAVID MEERBURG	Vice-President of NASCO Department of Fisheries and Oceans, Ottawa, Ontario
MR REX PORTER	Department of Fisheries and Oceans, St Johns, Newfoundland

USA

*MR ALLEN PETERSON	Representative National Marine Fisheries Service, Woods Hole, Massachusetts
MR DAVID EGAN	Representative Connecticut River Atlantic Salmon Commission, Guilford, Connecticut

MR CLINTON TOWNSEND	Representative Maine Council of the Atlantic Salmon Federation, Canaan, Maine
DR VAUGHN ANTHONY	National Marine Fisheries Service, Woods Hole, Massachusetts
DR KEVIN FRIEDLAND	National Marine Fisheries Service, Woods Hole, Massachusetts
DR JAMIE GEIGER	US Fish and Wildlife Service, Hadley, Massachusetts
MR ROBERT A JONES	Connecticut River Salmon Association, S. Windsor, Connecticut
DR RAY B OWEN, JR.	Maine Atlantic Sea Run Salmon Commission, Augusta, Maine
MR JOHN C PHILLIPS	Department of Fisheries, Wildlife and Law Enforcement, Boston, Massachusetts
MR GILBERT C RADONSKI	Sport Fishing Institute, Warrenton, Virginia
MR ANDREW V STOUT	New England Atlantic Salmon Association, Newburyport, Massachusetts
DR DEAN SWANSON	National Marine Fisheries Service, Silver Springs, Maryland
MR STETSON TINKHAM	Department of State, Office of Fisheries Affairs, Washington DC

OBSERVERS - PARTIES

EUROPEAN UNION

MR ERNESTO PENAS	Representative Commission of the European Communities, Brussels
MR MICHAEL WALDRON	Secretariat General of the Council of the EU, Brussels
DR PADDY GARGAN	Central Fisheries Board, Dublin
MR JOHN KEOHANE	Department of the Marine, Dublin

FINLAND

MR EERO NIEMELA	Representative Finnish Game and Fisheries Research Institute, Helsinki

ICES

PROFESSOR CHRIS HOPKINS	International Council for the Exploration of the Sea, Copenhagen
DR ROGER BAILEY	International Council for the Exploration of the Sea, Copenhagen
MR ESKILD KIRKEGAARD	Danish Institute for Fisheries and Marine Research, Charlottenlund

NON-GOVERNMENT OBSERVERS

MR WILLIAM SHEARER	Salmon Net Fishing Association of Scotland
MR WILLIAM BROWN MR ALASTAIR HUME	Scottish Anglers National Association

SECRETARIAT

DR MALCOLM WINDSOR	Secretary
DR PETER HUTCHINSON	Assistant Secretary

ANNEX 2

NAC(94)12
ELEVENTH ANNUAL MEETING OF THE NORTH AMERICAN COMMISSION
6-10 JUNE 1994, GRAND HOTEL, OSLO, NORWAY

AGENDA

1. Opening of the Meeting
2. Adoption of the Agenda
3. Nomination of a Rapporteur
4. Election of Officers
5. Non-Government Observers at Commission Meetings
6. ACFM Report from ICES on Salmon Stocks in the Commission Area
7. Review of the 1993 Fishery
8. Review and Discussion of the Proposed 1994 Canadian and US Salmon Management Measures as they relate to the Mandate of the Commission and to the Findings of the ACFM Report from ICES
9. Salmon Fisheries on St Pierre et Miquelon
10. Report of the NAC Scientific Working Group on Salmonid Introductions and Transfers
11. Impact of Acid Rain on Atlantic Salmon
12. Recommendations to the Council on Scientific Research
13. Report on the NASCO Tag Return Incentive Scheme and Announcement of Awards
14. Other Business
15. Date and Place of the Next Meeting
16. Consideration of the Draft Report of the Meeting

ANNEX 3

NORTH AMERICAN COMMISSION

NAC(94)8

STATUS OF ATLANTIC SALMON STOCKS IN THE UNITED STATES OF AMERICA IN 1993

NAC(94)8

STATUS OF ATLANTIC SALMON STOCKS IN THE UNITED STATES OF AMERICA IN 1993

1. INTRODUCTION

The Atlantic salmon is native to rivers and streams in the northeastern United States. Though many stocks were extirpated during the last century, a number of self-sustaining runs persist and efforts continue to restore salmon to some of the largest drainages in the region. The salmon resource is generally managed for restoration, thus there is no commercial fishing for salmon permitted in US waters and only a limited sport fishery harvest is allowed. Atlantic salmon stocks are assessed by the analysis of sport fishery catches, adult counts on monitored rivers, marine and freshwater tag returns, and scientific collections of juvenile fish.

The United States is dedicated to the restoration of Atlantic salmon to its native habitat. As many as 28 to 34 rivers of the northeastern states once produced an Atlantic salmon run estimated to have numbered as high as 300,000 to 500,000 fish per year. Three of the largest rivers under restoration are the Connecticut, Merrimack and Penobscot, which likely produced average runs in excess of 100,000, 30,000, and 80,000 salmon, respectively. Industrialization during the 1800's made spawning habitat inaccessible and reduced water quality in these rivers. Nevertheless, in recent years tremendous strides have been made to reverse these conditions and return Atlantic salmon to their historical habitat.

This salmon restoration effort represents a significant conservation investment for the American people. Restoration has involved the expense of providing fish passage at dams, improving riverine water quality, and the development of an extensive hatchery system to reintroduce salmon where previously extirpated. The installation of state-of-the-art upstream and downstream fish passage and fish guidance systems is a continuing process of making salmon spawning habitat available to adult fish and providing safe passage for smolts on their way to the sea. Legislated improvements in water quality have made habitat more suitable to all Atlantic salmon life stages including the fry and parr. The hatchery system involves numerous facilities that maintain Atlantic salmon brood stock and raise juvenile salmon for stocking. The material presented in this report is abstracted from the 1994 report of the US Atlantic Salmon Assessment Committee.

2. THE SPORT FISHERY

Maine's documented 1993 Atlantic salmon sport fishery catch increased 10% from 1992 as the number of salmon caught and released increased over the previous year (Table 1). The catch in 1993 continues a trend of low catches associated with smaller salmon runs. As in previous years, the number of Atlantic salmon caught and released was substantially higher than the number retained. In 1993, 507 (77%) fish were released out of a total angling catch of 659.

The exploitation rate in the sport fishery in Maine rivers has varied from 0% to about 25%, and has averaged around 13%. The exploitation rate in the Penobscot River, which supports the largest Atlantic salmon sport fishery in the USA, has varied with changing fish abundance and regulations (Figure 1). With the increase in stocking and large runs of the late 1970's, the exploitation rate in the Penobscot increased from levels of approximately 6% to higher exploitation rates of approximately 21%. With recent regulations designed to reduce harvest, exploitation has decreased to approximately 10% in recent years. A statewide limit on fish kept was reduced from five to one salmon beginning in 1992. On the Penobscot River, this change may have contributed to an observed decline in exploitation to 6.8% in 1992 and 7.4% in 1993. The statewide regulation on the retention of Atlantic salmon will change in 1994 to further support conservation efforts. In 1994, the season creel limit for each angler will be one grilse only and no retention of multi-sea winter salmon.

Historical trends in total catch for the Penobscot and other Maine rivers show the dominance of the Penobscot River fishery since 1980 (Figure 2). Sport catch in all US rivers is mostly of 2 seawinter (SW) Atlantic salmon. Rivers with self-sustaining stocks continue to show a decline in their sport fishery catches. Catches of 2SW wild origin salmon (identified by scale reading) decreased in these rivers during 1993 and are still well below the long term average (Figure 3). Though it is problematic to interpret the recent trends in salmon harvest due to new regulations on season bag limit, it appears these salmon runs are still severely depressed considering the extremely low harvest observed in these rivers.

A new fishery for Atlantic salmon was begun in 1993 utilizing surplus brood stock salmon from the Merrimack River restoration program. The Merrimack River program utilizes a large number of fry releases as part of its juvenile stocking strategy, thus many first generation domesticated brood stock are maintained in the hatcheries to supply eggs for this effort. Once spawned, the salmon are surplus to the program due to genetic considerations and cannot be retained. After reconditioning in the hatchery, a group of 1,500 of these fish were released into the Pemigewasset River tributary of the Merrimack River in 1993, and 2,200 were released in 1994.

Atlantic salmon sport fishing regulations presently prohibit the taking of sea-run salmon within the Merrimack River basin, except for a small section of the main stem within the state of Massachusetts. Sea-run salmon are intercepted by the fishery agencies downstream from this section and transported upstream, effectively eliminating any directed fishery that might occur. Current regulations do however permit the taking of Atlantic salmon marked with disc tags (the surplus brood stock fish) in the main stem of the Merrimack River in New Hampshire.

The brood stock sport fishery is regulated and monitored by the New Hampshire Department of Fish and Game. In order to participate in the fishery, an angler must possess an all species fishing license for New Hampshire waters, and in addition, purchase a salmon permit. Once an angler purchases the necessary license and permit, he or she is issued five possession tags (to be affixed to any salmon landed) and a diary for record keeping. A large number of participants were attracted to this fishery resulting in the sale of 851 permits in 1993. A total of 715 anglers were estimated to have fished for salmon (not all permit holders actually fished). The 715 fishermen caught 994 salmon (nearly 66% of the total number of brood stock fish that were

released) of which 400 were landed and 594 were caught and released. The anglers spent nearly 15,000 hours of fishing effort and totalled nearly 4,700 angling trips.

It was estimated that each angler who fished for Atlantic salmon brood stock fish spent an average of 92 dollars (US). The estimated total expenditure for all 715 participating anglers amounted to 66,000 dollars (US). Participation, angler satisfaction, and catch rate all suggest the fishery was very successful; it is expected the 1994 fishery will exceed the 1993 fishery in all these areas.

3. STOCKING OF JUVENILE SALMON

Close to 10 million juvenile Atlantic salmon were released into US rivers in 1993 (Figure 4). This represents the sixth consecutive year that total hatchery output for Atlantic salmon restoration in the USA has exceeded 5 million fish. The number released in 1993 represented a 34% increase over 1992 and was the highest number to date. The Penobscot, Merrimack, and Connecticut Rivers continue to be the target restoration sites accounting for over 88% of the stocked fish. Fry stocking has been increased in these rivers reflecting the shift in emphasis towards this stocking strategy.

Parr and smolts continued to be tagged with coded wire tags (Figure 5). Carlin tags were only applied to salmon used in special radio telemetry studies in the Penobscot River in 1993. Coded wire tags were applied to smolts released into the Penobscot (200,000), Merrimack (59,000) and Connecticut (360,500) rivers. An additional 5,000 parr received coded wire tags, bringing the 1993 total to approximately 624,000 tagged Atlantic salmon released.

Carlin tags have been used on various stocks in Maine and on Connecticut River fish since 1966. Following early research on tagging methods using both juvenile and adult releases, recent tagging studies have only been conducted with smolts from the Penobscot River. Historically, between 25,000 and 100,000 Carlin tagged fish were released annually with the exception of a single year suspension of tagging in 1978 (Figure 5). Carlin tags were also applied to Connecticut River smolts in the early 1970's and later from 1984-1988. Since 1989, only 50,000 Carlin tagged fish have been released each year. All of these fish have been released in Maine rivers. The tagging experiments with Carlin tags were concluded with the 1992 tag release. Future use of this assessment tool is under review.

Coded wire tags were first used on Connecticut River stocks to evaluate brood stock performance and were not intended for distant water recovery. However, starting in 1985, coded wire tags were applied to Connecticut and Merrimack River Atlantic salmon with target recoveries in Greenland and Canada commercial Atlantic salmon fisheries. Coded wire tags were first used in Penobscot River fish in 1986. With the cessation of fishing in distant water recovery areas, the use of coded wire tags is being reevaluated.

4. RUN SIZE AND ESCAPEMENT

Atlantic salmon runs in Maine rivers were estimated using the ICES Working Group Model which integrated estimated returns for rivers with and without trapping facilities (Figure 6). The estimated run of 1SW Atlantic salmon has increased since the early

1970's which probably reflects increased stocking activities in the state of Maine. Two distinct peaks of abundance have occurred in 1SW returns, one in 1980-81 and the other since 1987. The estimated run of 2SW salmon has not shown this trend. Returns of 2SW Atlantic salmon have shown a declining trend since the early 1980's. Despite these trends, the run of 2SW Atlantic salmon still dominates total Maine returns. The estimated run of 3SW salmon shows a steady pattern of decline and appears to be unaffected by increased restoration efforts.

Run estimates for the Merrimack and Connecticut rivers are based solely on trap counts since no salmon fishing is allowed in these rivers (Figure 7). Total run sizes in 1993 were 61 and 199 in the Merrimack and Connecticut rivers, respectively. Compared to 1992, these runs represent a 69% and 59% decline in the Merrimack and Connecticut rivers, respectively. Since 1970, these restoration rivers have typically produced runs of less than 500 salmon each year.

The target run size for restoration of Atlantic salmon in the northeastern United States is in excess of 50,000 spawners each year. This target is based primarily on expected stock size for the major restoration river systems. Expectations are that the Connecticut River will produce in the range of 12,000 to 21,000 salmon each year, the Merrimack 5,000 to 7,000 salmon and the Penobscot River 10,000 to 15,000 salmon. These estimates are for both sexes and before exploitation by riverine recreational fisheries. Many smaller rivers make up the remainder. Natural spawning escapement occurs to varying degrees in all rivers. In wild run rivers, escapement is given by the number of fish in the run less the number removed in the sport fishery. In restoration rivers, a fraction of the run is taken as brood stock for the restoration program. For example, in the Penobscot River, the natural spawning escapement can number in the thousands of fish. In contrast, in the Merrimack and Connecticut rivers, a smaller fraction (10%) of the run is allowed to proceed upriver.

5. ENDANGERED SPECIES ACT

The United States Government received a petition to list Atlantic salmon populations in the Northeastern United States as "endangered" under the nation's Endangered Species Act (ESA). The petition was found to contain credible information, thus a review process was initiated to determine if the remaining populations of Atlantic salmon contributed to the genetic legacy of the species and whether or not these populations were in danger of extinction. The ESA is designed to protect what are referred to as population segments of a biological species; these segments are also referred to as evolutionary significant units. A population segment or unit must have some degree of reproductive insolation from other segments of the species and show unique genetic adaptations making the segment important to the well being of the species as a whole. With salmonids, the logical segment or unit has been the river stock. The Federal government is reviewing existing information and public comment to develop a "Status Review" on which the final decision as to the need for listing will be made. The public comment period has been extended to July 1, 1994. As part of the information gathering process, field surveys are underway on some of the smaller, unmanaged coastal rivers to determine if salmon populations are present. In addition, genetic analyses are underway to determine the relationships between specific river populations. When government scientists have completed their status review, a listing

notice will be drafted that will specify what level of protection, if any, Atlantic salmon may be given under the Act. This notice will be prepared by the fall of 1994.

6. ATLANTIC SALMON RESEARCH PROGRAM HIGHLIGHTS, 1993

The research program for Atlantic salmon in the US is extensive in the areas of husbandry, ecology, and management of the species. Research is conducted by the National Marine Fisheries Service (NMFS), US Fish and Wildlife Service (USFWS), US Forest Service (USFS), National Parks Service (NPS), New England States, Native American tribes, private groups and universities. The cooperative efforts of state, federal, private and academic researchers are broadly organized by the three major restoration programs on the Connecticut, Merrimack and Penobscot rivers. Research is conducted on topics unique to individual rivers and of general interest to the international salmonid research community.

Connecticut River

The restoration program in the Connecticut River will make greater use of salmon fry in future juvenile stocking activities. Stocking salmon fry carries with it certain advantages not realized with the stocking of smolts. Because the animal is in the wild during the freshwater phase, it does not experience hatchery selection pressure for juvenile growth and development traits. Disease resistance and condition, which can be compromised in the hatchery despite the best attention to husbandry practices, is not an issue in the wild environment since there is no attempt to artificially maintain high juvenile densities. A source of frustration shared worldwide is the lack of effective marking procedures for fry stocked salmon. To differentiate various spawning groups it will probably be necessary to analyze natural marks deposited on scales and otoliths.

There is an intensive effort to improve the efficiency of downstream guidance and passage devices for migrating smolts in the Connecticut River. As more fry are stocked in the drainage, the impetus to improve downstream passage will become more pressing as these smolt groups begin to mature and migrate to sea. Extensive testing of each downstream passage site, by both conventional and radio tagging, established a baseline of smolt behaviour at each dam. Passage improvements become strategic to each dam because the nature of flows and obstacles vary dramatically site to site. For example, to meet the demand to design a smolt guidance device for the Hadley Falls Dam, a hydraulic model of a bypass weir (for smolt guidance) is being tested at the Conte Anadromous Fish Research Center. Hopefully, the extensive testing and evaluation of the model will result in a more cost effective and safer passage device in the actual dam setting.

Merrimack River

During 1993, a number of innovative Atlantic salmon educational and outreach programs were begun in the Merrimack River drainage area. The White Mountain US Forest Service Station staff participated in Aquatic Awareness Day activities during National Fishing Week. Two Atlantic salmon interpretive and visitor centres, at the Kancamagus Scenic Area and the Warren State Fish Hatchery, are under development with the help of Forest Service personnel. The US Fish and Wildlife Service sponsors

a number of educational programs to involve school children in healthful and educational activities concerned with salmon conservation.

Field experiments were conducted at the Ayers Island Dam on the Merrimack River to test the effectiveness of controlled and metered spillage to improve fish passage effectiveness. Both marked and radio tagged juvenile salmon were used in the trials that documented the passage of salmon through the open gates. The complimentary data from marked and radio tagged fish will be used to develop quantitative estimates of the efficiency of the passage strategy and to plan further testing.

Maine Rivers

The intensive study of the Narraguagus River, one of the rivers in Maine with a self-sustaining run of Atlantic salmon, continued with adult and juvenile population censuses and further habitat evaluation. Spawning escapement into the Narraguagus is at an extremely low level with the number of breeding pairs ascending the river believed to be less than 50. These observations are corroborated by a redd count census and juvenile abundance levels observed for the drainage. The densities of juvenile fish are well below previously documented levels, thus it is believed they reflect decreased numbers of adult spawners in recent years. The quantitative relationships between juvenile abundance at various life stages does not suggest anomalously high mortality of juvenile fish during the freshwater phase. The more accurate estimate of adult escapement provided by this study has clearly suggested that the drainage is under-seeded with eggs and will not improve until additional spawners are available.

The US Fish and Wildlife Service collected wild Atlantic salmon from five eastern Maine rivers to provide spawners for the river-specific captive brood stock program. Progeny of these brood stock will be stocked back into their river of origin in an attempt to enhance juvenile abundance above the chronically low levels observed in recent years. The river specific brood stocks will be maintained at the same hatchery, but will be isolated from each other to prevent any disease and genetic mixing between stocks.

TABLE 1. DOCUMENTED 1993 SPORT CATCH OF ATLANTIC SALMON IN MAINE.

River	Number of Salmon Harvested 1SW	2SW	3SW	RS	Total Harvest	Estimated Number Released	Total Angled 1993	Total Angled 1992
St. Croix	1	0	0	0	1	0	1	2
Dennys	2	1	0	0	3	1	4	12
East Machias	0	0	0	0	0	3	3	9
Machias	0	0	0	0	0	12	12	10
Pleasant	*catch and release*						0	0
Narraguagus	0	7	0	0	7	20	27	62
Union	0	0	0	0	0	0	0	0
Penobscot (1)	14	108	0	2	124	450	574	497
Ducktrap	0	0	0	0	0	0	0	0
Sheepscot	0	9	0	0	9	5	14	7
Kennebec	0	2	0	0	2	10	12	0
Saco	0	6	0	0	6	6	12	0
Misc	0	0	0	0	0	0	0	1
Total	17	133	0	2	152	507	659	600

(1) The Penobscot sport catch includes salmon (5 fish) previously captured in fishway trapping facilities.

Figure 1. Sport fishery exploitation on Atlantic salmon the Penobscot River, 1970-1993.

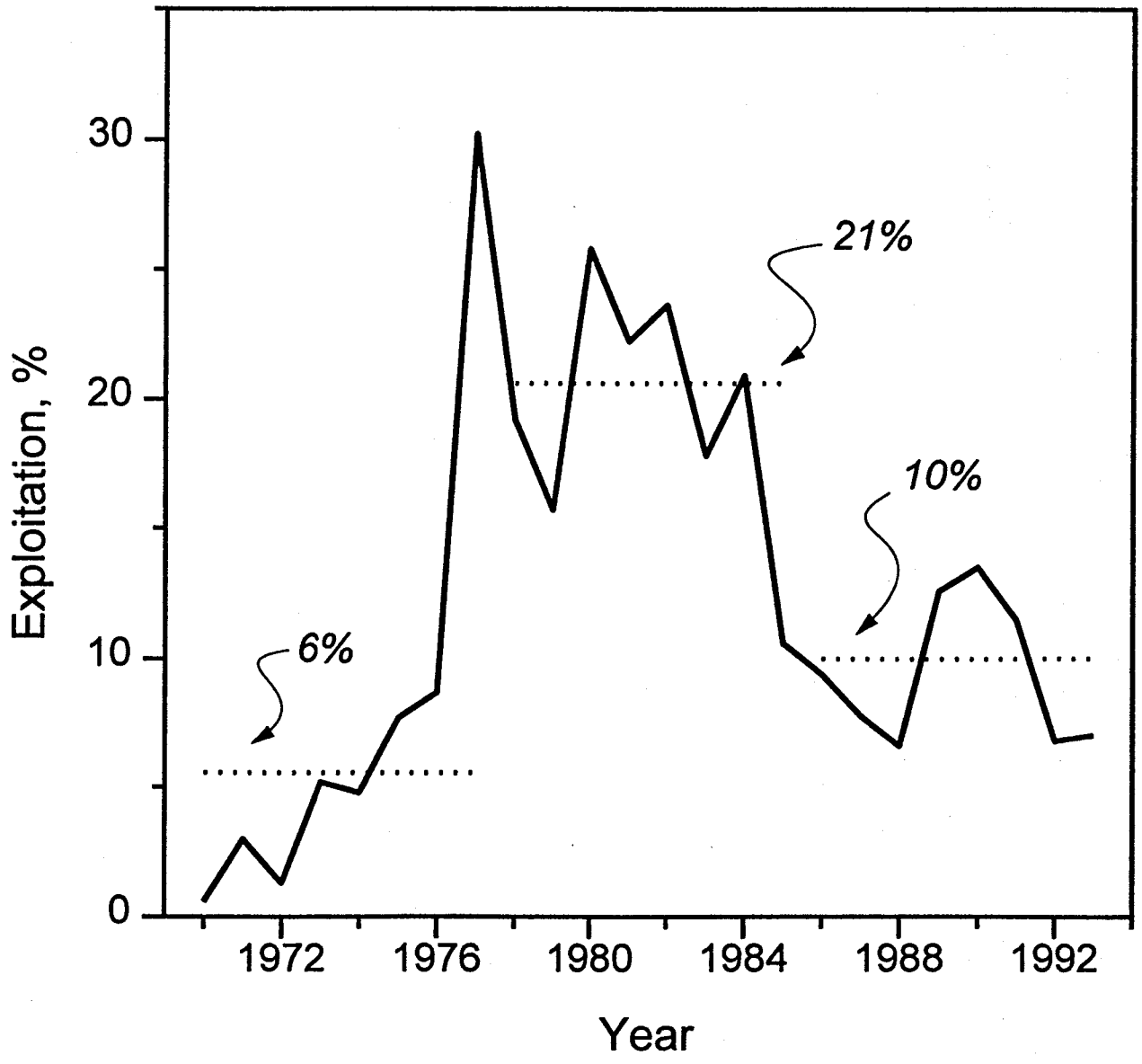


Figure 2. Sport catch of Atlantic salmon of all ages in the Penobscot and other Maine rivers (includes released fish) from 1967-1993.

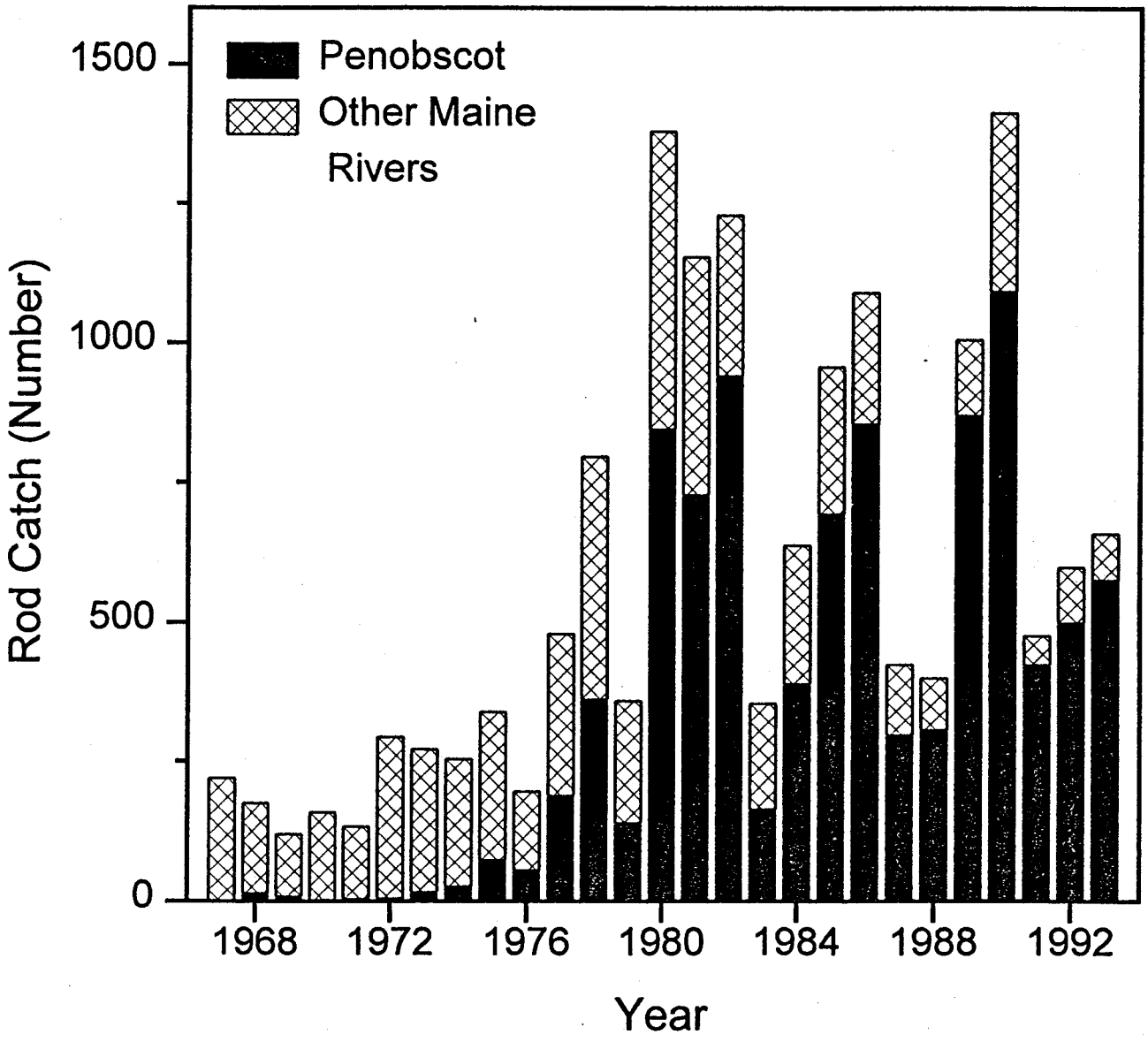


Figure 3. Angler harvest of wild origin 2SW Atlantic salmon in Maine rivers still supporting self-sustaining runs from 1967-1993. Line indicates 3-year moving average.

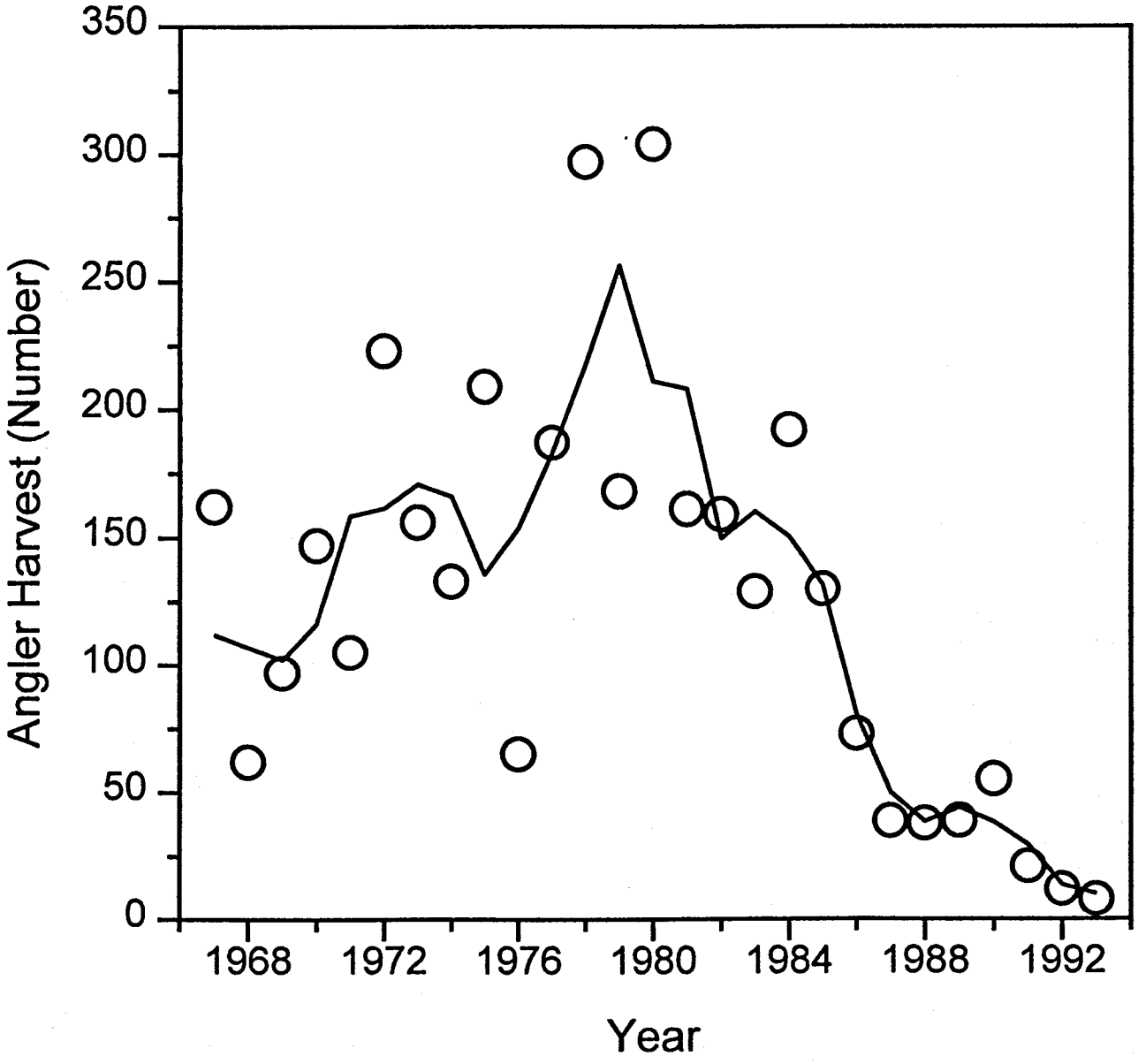


Figure 4. Releases of juvenile Atlantic salmon in USA rivers (000's of fish) from 1962-1993.

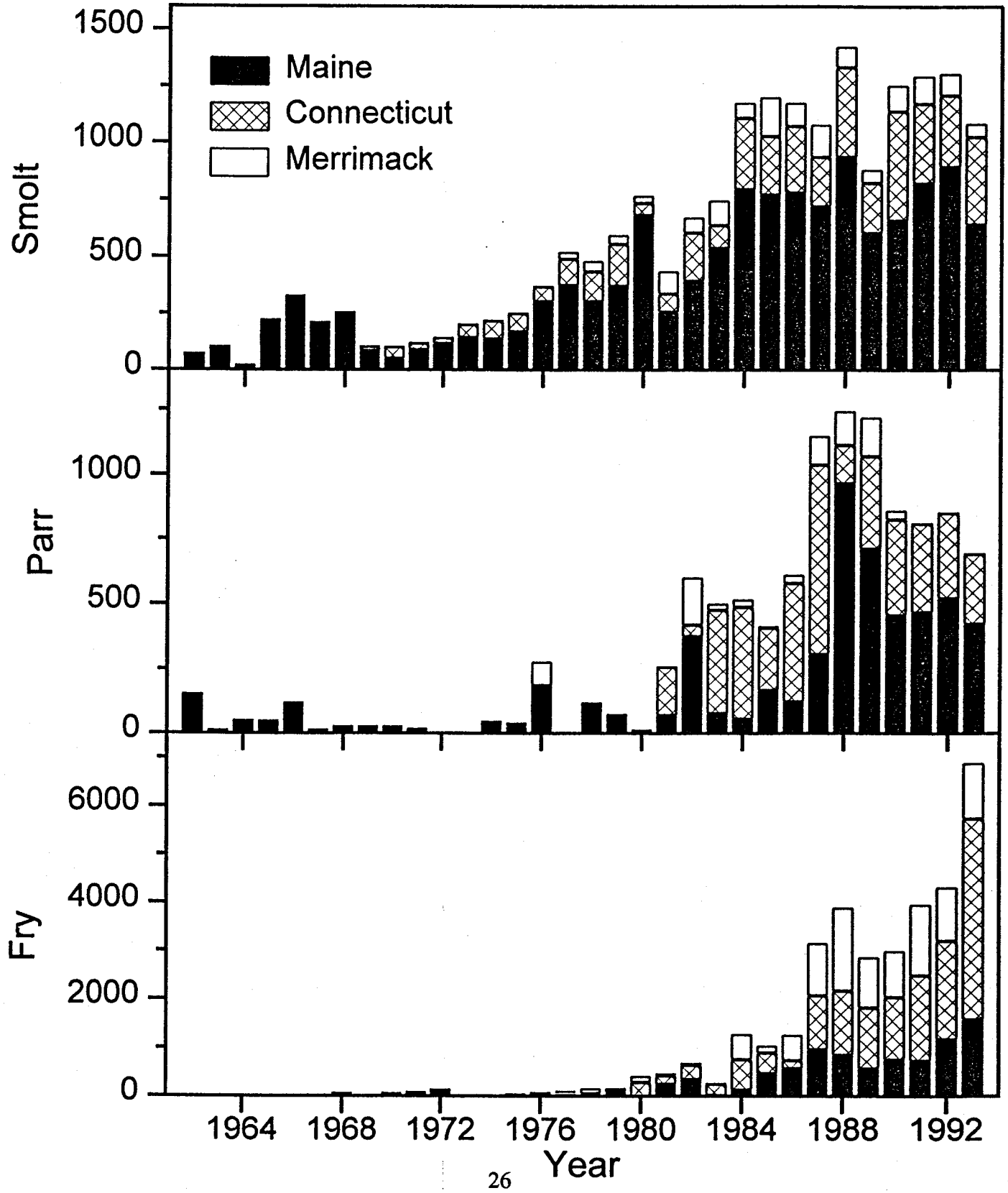


Figure 5. Tag releases in USA rivers (000's of fish) from 1966-1993.

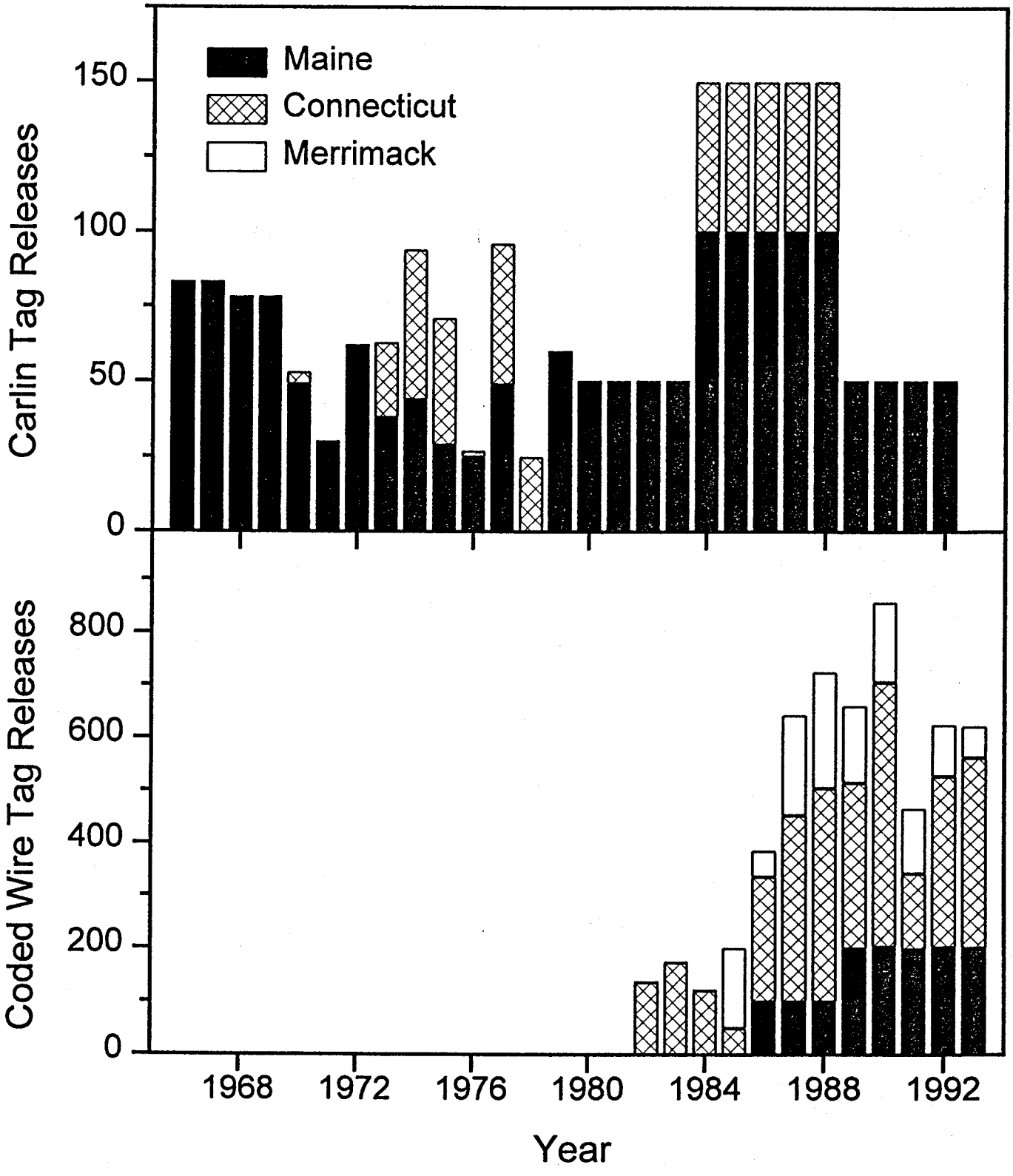


Figure 6. Estimated run size (ICES Working Group Model) of 1, 2 and 3 sea-winter Atlantic salmon to Maine rivers. Lines indicate 3-year moving average.

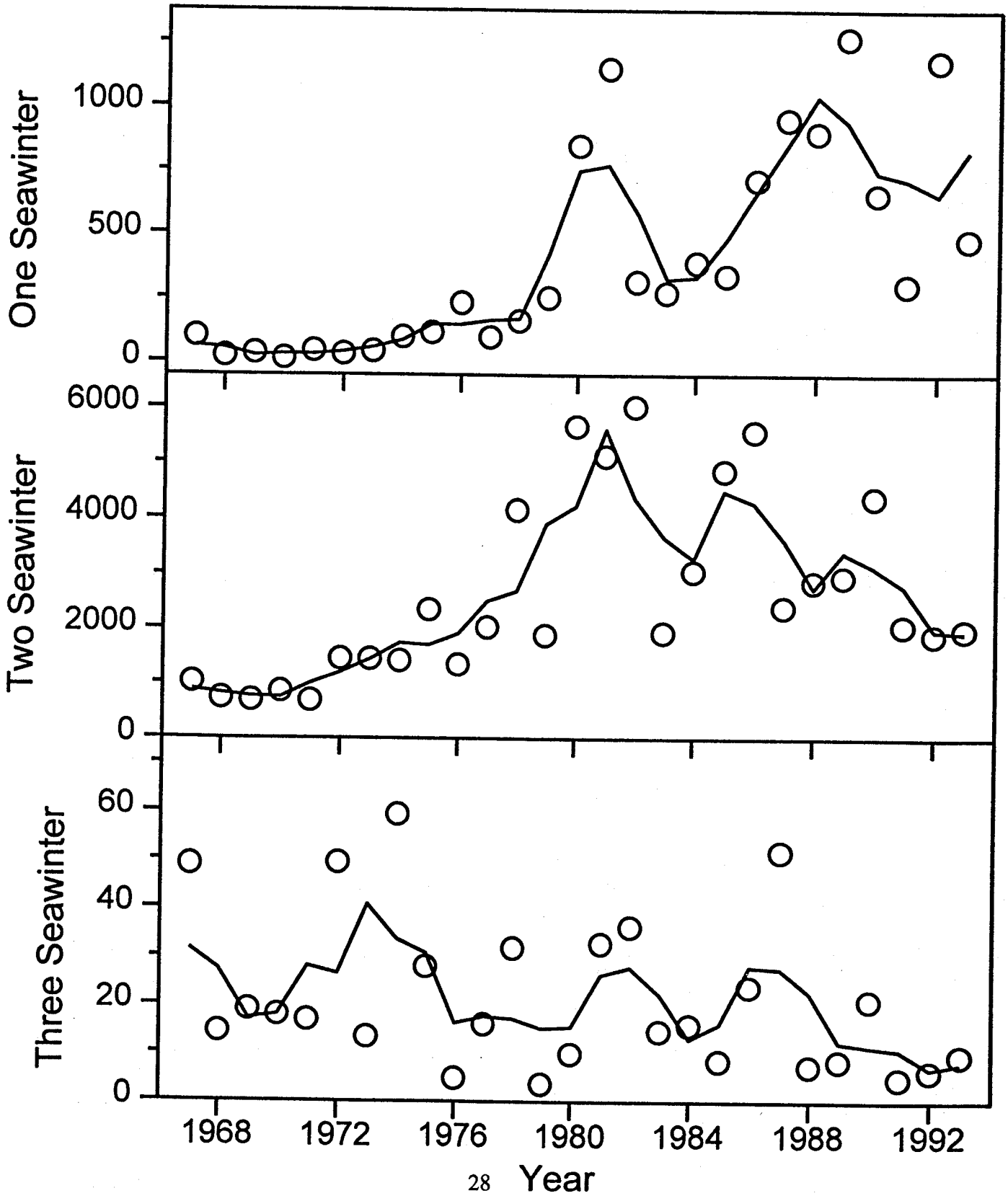
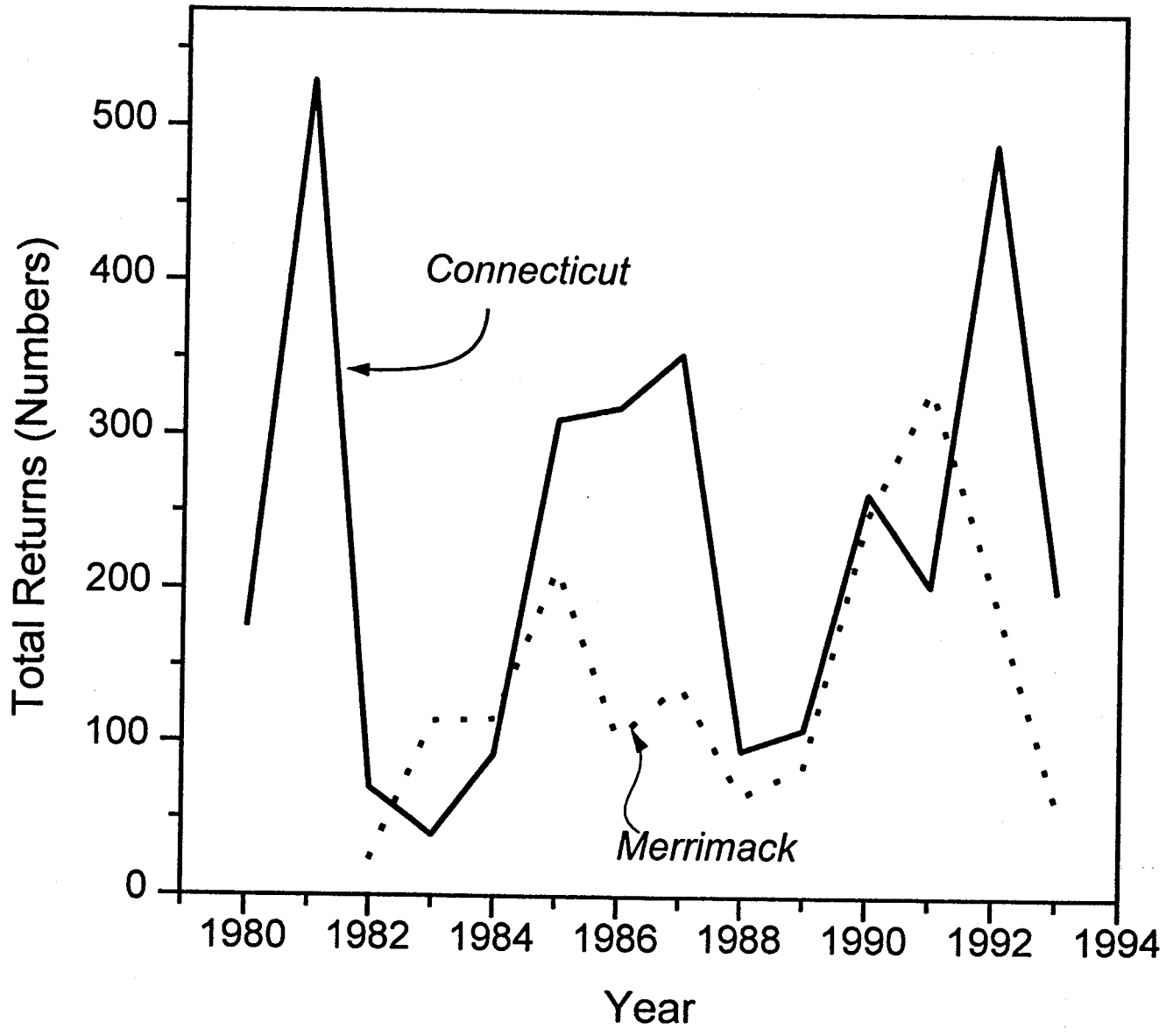


Figure 7. Total returns of Atlantic salmon of all ages to the Connecticut and Merrimack rivers.



ANNEX 4

NORTH AMERICAN COMMISSION

NAC(94)10

1994 ATLANTIC SALMON MANAGEMENT PLAN TABLED BY CANADA

NAC(94)10

1994 ATLANTIC SALMON MANAGEMENT PLAN

Guiding Principles and Major Elements

The 1994 Atlantic Salmon Management Plan is divided into major components. This permits easier reference to the appropriate measures applicable in each geographic region and Salmon Fishing Area (SFA). Descriptions and a map of the Salmon Fishing Areas are found in Appendices 1 and 2.

The News Release of the plan is contained in the first section which is followed by sections on the principles and objectives which have been adopted, after consultation with all parties involved, for the management of the salmon fishery. The next section presents the major elements contained in the 1994 Atlantic Salmon Management Plan followed by the general policies and measures regarding closures, licensing, tagging, gear and enforcement in Gulf, Scotia-Fundy, and Newfoundland regions. Specific management initiatives and guidelines for particular Salmon Fishing Areas are also included.

News Release
Communiqué
June 6, 1994

TOBIN ANNOUNCES 1994 ATLANTIC SALMON MANAGEMENT PLAN

OTTAWA, - Reduced quotas for the commercial fishery in Northern and Southern Labrador and enhanced conservation measures are the major elements of the 1994 Atlantic Salmon Management Plan which was announced today by Fisheries and Oceans Minister Brian Tobin.

"This management plan is further evidence of my commitment to the conservation and health of salmon resources," Tobin said. "While reduced quotas are necessary to meet this commitment, I believe a commercially viable fishery can continue".

The 1994 commercial fishing season in Labrador starts on Monday June 6. In northern Labrador (SFA 1), the 1994 quota is set at 24 tonnes down from 80 tonnes allowed in 1993. In southern Labrador (SFA 2), the salmon quota has been reduced from 90 to 60 tonnes. For the Labrador shore of the Strait of Belle Isle (SFA 14B), the quota will be maintained at 8 tonnes, the same as in 1993.

The freeze on transferring existing commercial licences will be maintained in 1994 to keep fishing effort in line with overall conservation objectives. In addition, a freeze will be placed on the issuance of new commercial salmon and char licences in northern Labrador (SFA 1).

Details of the 1994 plan were worked out following regional consultations with recreational users, commercial salmon fishermen, the Native community and the Atlantic Salmon Advisory Board.

"This year's plan pursues conservation targets necessary to rebuild salmon resources in Atlantic Canada," Mr Tobin said. "With the ongoing cooperation of all user groups and provincial governments, we will work together to achieve this goal."

The plan involves several measures aimed at conserving the rebuilding Atlantic salmon stocks, including:

- the involvement of Native communities in rebuilding efforts through the Aboriginal Fisheries Strategy (AFS);

- salmon enhancement and habitat restoration activities as part of recreational fishery development cooperation agreements with the Atlantic provinces; and

- continued cooperative enforcement initiatives, such as the "River Watch" program, to protect salmon resources.

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1994 ATLANTIC SALMON MANAGEMENT PLAN

The 1994 Atlantic Salmon Management Plan is guided by the principles adopted by the Department of Fisheries and Oceans (DFO) through consultations with the Atlantic Salmon Advisory Board and the provincial governments. It incorporates the three Regional Atlantic Salmon Management Plans which are developed in consultation with Regional and area representations from interested associations and organizations.

In the province of Quebec, the provincial government administers management plans for the salmon stocks in that province.

OBJECTIVES

The main objectives of the 1994 management plan are to ensure that target spawning requirements are met in the Maritime provinces, and that spawning levels increase in Newfoundland and Labrador.

PRINCIPLES

1. Conservation of Atlantic salmon stocks remains the overriding priority in the management of this fishery. This priority includes measures aimed specifically at the large salmon component in order to increase spawning escapement.

2. The importance of fishing to Aboriginal communities is recognized and is given first priority after conservation. It is DFO policy to respect and honour the Aboriginal right to fish for food, social and ceremonial purposes.

3. The Atlantic salmon fishery will be managed so as to distribute the benefits most effectively among the largest number of Canadians.

4. In the Maritime provinces, the importance of the recreational fishery is given greater recognition based on the relatively larger potential benefits to be generated. In Newfoundland and Labrador, the commercial fishery has traditionally been of greater importance. However, the recreational fishery offers considerable potential for economic benefits.

5. Allocation of Atlantic salmon stocks will be made by Salmon Fishing Area and/or river system and according to interests and/or dependence of user groups and that of industries and communities deriving benefit from the harvestable resource.

6. Interception of migrating salmon in mixed-stock fisheries will be minimized where practical and feasible, by adjusting seasons, gear and fishing area and the introduction of quotas.

7. Incidental catches of Atlantic salmon by commercial fishermen will be minimized by adjusting seasons, gear and area of fishing, and the retention of salmon caught under these circumstances will be illegal.

8. Access to Atlantic salmon stocks for commercial and recreational fisheries will be regulated by all or a combination of the following: seasons, quotas, gear and licensing restrictions. The Aboriginal Food Fishery will be in accordance with agreements made under the Aboriginal Fisheries Strategy.

9. Atlantic salmon enhancement plans and habitat restoration initiatives will be developed and undertaken under the auspices of the five-year "Canada-Newfoundland Salmonid Conservation and Enhancement Cooperation Agreement" and recreational fisheries cooperation agreements with other Maritime Provinces.

10. Atlantic salmon habitat will be protected and improved to allow for maximum stock production.

11. The practice of tagging salmon catches will be maintained.

MAJOR ELEMENTS

1. The commercial salmon fishery for the Island portion of Newfoundland remains closed. 1994 is the third year of a five-year closure, which is a major part of the effort to rebuild depressed stocks of Atlantic salmon.

2. The 1992 program for the voluntary retirement of commercial salmon licences in the Province of Newfoundland and southern Labrador was very successful with 91 per cent of eligible licence holders applying for retirement. This included 96 per cent of the 2,572 commercial salmon fishermen in insular Newfoundland and 60 per cent of the 434 commercial salmon fishermen in southern Labrador.

3. In 1993, a similar program for the voluntary retirement of commercial salmon licences was introduced for fishermen in northern Labrador. This program was also successful with 71 per cent of the 145 eligible licence holders applying for retirement.

4. The commercial fishery in Labrador will remain open and the season will commence on June 5, 1994. In SFA 1, the allowance which was set at 80t in 1993, has been replaced by a quota which has been set at 24t to reflect the removal of effort as a result of commercial licence retirement. The quota for SFA 2 is reduced from the 1993 level to 60t to reflect the continued low abundance of salmon in that area. The quota for SFA 14B will remain at the 1993 level of 8t. The commercial quota for southern Labrador has dropped from 215t in 1991, 193t in 1992, 98t in 1993 to 68t in 1994.

5. The commercial salmon fisheries in the Maritime Provinces will remain closed. The 1992 commercial licence retirement program in New Brunswick resulted in the retirement of 38 of the remaining 50 licences. A similar offer may be made to the 43 licence holders remaining in Nova Scotia. Through funding, the Government of Canada also participated in the 1993-1994 retirement program for the 62 commercial salmon fishermen on the Upper and Middle North Shore of Quebec. 60 of the 62 licences have been retired thus far.

6. In 1994, the Department of Fisheries and Oceans will continue zonal/river management in selected areas. This approach will be expanded to other areas of the

Atlantic Provinces if evaluations of this management scheme reveal positive results. In New Brunswick, a new watershed management regime has been introduced which divides the province into five drainages: 1) Chaleur; 2) Miramichi; 3) South East; 4) Central & South West; and 5) Upper St. John.

7. Only full-time fishermen will be eligible to hold commercial salmon licences. In the future, fishermen who may be down-graded to the part-time categorization will have to regain their full-time categorization within two years in order to retain their eligibility to their commercial salmon licence. During this two-year period, fishermen down-graded to part-time will be eligible to hold their commercial salmon licence.

8. There will be no new commercial salmon fishing licences issued on an Atlantic-wide basis.

9. Transfers of commercial fishing licences will not be permitted in 1994.

10. Only the retention of grilse will be permitted in the recreational fisheries for the provinces of New Brunswick, PEI, Nova Scotia and Newfoundland (excluding Labrador). All large salmon (63 cm and greater in length) hooked by anglers will be required to be released immediately with the least possible harm to the fish. The Province of Quebec will maintain this restriction for the bordering rivers within the Restigouche system as has been done since 1984. In Labrador, the seasonal retention limit for large salmon has been reduced from 4 to 2 fish.

11. The recreational quotas for individual Salmon Fishing Areas in Newfoundland and Labrador have been eliminated. Bag limits have been reduced from 8 to 6 fish. On the Island portion of Newfoundland anglers may retain six small salmon under 63 cm in length. This includes a maximum catch of three small fish prior to July 31 and three more this period. Once retention limits are reached, the fisheries remain open to catch and release fishing only.

12. In Newfoundland and Labrador, the daily retention limit is increased from 1 to 2 fish.

13. In all Atlantic Provinces, fishing limits such as seasons and quotas may be adjusted to reflect stock or environmental conditions.

14. The possession limits correspond to the seasonal retention limits in all the Maritime Provinces (7 in PEI and 8 in the others). The daily retention limits in PEI, Nova Scotia and New Brunswick remain at their current level (1 in PEI and 2 in the others).

15. Catch and release fishing is being encouraged. A daily catch and release limit of four salmon applies in the Atlantic Provinces. In the Maritime Provinces, anglers must stop fishing for salmon once they have retained the daily retention limit or released four salmon. In Newfoundland and Labrador, anglers must cease fishing when they have retained the daily retention limit and released four salmon.

16. During 1994, the tagging systems will be maintained in the Atlantic Provinces.

17. It will continue to be illegal to retain, or be in possession of, salmon captured incidentally in non-salmon commercial gear. Innovative low cost and efficient

enforcement activities, such as River Watch, are being undertaken. Interest groups are assisting enforcement personnel in this regard.

18. The Aboriginal Fisheries Strategy announced in 1992 will contribute greatly to enhancing Atlantic salmon stocks. A total of 91 Agreements were entered into in the four Atlantic provinces and Quebec. Projects in the agreements include the use of trap nets as an alternative to gill nets, river enhancement and stream clean-up projects, habitat restoration, counting fences, and Native guardian programs to implement and enforce the agreements.

19. Because of the success of the Aboriginal Fisheries Strategy, Native Bands throughout the Atlantic have voluntarily improved fisheries management and conservation practices through programs which provide selective fishing methods and enhancement and habitat projects. Fishing activity by native people in general and gill netting specifically is minimal and greatly reduced from previous years. In 1993, DFO was successful in negotiating fishing plans with all 15 Bands in New Brunswick, the two Bands in Prince Edward Island, and 12 of the 14 Bands in Nova Scotia. Communal licences are being used to regulate the plans agreed to with the Bands and provide enforcement guidelines. Approximately 125 Guardians were employed by Native groups in the Atlantic to enforce the harvest plans.

20. During 1994 and under recreational fisheries cooperation agreements, salmon enhancement and habitat restoration activities have been and will be planned and established with the active participation of the Provinces and user groups.

21. The measures taken by the Department of Fisheries and Oceans in 1994 are consistent with Canada's commitment to cooperate within the North Atlantic Salmon Conservation Organization (NASCO). An agreement was reached at NASCO's annual meeting in 1993 for the establishment of quotas off West Greenland for the 1993-97 period. These quotas will be set based on scientific advice for conservation purposes. In 1994, Canada will seek implementation of measures at NASCO which will require the reporting of all Atlantic salmon harvests and work within NASCO for the elimination of high seas interceptions of Atlantic salmon.

REGIONAL MANAGEMENT MEASURES

COMMERCIAL CLOSURES

Scotia-Fundy and Gulf Regions - SFAs 15 to 23

The Maritimes commercial salmon fishery remains closed.

Newfoundland Region - SFAs 1 to 14

The commercial salmon fishery for the Island of Newfoundland (SFAs 3 to 13 and 14A) remains closed in the third year of the five-year moratorium.

COMMERCIAL LICENSING POLICIES

Scotia-Fundy and Gulf Regions - SFAs 15 to 23

1. As the commercial salmon fishery is closed in the Maritimes, 1994 licences will be issued for record purposes only and at no cost to those 1993 licence holders that wish to retain them.

2. Transfer of licences to another individual will not be permitted in 1994.

3. Licences are not available for new entrants in this fishery.

4. Licences are only valid for the Salmon Fishing Area specified.

Newfoundland Region - SFAs 1, 2 and 14B

1. In 1994, licences may be issued to those persons who, in 1993:

   a) held commercial fishing licences; and

   b) were categorized as full-time; and

   c) are full-time residents of the Salmon Fishing Area in which they are licensed or unless otherwise specified.

   Note: Participation in the 1993 salmon fishery will not be a prerequisite to be eligible for a salmon licence in 1994. However, all fishermen will be required to renew their salmon fishing licences and meet the criteria outlined in c).

2. Licences are only valid for the Salmon Fishing Area specified.

3. Transfer of licences to another individual will not be permitted in 1994.

4. Effort limits for each licensed fisherman will remain at 200 fathoms per licence in 1994.

5. No new commercial salmon licences will be issued in 1994.

MEASURES TO PREVENT ATLANTIC SALMON BY-CATCH IN NON-SALMON COMMERCIAL GEAR

Note: In all Atlantic provinces, it will be illegal to retain or be in possession of Atlantic salmon caught by non-salmon commercial gear without authorization.

1. Non-salmon commercial fishing gear includes all traps, weirs and gillnets used to fish for all finfish species.

2. All salmon caught incidentally in the above gear must be released immediately to the water.

3. In areas where the by-catch of salmon is significant, the commercial gear shall be re-located voluntarily and/or as instructed by a fishery officer.

RECREATIONAL FISHERY

1. Size restrictions - For the recreational fisheries Atlantic-wide (excluding Labrador and most of Quebec), the retention of large salmon will be prohibited (salmon 63 cm or greater in length). However, anglers will be permitted to hook and release large salmon.

   Regions will continue media programs in cooperation with anglers' associations to ensure anglers are aware of proper release methods in order to ensure that the fish are released with the least possible harm. The use of barbless hooks is encouraged.

2. River quotas - Quotas are established for individual rivers where there are definite spawning escapement concerns and requirements. After the river quota is taken, closures or a hook and release only fishery will be implemented.

3. Catch limits - In 1994, the retention limits will be:

	N.B.	N.S.	P.E.I.	Nfld. and Labrador*
Season	8	8	7	6
Possession	8	8	7	2 x daily limit
Daily	2	2	1	2

* In Labrador, anglers are allowed to retain 2 large salmon.

The daily and seasonal salmon retention limits do not include any salmon that are hooked and subsequently released. A daily catch and release limit of four salmon applies in the Atlantic Provinces. In the Maritime Provinces, anglers must stop fishing for salmon once they have retained the daily retention limit or released four salmon. In Newfoundland and Labrador, anglers must cease fishing when they have retained the daily retention limit and released four salmon.

Catch and release only fisheries may be implemented in areas requiring protection, but where conservation requirements do not demand total closure. Hook and release fisheries will be closed where water conditions or temperatures are likely to result in high mortality among released fish.

Catch limits which were previously restricted to lower levels because of specific conditions will be maintained as such.

In the Maritime Provinces, anglers exhausting their daily or seasonal limits will not be permitted to fish for Atlantic salmon for the remaining portion of the period associated with the limit reached.

4. Black salmon fishery - The grilse only restriction will apply again in 1994. The season remains from April 15 to May 15 in New Brunswick.

5. Seasons - The seasons remain the same as 1993 in many watersheds, with some adjustments to reflect local conditions. In some cases, the seasons may be altered to reflect further information or changing circumstances.

TAGGING PROGRAM

During 1994, the tagging systems will be maintained for the Atlantic salmon fisheries in Atlantic Canada.

Where tagging is required, salmon caught and retained by licensed salmon fishermen will be tagged by applying a self-locking, tamper-proof plastic tag through the mouth and gill cavity of the fish. Each tag number will be recorded with the licence number issued to the fisherman for immediate identification of all legally harvested salmon.

The tags will be colour coded for each fishery. The colour of tags in Newfoundland and Labrador will change so that only 3 of the tags will be valid up to July 31 while the remaining 3 tags will be valid for the remainder of the season.

ENFORCEMENT ACTIVITIES

Where feasible in 1994, emphasis will be placed on protection and conservation of Atlantic salmon in both the marine and freshwater environment. Particular attention will be directed to the following:

1. commercial salmon log record reporting (where applicable);

2. salmon by-catch restrictions;

3. poaching activity in inland waters;

4. fish habitat protection;

5. salmon tagging requirements;

6. strict observance of closed times and closed areas.

Programs will be in place again in 1994, or have already been established as part of the Crime Stoppers Program, to report suspected salmon poaching activities. Toll-free numbers will be answered twenty-four hours a day. Consult your local Fisheries and Oceans office for details.

In Newfoundland and Labrador, all Royal Canadian Mounted Police and Wildlife officers have been designated as Fishery Officers to enhance overall surveillance effort. Other enforcement efforts include the use of volunteers in a "River Watch" program, joint enforcement patrols with other agencies and the use of specialized undercover enforcement teams during peak fishing periods.

DFO will continue to seek significant penalties through the courts for salmon violations and all successful prosecutions will be given media coverage. As well, the names of violators will be released.

SALMON FISHING AREAS

SFA 1 - NORTHERN LABRADOR

Commercial Fishery

Quota - 24t

Waters	Opening/Closing Dates
All coastal waters from Cape Chidley to Fish Cove Point	June 6 - October 15

Recreational Fishery

Individual quotas (Province-wide):

Season bag limit - 6 fish, of which only 2 can be large

Daily bag limit - 2 fish

Possession limit - 4 fish

Hook & release limit - 4 fish

Seasons

Rivers	Opening/Closing Dates
All rivers running into the coastal waters between Cape Chidley and Fish Cove Point	June 25 - September 18

SFA 2 - SOUTHERN LABRADOR

Commercial Fishery

Quota - 60t

Waters	Opening/Closing Dates
All coastal waters from Fish Cove Point to Table Head, St. Peter's Bay	June 6 - October 15

Recreational Fishery

Individual quotas (Province-wide):

Season bag limit - 6 fish, of which only 2 can be large

Daily bag limit - 2 fish

Possession limit - 4 fish

Hook & release limit - 4 fish

Seasons

River	Opening/Closing Dates
All rivers running into the coastal waters between Fish Cove Point and Table Head, St. Peter's Bay	June 25 - September 18

SFA 3 - WHITE BAY

Commercial Fishery

Waters	Opening/Closing Dates
All coastal waters from Cape Bauld to Cape St. John	Closed

Recreational Fishery (Grilse only)

Individual quotas (Province-wide):

Season bag limit - 6 fish

Daily bag limit - 2 fish

Possession limit - 4 fish

Hook & release limit - 4 fish

Seasons

River	Opening/Closing Dates
All rivers running into the coastal waters between Cape Bauld and Cape St. John	June 18 - September 5

SFA 4 - NOTRE DAME BAY

Commercial Fishery

Waters	Opening/Closing Dates
All coastal waters from Cape St. John to Cape Freels	Closed

Recreational Fishery (Grilse only)

Individual quotas (Province-wide):

Season bag limit - 6 fish

Daily bag limit - 2 fish

Possession limit - 4 fish

Hook & release limit - 4 fish

Seasons

River	Opening/Closing Dates
All rivers running into the coastal waters between Cape St. John and Cape Freels with the exception of the following:	June 18 - September 5
Indian River, including Burnt Berry Brook	June 18 - August 28
Exploits River and its tributaries	June 18 - August 28

SFA 5 - BONAVISTA BAY

Commercial Fishery

Waters	Opening/Closing Dates
All coastal waters from Cape Freels to Cape Bonavista	Closed

Recreational Fishery (Grilse only)

Individual quotas (Province-wide):

Season bag limit - 6 fish

Daily bag limit - 2 fish

Possession limit - 4 fish

Hook & release limit - 4 fish

Seasons

River	Opening/Closing Dates
All rivers running into the coastal waters between Cape Freels and Cape Bonavista with the exception of the following:	June 18 - September 5
Terra Nova River	June 18 - August 28

SFA 6 - TRINITY BAY

Commercial Fishery

Waters	Opening/Closing Dates
All coastal waters from Cape Bonavista to Grates Point	Closed

Recreational Fishery (Grilse only)

Individual quotas (Province-wide):

Season bag limit - 6 fish

Daily bag limit - 2 fish

Possession limit - 4 fish

Hook & release limit - 4 fish

Seasons

River	Opening/Closing Dates
All rivers running into the coastal waters between Cape Bonavista and Grates Point	June 18 - September 5

SFA 7 - CONCEPTION BAY

Commercial Fishery

Waters	Opening/Closing Dates
All coastal waters from Grates Point to Cape St. Francis	Closed

Recreational Fishery (Grilse only)

Individual quotas (Province-wide):

Season bag limit - 6 fish

Daily bag limit - 2 fish

Possession limit - 4 fish

Hook & release limit - 4 fish

Seasons

River	Opening/Closing Dates
All rivers running into the coastal waters between Grates Point and Cape St. Francis	June 18 - September 5

SFA 8 - SOUTHERN SHORE

Commercial Fishery

Waters	Opening/Closing Dates
All coastal waters from Cape St. Francis to Cape Pine	Closed

Recreational Fishery (Grilse only)

Individual quotas (Province-wide):

Season bag limit - 6 fish

Daily bag limit - 2 fish

Possession limit - 4 fish

Hook & release limit - 4 fish

Seasons

River	Opening/Closing Dates
All rivers running into the coastal waters between Cape St. Francis and Cape Pine	June 18 - September 5

SFA 9 - SOUTHERN SHORE

Commercial Fishery

Waters	Opening/Closing Dates
All coastal waters from Cape Pine to Cape St. Mary's	Closed

Recreational Fishery (Grilse only)

Individual quotas (Province-wide):

Season bag limit - 6 fish

Daily bag limit - 2 fish

Possession limit - 4 fish

Hook & release limit - 4 fish

Seasons

River	Opening/Closing Dates
All rivers running into the coastal waters between Cape Pine and Cape St. Mary's with the exception of the following:	June 18 - September 5
Colinet River	Closed
Rocky River	Closed

SFA 10 - PLACENTIA BAY

Commercial Fishery

Waters	Opening/Closing Dates
All coastal waters from Cape St. Mary's to Point Crewe	Closed

Recreational Fishery (Grilse only)

Individual quotas (Province-wide):

Season bag limit - 6 fish

Daily bag limit - 2 fish

Possession limit - 4 fish

Hook & release limit - 4 fish

Seasons

River	Opening/Closing Dates
All rivers running into the coastal waters between Cape St. Mary's and Point Crewe with the exception of the following:	June 18 - September 5
Northeast River, Placentia	June 18 - August 28
Southeast River, Placentia	June 18 - August 28
Tides Brook including Main Brook and Shearstick	June 18 - August 28

SFA 11 - SOUTH COAST

Commercial Fishery

Waters	Opening/Closing Dates
All coastal waters from Point Crewe to Fox Point, Burgeo	Closed

Recreational Fishery (Grilse only)

Individual quotas (Province-wide):

Season bag limit - 6 fish

Daily bag limit - 2 fish

Possession limit - 4 fish

Hook & release limit - 4 fish

Seasons

River	Opening/Closing Dates
All rivers running into the coastal waters between Point Crewe and Fox Point, Burgeo with the exception of the following:	June 18 - September 5
Cinq Cerf River	Closed
Garnish River	June 18 - August 28

SFA 12 - SOUTHWESTERN NEWFOUNDLAND

Commercial Fishery

Waters	Opening/Closing Dates
All coastal waters from Fox Point, Burgeo to Cape Ray	Closed

Recreational Fishery (Grilse only)

Individual quotas (Province-wide):

Season bag limit - 6 fish

Daily bag limit - 2 fish

Possession limit - 4 fish

Hook & release limit - 4 fish

Seasons

River	Opening/Closing Dates
All rivers running into the coastal waters between Fox Point, Burgeo and Cape Ray	June 4 - September 5

SFA 13 - WESTERN NEWFOUNDLAND

Commercial Fishery

Waters	Opening/Closing Dates
All coastal waters from Cape Ray to Cape St. Gregory	Closed

Recreational Fishery (Grilse only)

River quotas:

Barachois River - 175 fish

Fischell's Brook - 200 fish

Flat Bay Brook - 250 fish

Fox Island River - 50 fish

Harry's River (Lower & Middle) - 350 fish

Humber River (Adies Lake) - 100 fish

Serpentine River (Lower) - 150 fish

Individual quotas (Province-wide):

Season bag limit - 6 fish

Daily bag limit - 2 fish

Possession limit - 4 fish

Hook & release limit - 4 fish

Seasons

River	Opening/Closing Dates
All rivers running into the coastal waters between Cape Ray and Cape St. Gregory with the exception of the following:	June 4 - September 5
Cook's Brook	Closed
Goose Arm River	June 11 - September 5
Harry's River	June 11 - September 5

River	Opening/Closing Dates
Highlands River	Closed
Hughes Brook	Closed
Humber River (Adies Lake)	June 4 - July 31
Little Barachois Brook	June 11 - September 5
Little Codroy River	June 11 - September 5
North Brook (tributary to Deer Lake on Humber River)	Closed

SFA 14A - NORTHWESTERN NEWFOUNDLAND

Commercial Fishery

Waters	Opening/Closing Dates
All coastal waters from Cape St. Gregory to Cape Bauld	Closed

Recreational Fishery (Grilse only)

River quotas:

Lomond River - 350 fish

Pincent's Brook - 10 fish

Watson's Brook - 50 fish

Individual quotas (Province-wide):

Season bag limit - 6 fish

Daily bag limit - 2 fish

Possession limit - 4 fish

Hook & release limit - 4 fish

Seasons

River	Opening/Closing Dates
All rivers running into the coastal waters between Cape St. Gregory and Cape Bauld with the exception of the following:	June 11 - September 5
Bound Brook	Closed
Parker River	July 23 - September 5
St. Genevieve River	June 4 - September 5
Ten Mile Feeder Brook (tributary to Upper St. Genevieve River)	Closed
Torrent River	After 1,000 salmon through fishway - September 5

River	Opening/Closing Dates
West River, St. Barbe	Closed
Western Brook	Closed

SFA 14B - SOUTHERN LABRADOR

Commercial Fishery

Quota - 8t

Waters	Opening/Closing Dates
All coastal waters from Point Charles to Cape St. Charles	June 6 - October 15

Recreational Fishery

Individual quotas (Province-wide):

Season bag limit - 6 fish, of which only 2 may be large

Daily bag limit - 2 fish

Possession limit - 4 fish

Hook & release limit - 4 fish

Seasons

River	Opening/Closing Dates
All rivers running into the coastal waters between Point Charles and Cape St. Charles	June 4 - September 11

SFA 15 - CHALEUR DRAINAGE (New Brunswick)

Commercial Fishery

The commercial salmon fishery remains closed in the New Brunswick portion of the Restigouche River system. There is no commercial fishing in the Quebec portion of this watershed.

By-catch

Further to imposing the restriction of no salmon by-catch throughout the Atlantic, regulations to eliminate by-catch in non-salmon commercial gear will apply in the Chaleur Drainage (SFA 15):

a) No person shall set or use any gillnet in those waters of the Chaleur Bay that are closed to gillnetting of any kind between June 8 to December 31 in any year.

b) Groundfish gillnets bait permits will be issued for 1994 in the waters of Bay of Chaleur, on a controlled basis only.

Recreational Fishery (Grilse Only)

Individual quotas (Province-wide):

Season bag limit - 8 fish

Daily bag limit - 2 fish

Possession limit - 8 fish

Hook and release - 4 fish

Seasons

Black Salmon

River	Opening/Closing Dates
All waters of the Province flowing into SFA 15 with the following exception:	April 15 - May 15
Restigouche River	Closed
Nepisiguit River	Closed

Bright Salmon

River	Opening/Closing Dates
SFA 15 and all waters of the Province flowing into that SFA, except the following:	June 1 - October 15
Eel River	June 1 - October 31
Nepisiguit River	June 1 - October 7
Restigouche River	June 1 - August 31
Kedgwick River	June 1 - August 31
Patapedia River	June 1 - August 31
Upsalquitch River	June 1 - August 31
Little Main Restigouche River	June 1 - August 31
Charlo River	June 1 - October 31
Benjamin River	June 1 - October 31
Jacquet River from and including half-way Pool downstream	June 1 - October 31
Nigadoo River	June 1 - October 31
Tetagouche River	June 1 - October 31
Middle River	June 1 - October 31
Caraquet River	June 1 - October 31
Tracadie River below the confluence of Lord and Foy Brook	June 1 - October 31

SFA 16 - MIRAMICHI DRAINAGE (NEW BRUNSWICK)

Commercial Fishery

The commercial salmon fishery remains closed.

By-catch

General measures to eliminate Atlantic salmon by-catch in non-salmon commercial gear will apply. The following measures will also apply in SFA 16:

a) An area closure to groundfish gillnetting will apply to Canadian fisheries waters off the coast of New Brunswick west of a line beginning at Pointe à Barreau, Northumberland County, at 47°26'00"N latitude, 64°53'01"W longitude, thence to a point at 47°04'24"N latitude, 64°21'45"W longitude, thence to a point on the shoreline of Kent County at 47°00'48"N latitude, 64°49'40" longitude.

b) An area closure to gillnetting of any kind will apply to those waters of the Miramichi Bay lying to the west of a line drawn from the lighthouse on Escuminac Point to a point at Pointe à Barreau at latitude 47°26'00"N and longitude 64°53'12"W.

c) Groundfish gillnet bait permits will not be issued in 1994 for a bait fishery in the waters of the Miramichi Bay.

Recreational Fishery (Grilse Only)

Individual quotas (Province-wide):

Season bag limit - 8 fish

Daily bag limit - 2 fish

Possession limit - 8 fish

Hook and release - 4 fish

Seasons

Black Salmon

River	Opening/Closing Dates
Miramichi River	April 15 - May 15

Bright Salmon

River	Opening/Closing Dates
SFA 16 and all waters of the Province flowing into that SFA, except the following:	June 8 - October 15
Dungarvon River (and tributaries) above the Furlong Bridge	June 8 - September 15
Little Southwest Miramichi (and tributaries) above Catamaran Brook	June 8 - September 15
Main Southwest Miramichi from the mouth of Burnt Land Brook upstream to the fork of the North and South Branches	June 8 - September 30
Renous River (and tributaries) above the Forks	June 8 - September 15
Rocky Brook, Southwest Miramichi	June 8 - August 31
Big Sevogle River above Square Forks	June 8 - September 15
Tributaries of main Southwest Miramichi above Cains River, except Rocky Brook	June 8 - September 15
North and South Branches of Main Southwest Miramichi River	June 8 - September 15
Northwest Miramichi River including tributaries, upstream of Little River	June 8 - August 31
Tabusintac River	June 1 - October 31

SFA 17 - PRINCE EDWARD ISLAND

Commercial Fishery

The commercial salmon fishery remains closed.

Recreational Fishery (Grilse only)

Individual quotas (Province-wide):

Season bag limit - 7 fish

Daily bag limit - 1 fish

Possession limit - 2 fish

Hook and release - 2 fish

Seasons

River	Opening/Closing Dates
All PEI rivers with the exception of the following:	June 15 - September 15
Morell River, except for Lairds Pond	June 1 - November 30
Lairds Pond	September 16 - November 30

SFA 18 - NORTHUMBERLAND

Commercial Fishery

The commercial salmon fishery remains closed.

Recreational Fishery (Grilse only)

Individual quotas (Province-wide):

Season bag limit - 8 fish

Daily bag limit - 2 fish

Possession limit - 8 fish

Hook and release - 4 fish

Seasons

River	Opening/Closing Dates
All waters of the SFA 18, with the exception of the following:	September 1 - October 31
Northeast Margaree River, not including tributaries, downstream from the Cranton Bridge to the Highway Bridges at East Margaree	June 1 - October 15
Southwest Margaree River, not including tributaries, downstream from the Scottsville Highway Bridge to the main Margaree River	June 1 - October 15
Northeast Margaree River and tributaries (upstream from the Big Intervale Bridges)	Closed

SFA 19 - CAPE BRETON EAST

Commercial Fishery

The commercial salmon fishery remains closed.

Recreational Fishery (Hook and Release only)

Individual daily limit for hook and release - 4 fish

A decision on whether grilse may be retained will depend on counts carried out in certain index rivers.

Seasons

Rivers	Opening/Closing Dates
All the waters of any rivers and tributaries which flow into the Atlantic Ocean bounded by Cape Breton and Richmond Counties and that portion of Victoria County south of cape North, with the exception of the following:	June 1 - October 25
Catalone River	June 1 - September 30
Framboise River	June 1 - September 30
Gaspereau River	June 1 - September 30
Gerratt Brook	June 1 - September 30
Grand River	June 1 - September 30
Lorraine Brook	June 1 - September 30
Marie Joseph River	June 1 - September 30
Mira River	June 1 - September 30
North River, upstream from The Benches	Closed
Salmon River	June 1 - September 30

SFA 20 - EASTERN SHORE

Commercial Fishery

The commercial salmon fishery remains closed.

Recreational Fishery (Grilse only)

Individual quotas (Province-wide):

Season bag limit - 8 fish

Daily bag limit - 2 fish

Possession Limit - 8 fish

Hook and release - 4 fish

Seasons

River	Opening/Closing Dates
All waters of SFA 20 with the exception of the following:	June 1 - August 29
All rivers and tributaries thereof that flow into that portion of Chedabucto Bay bounded by Guysborough County	June 24 - September 22
Country Harbour River	June 24 - September 22
St. Mary's River	June 1 - September 15

SFA 21 - SOUTHWEST NOVA SCOTIA

Commercial Fishery

The commercial salmon fishery remains closed.

Recreational Fishery (Grilse only)

Individual quotas (Province-wide):

Season bag limit - 8 fish

Daily bag limit - 2 fish

Possession limit - 8 fish

Hook and release - 4 fish

Seasons

Rivers	Opening/Closing Dates
All the waters of the rivers and tributaries which flow into that portion of the Atlantic Ocean bounded by Lunenburg, Queens, Shelburne, Yarmouth and Digby Counties and that portion of Halifax County west of the city of Halifax with the following exceptions:	May 10 - August 15
Clyde River	May 10 - September 30
Ingram River	June 1 - August 15
Lahave River, upstream from Morgan Falls Falls except between the bridge on Lower Branch Road (Varner's Bridge #2) in New Germany and Cherryfield Bridge at Cherryfield	Closed
Medway River	May 10 - July 31
Mersey River, downstream from Cowie Falls	September 1 - September 30
Meteghan River	August 1 - September 30
Petite Rivière	June 15 - August 15
Salmon River	June 1 - August 15
Tusket River	June 1 - August 15

SFA 22 - UPPER BAY OF FUNDY

Commercial Fishery

The commercial salmon fishery remains closed.

Recreational Fishery (Grilse only)

Individual quotas (Province-wide):

Season bay limit - 8 fish

Daily bag limit - 2 fish

Possession limit - 8 fish

Hook and release - 4 fish

Seasons

Rivers	Opening/Closing Dates
All the waters of any rivers and tributaries which flow into that portion of the Bay of Fundy bounded by Annapolis, Kings, Hants, Colchester and Cumberland Counties with the following exceptions:	Closed, season opening will depend on counts on index rivers and after consultations with users
Annapolis River	May 10 - August 15
Bear River	August 15 - October 31
Cornwallis River	August 15 - October 31
Gaspereau River	May 15 - August 15
Lequille River	August 15 - October 31
Nictaux River	August 15 - October 31
Paradise River	August 15 - October 31
Round Hill River	August 15 - October 31

PART OF SFAs 23 AND 16 - SOUTH-EAST NEW BRUNSWICK DRAINAGE

This drainage includes waters tributary to Northumberland Strait in New Brunswick, South of Point Escuminac (in SFA 16) and waters tributary to the inner Bay of Fundy including and east of the Mispec River, New Brunswick (in SFA 23).

Commercial Fishery

The commercial salmon fishery remains closed.

Recreational Fishery (Grilse only)

Individual quotas (Province-wide):

Season bag limit - 8 fish

Daily bag limit - 2 fish

Possession limit - 8 fish

Hook and release - 4 fish

Seasons

Black Salmon

The season opens on April 15 and closes on May 15 for waters tributary to Northumberland Strait. The season is closed for water tributary to the Bay of Fundy.

Bright Salmon

River	Opening/Closing Dates
Waters tributary to Northumberland Strait	June 8 - October 31
Waters tributary to the Bay of Fundy	June 1 - October 15
Exceptions:	
Black River	Closed
Big Salmon River	Closed
Petitcodiac River	Closed
Pointe Wolfe River	Closed

River	Opening/Closing Dates
Pollett River	Closed
Upper Salmon River (Alma River)	Closed
Shepody River	Closed
Little River, Saint John County	Closed

SFA 23 - CENTRAL AND SOUTH-WEST NEW BRUNSWICK DRAINAGE

This drainage includes waters of SFA 23 tributary to the Bay of Fundy including the Saint John River downstream of the Mactaquac Headpond, and west of the Saint John River to the St. Croix River.

Commercial Fishery

The commercial salmon fishery remains closed.

Recreational Fishery (Hook and Release only)

Individual daily limit for hook and release - 4 fish

Seasons

River	Opening/Closing Dates
Waters tributary to the Bay of Fundy with the following exceptions:	July 15 - (to be reviewed Aug. 1)
Kennebecasis River, upstream from and including Trout Creek	July 15 - September 15
Kennebecasis River, downstream from Halfway Brook	July 15 - October 31
St. Croix River	July 15 - September 15
Nashwaak River, upstream from Stanley Bridge	July 15 - September 30
Hammond River, downstream from Bradley Brook	July 15 - October 31

SFA 23 - UPPER ST. JOHN, NEW BRUNSWICK DRAINAGE

This drainage includes water of SFA 23 tributary to the Saint John River, upstream of the Mactaquac Headpond.

Recreational Fishery (Hook and Release only)

Individual daily limit for hook and release - 4 fish

Seasons

River	Opening/Closing Dates
General season	July 15 - (to be reviewed on August 1)
Exceptions:	
Tobique River	July 15 - September 15
St. John River and tributaries upstream from the Grafton Bridge at Woodstock	July 15 - September 30

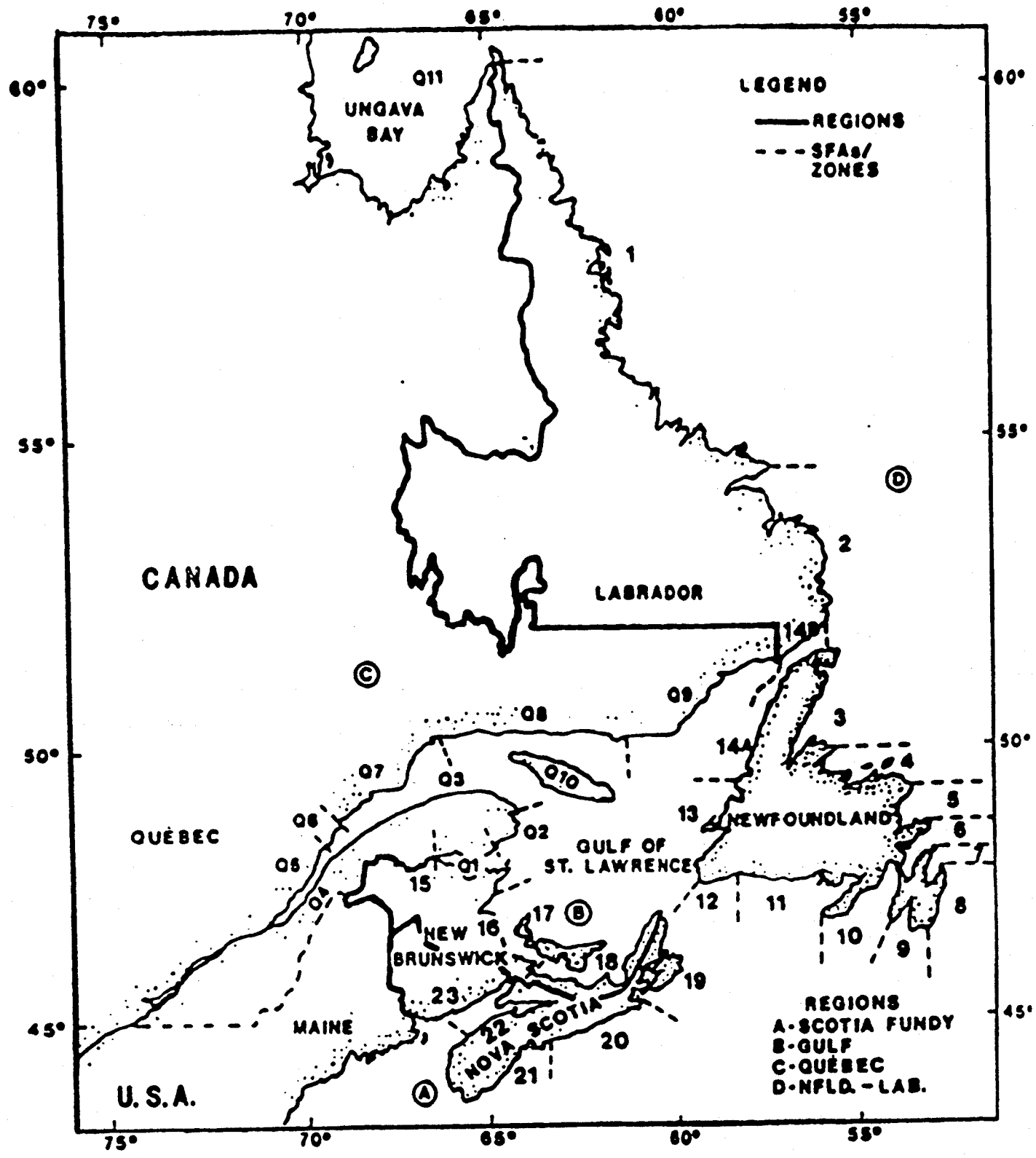
APPENDIX 1

SALMON FISHING AREAS (SFA)

SFA			PROVINCE	REGION
1	-	Cape Chidley to Fish Cove Point	Newfoundland	Newfoundland
2	-	Fish Cove Point to Table Head, St. Peter's Bay	Newfoundland	Newfoundland
3	-	Cape Bauld to Cape St. John	Newfoundland	Newfoundland
4	-	Cape St. John to Cape Freels	Newfoundland	Newfoundland
5	-	Cape Freels to Cape Bonavista	Newfoundland	Newfoundland
6	-	Cape Bonavista to Grates Point	Newfoundland	Newfoundland
7	-	Grates Point to Cape St. Francis	Newfoundland	Newfoundland
8	-	Cape St. Francis to Cape Pine	Newfoundland	Newfoundland
9	-	Cape Pine to Cape St. Mary's	Newfoundland	Newfoundland
10	-	Cape St. Mary's to Point Crewe	Newfoundland	Newfoundland
11	-	Point Crewe to Fox Point, Burgeo	Newfoundland	Newfoundland
12	-	Fox Point, Burgeo to Cape Ray	Newfoundland	Newfoundland
13	-	Cape Ray to Cape St. Gregory	Newfoundland	Newfoundland
14A	-	Cape St. Gregory to Cape Bauld	Newfoundland	Newfoundland
14B	-	Point Charles to Cape St. Charles	Newfoundland	Newfoundland
15	-	Restigouche	New Brunswick	Gulf
16	-	Miramichi	New Brunswick	Gulf
17	-	P.E.I.	P.E.I.	Gulf
18	-	Northumberland	Nova Scotia	Gulf
19	-	Cape Breton East	Nova Scotia	Scotia-Fundy
20	-	Eastern Shore	Nova Scotia	Scotia-Fundy
21	-	Southwest Nova Scotia	Nova Scotia	Scotia-Fundy
22	-	Upper Bay of Fundy	Nova Scotia	Scotia-Fundy
23	-	Saint-John	New Brunswick	Scotia-Fundy

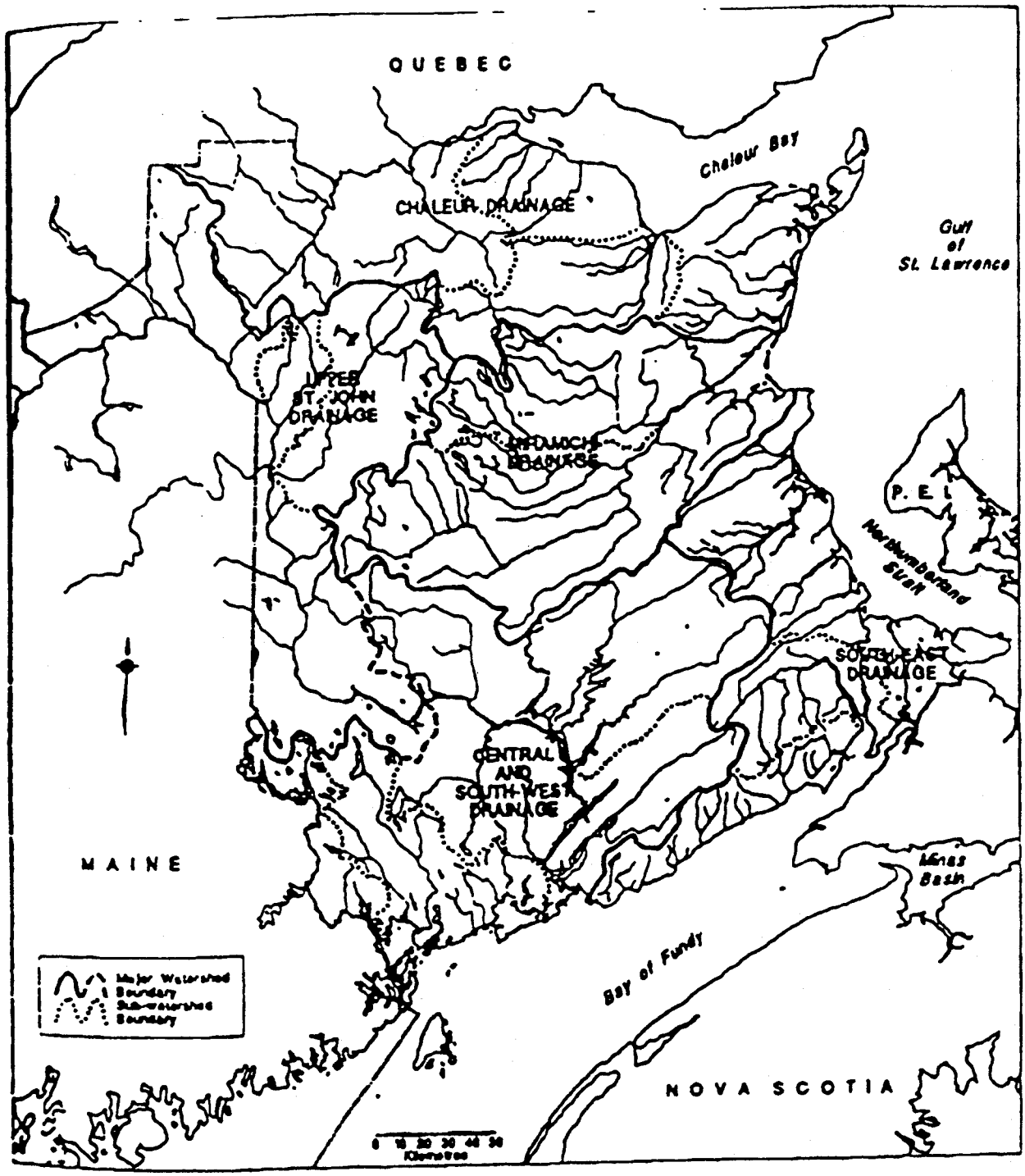
APPENDIX 2

MAP SHOWING SALMON FISHING AREAS



APPENDIX 3

MAP OF NEW BRUNSWICK WATERSHED MANAGEMENT REGIME



ANNEX 5

NORTH AMERICAN COMMISSION

NAC(94)4

SALMON FISHERIES ON ST PIERRE ET MIQUELON

1. At its Seventh Annual Meeting the Commission requested the Secretary to pursue efforts to obtain information about the salmon fisheries on St Pierre et Miquelon. In accordance with this request I contacted the Ministère de l'Agriculture et de la Pêche in Paris with a view to obtaining information on the salmon fisheries according to the format agreed by the North Atlantic Salmon Working Group (CM1988/Assess:16 and CM1988/M:4).

2. I have now received provisional catch data for 1993. The official time series of information as provided by the Ministère de l'Agriculture et de la Pêche is therefore as follows:

	Number	Weight (Tonnes)
1987	442	0.984
1988	813	2.084
1989	971	2.590
1990	884	1.889
1991	573	1.132
1992	1049	2.319
1993	1439	2.943

3. The provisional catch for 1993 is the highest recorded in the time series since 1987, both in terms of number caught and weight. 37% more salmon were caught in 1993 than in 1992. The breakdown of the catch was 945 salmon (1902.2kg) in the commercial fisheries and 494 salmon (1041kg) in the recreational fisheries.

ANNEX 6

NORTH AMERICAN COMMISSION

NAC(94)7

REPORT OF ACTIVITIES 1993/94

NAC SCIENTIFIC WORKING GROUP ON SALMONID INTRODUCTIONS AND TRANSFERS

NAC(94)7

REPORT OF ACTIVITIES 1993/1994 NAC SCIENTIFIC WORKING GROUP ON SALMONID INTRODUCTIONS AND TRANSFERS

Members:

Rex Porter (Canada Co-chair)	Arthur Neill (USA Co-chair)
Tim Carey (Canada)	Chris Mantzaris (USA)
Dick Cutting (Canada)	Dan Kimball (USA)

The Scientific Working Group dealt mainly with three issues at a meeting on May 3-4, 1994, in Halifax, NS. The three subjects were: 1) review of the updated Inventory of the Introductions and Transfers in the NAC Area; 2) review of the implementation of the 1992 NASCO Protocols on the Introductions and Transfers of Salmonids; and 3) the need for amendments to the Protocols.

1) INVENTORY OF INTRODUCTIONS AND TRANSFERS OF SALMONIDS IN THE COMMISSION AREA

Reports from the states and provinces on the 1993 salmonid introductions and transfers have been compiled and added to the inventory which was started in 1986 (attached). No reports were received from the State of Maine or from Connecticut. As in recent years, most of the introduction and transfer activity is for commercial aquaculture purposes, with fish movements for research and for support of recreational fishing making up the remainder.

The reports submitted by the various agencies were reviewed in relation to their adherence to the NAC Protocols. A few imports to eastern North America from west of the Continental Divide took place in 1993, but the sources were fish culture facilities with a long history of disease-free status. Thus, the imports meet the requirements of the protocols. The New Jersey State Aquarium continued to import rainbow trout eggs from its California source for rearing to feeding aquarium inventory fishes. The risk of disease transfer, without quarantining and waste line treatment, is reduced by continuing to use single clean source of eggs. From the information provided, there were three transfers and one introduction of salmonids in Canada which are contrary to the NAC Protocols. A shipment of 10,000 reproductively sterile (all-female triploid) rainbow trout was released into Spirity Pond in Zone I (west coast - NF). Although the outlet of Spirity Pond is screened, the protocols for Zone I require that fish be kept in a landbased facility. Three shipments of Saint John strain Atlantic salmon eggs (total 780,000 eggs) moved from the Bay of Fundy to Cape Breton Island, Nova Scotia; both donor and recipient sites are in Zone II, however, Bay of Fundy is not considered local to Cape Breton Island. These fish are reared in marine cages, contrary to the Protocols for Zone II which require that non-indigenous stocks be reproductively sterile if they are released or used in cage rearing operations.

One of the Working Group members reported that a New Zealand producer was currently seeking markets to export Atlantic salmon eggs to eastern Canada after

meeting with lack of interest for the British Columbia market. The New Zealand salmon strain is believed to have originated from the River Philip stock, Nova Scotia, about 1970. The Scientific Working Group advises against any transfers from New Zealand unless it can be demonstrated that the strain originated from the Northwest Atlantic. The Scientific Working Group advises against any transfers from New Zealand unless it can be demonstrated that the strain originated from the Northwest Atlantic.

2) PROGRESS ON THE IMPLEMENTATION OF THE NAC PROTOCOLS

USA

The United States intends to implement the NAC Protocols for the Introduction and Transfer of Salmonids in 1994. A preliminary meeting was held in January (1994) with representatives of the State of Maine, US Fish and Wildlife Service, National Marine Fisheries Service, and the Maine aquaculture industry to discuss the Protocols in general, but, more specifically, the implications of the proposed NASCO "Agreement" to minimize the impacts from salmon aquaculture on wild salmon stocks.

In March (1994), the Head of the US Delegation to NASCO, Allen E. Peterson, Jr., solicited suggested amendments to the Protocols from the New England and Federal Fisheries regulatory agencies and the industry. Comments were received from the State of Connecticut, US Fish and Wildlife Service, and industry.

The United States is now investigating the most appropriate authorizing mechanism in which to promulgate the NAC Protocols into the regulatory process. Several authorities have been identified but most have inherent complications and/or limitations. However, the USA anticipates having the Protocols submitted into the Federal Register and public hearings commenced by early fall, 1994.

CANADA

Canada initiated the implementation of the Protocols in June 1993. Regulations were already in place to deal with most of the Protocols. However, the full implementation of the protocols would have resulted in the elimination of aquaculture of Atlantic salmon from some areas of Zone II, in which a non-local or nearby stock was being reared in marine cages. Also, existing enterprises in Zones I and II are rearing Arctic charr, and reproductively sterile rainbow trout in cages and in fish-out ponds in Zone I which are contraventions of the Protocols. Rather than close down this developing industry, Canada has been looking at mechanisms whereby safeguards could be put in place to meet the intent of the Protocols for the Zones in question; i.e., low risk of interactions of cultured fish with wild stocks. Protocols for establishment, restoration and/or rehabilitation of salmon populations have been implemented. Canada has asked for comments on possible amendments to the Protocols, as discussed below.

3) REVIEW OF SUGGESTED AMENDMENTS TO THE NAC PROTOCOLS

The Heads of Delegations for USA and Canada forwarded to the Scientific Working Group a copy of the comments that they had received during their consultation process for amending the NAC Protocols. (These comments formed Attachments I and II to

this paper as circulated at the Eleventh Annual Meeting, and are available on request from the NASCO Secretariat). Both Parties indicated that additional comments or suggested amendments are expected, and that specific proposals for amendments may be forthcoming at the NAC annual meeting in June.

Four written submissions from USA and eight from Canadian agencies or organizations were tabled at the meeting. Since these submissions were not distributed prior to the meeting, time was insufficient to conduct the necessary literature review and consultation for indepth evaluation. Nevertheless, the Working Group made comments/recommendations on each of the points raised in the submissions pertaining to the Protocols. This input is provided in the table below.

Many of the suggestions would result in a relaxation of the Protocols and create a higher risk of interaction of distant stocks with local stocks (non-indigenous stocks with indigenous). **The Working Group stresses the importance of maintaining the genetic diversity of individual stocks and that the inter-breeding of genetically different stocks may have negative effects on the local stock. The greater the genetic difference, the greater is the risk of negative effects. Although it is difficult to calculate genetic differences, it is generally accepted that genetic difference is correlated with geographic distance.** A recent book Salmon Aquaculture (Heen et al) has a chapter on the Genetic Effects of Aquaculture on Natural Salmonid Populations written by three geneticists (F. Utter, K. Hindar, N. Ryman). These authors basically stress the importance of the genetic diversity of local stocks, as did the Genetic Sub-group which advised on the NAC Protocols.

United States of America

SUGGESTIONS FOR AMENDMENT	COMMENTS/RECOMMENDATIONS BY SCIENTIFIC WORKING GROUP
State of Connecticut **Dept Env Prot, Bureau Nat Res,** **Fisheries Div**	
- Supports protocols	
- Requests some flexibility to permit the use of southern European salmon to be transferred to southern NAC Area for re-establishing stocks if suitable nearby stocks cannot be found.	- No change recommended to Protocol 3.1(1) which prohibits European origin salmon to be released or used in aquaculture in the NAC Area. No available scientific evidence supports changing this prohibition
US Dept of the Interior Fish and Wildlife Service	
- Suggested a number of changes to the Fish Health aspects of the Protocols.	- It is recommended that the Fish Health Sub-group be recalled to review these suggestions, particularly in light of the current reviews which are being undertaken of the Canadian Fish Health Protection Regulations (FHPR) and the New England Fish Health Guidelines and the amendments to the US Title 50.
- Modify Page 55 Sect 2.2.2(c) Rehabilitation or Enhancement: "However, in situations where there is significant vacant or greatly under-utilized habitat, the preferred alternative is to stock eggs or fry from parent stock taken from the same population to take advantage of the rivers selective pressures. (Parr not recommended)".	- Recommend that this amendment be accepted and added to the end of paragraph (c) of Section 2.2.2 of Part III (p.55).
- Modify Page 55, Sect 2.2.3 to include "Every effort should be made to seek and add any new information specific to the impact of Atlantic salmon aquaculture on wild stocks."	- Recommend rewording para 1, Sect 2.2.3, of Part III, P.55, beginning at the second sentence to: "Some data for salmonids show negative impact of introductions of non-indigenous stocks on native stocks. Every effort should be made to seek and add new information specific to the impact of Atlantic salmon aquaculture on wild stocks. Captive salmon ..... considered".

SUGGESTIONS FOR AMENDMENT	COMMENTS/RECOMMENDATIONS BY SCIENTIFIC WORKING GROUP
US Dept of the Interior Fish and Wildlife Service - (Cont'd)	
- Suggests a list of prioritized options for selection of broodstock for restoration and rehabilitation; also identify those not acceptable.	- Deferred to the Genetics Sub-group.
- Recommend definitions be moved from P.21 to Introduction. Add definition of "wild".	- Agreed there should be one set of definitions for the entire Protocols and a more comprehensive list with consistent terminology throughout Protocols. Modification and unification should be done when amendments are completed and protocols are redrafted.
- P.58 Add a new research need "Develop a practical non-lethal means to distinguishing adults originating from natural reproduction and those originating from fry plants".	- This research need could be added to an amended document.
Maine Aquaculture Association	
- Disagrees with placing the 7 "down east rivers on the list of endangered species".	- This issue is not a NAC issue.
- Referred to the Protocols as having "0" tolerance for 'restricted diseases'.	- These comments seem to be directed primarily at the New England Disease regulations. In the Protocols, some flexibility is provided for 'restricted diseases' in Sect 5.1.1 (c) of Part II, p.23. The Fish Health Sub-group should review the fish health issues including these concerns.
- Request to continue to use the same genetic material that is already in use.	- No change is recommended to Protocol 3.1(1)p.6, which prohibits the use of reproductively viable strains of Atlantic salmon of European-origin, including Icelandic-origin in aquaculture or to be released.

SUGGESTIONS FOR AMENDMENT	COMMENTS/RECOMMENDATIONS BY SCIENTIFIC WORKING GROUP
Connors Aquaculture Inc. - Raises several fish health concerns and does not support the NAC Protocols.	- These concerns should be addressed by the Fish Health Sub-group. It would be desirable for Fish Health experts from industry to participate in the Fish Health Sub-group discussion.

Canada

SUGGESTIONS FOR AMENDMENT	COMMENTS/RECOMMENDATIONS BY SCIENTIFIC WORKING GROUP
Province of Ontario (A Dextrase)	
- Supports the Objectives of the Protocols. No amendments required.	- No comments required
Nova Scotia Fin Fish Farmers Assoc	
- Fish should be allowed to be transferred between watersheds of like disease status, irrespective of provincial or federal borders.	- Protocol 3.1(3), Page 6, should be made consistent with Protocol 5.1.1(c) of Part II; whereby, the protocols would permit movement of fishes between facilities and/or the same disease spectra. However, these transfers must comply with nation/state/province regulations and policies.
- Within Zone II, rainbow trout, brown trout, Arctic charr, striped bass, domestic Atlantic salmon and other species should not be considered non-indigenous until after it is proven that potential adverse impacts of their introduction significantly outweighs the economic benefit of their use in aquaculture.	Rainbow trout - Studies already demonstrate negative ecological interaction with Atlantic salmon. Arctic charr - Empirical data suggest that there would be no negative interaction between Arctic charr and wild Atlantic salmon. However, there may be adverse ecological effects on indigenous populations of Arctic charr and brook trout. It is recommended that the Protocols for Zone II be modified to permit the use of reproductively viable Arctic charr in cage rearing.

SUGGESTIONS FOR AMENDMENT	COMMENTS/RECOMMENDATIONS BY SCIENTIFIC WORKING GROUP
Nova Scotia Fin Fish Farmers Assoc - (Cont'd)	Striped bass - The NAC Protocols specifically deals with the introduction and transfer of salmonid species. However, there is evidence that striped bass are predators on salmon smolts in some estuaries. It is recommended that there be no change in the definition on non-indigenous. The Working Group considers the risk of adverse effects from the use of non-indigenous stocks or species, on wild Atlantic salmon stocks to be real; and that the Protocols not be changed unless there is competent scientific evidence to indicate that there is minimal risk of negative impacts on wild Atlantic salmon.
New Brunswick Salmon Growers Assoc - Request to modify Protocol 3.3.4 (1) so that reproductively viable non-indigenous stocks can be used in marine cage culture in Zone II.	- No available scientific information warrants changing this protocol at this time.
Atlantic Salmon Federation - Recommends that no change be made to the provisions which require non-indigenous salmon, for enhancement or aquaculture, to be reproductively sterile.	- The Working Group agrees

SUGGESTIONS FOR AMENDMENT	COMMENTS/RECOMMENDATIONS BY SCIENTIFIC WORKING GROUP
DFO - Scotia Fundy Region (B Cook) - In many cases, there is very little scientific evidence to support the provisions (in the Protocols), e.g., the 30-km exclusion of aquaculture in estuaries (Zone I). Also, Maine has introduced "Landcatch" Norwegian strain salmon in Zone II.	- The provisions in the Protocols were developed primarily from Fish Health and Genetics experts who reviewed the available literature and derived provisions to protect the wild stocks. Some of the provisions, such as the 30-km exclusion area in Zone I, were arbitrarily established to provide a safety margin to minimize the risk to salmon stocks, a provision similar to the one in use in Norway. The Working Group would entertain proposals, with justification, to revise this distance. - The criteria for aquaculture in each Zone will re-evaluated when the Working Group addresses the consistency of the Protocols and the proposed 'NASCO Agreement' to minimize the Impacts for salmon Aquaculture on wild Atlantic salmon stocks'.

SUGGESTIONS FOR AMENDMENT	COMMENTS /RECOMMENDATIONS BY SCIENTIFIC WORKING GROUP
Governement du Québec **Ministère de l'Environnement et de la Faune**	
- Expressed concern with the requirement to have three health inspections in a two-year period prior to transfer.	- The number of health inspections will be reviewed by the Fish Health Sub-group.
- Concerned with provisions of Section 3.1(5d); which requires that the number of broodstock for hatchery rearing programs be no less than 100 parents.	- The requirement for an effective number of spawners is a desirable hatchery practice which should be maintained for stocking purposes. Use of a smaller number of parents from a limited gene pool results in significant inbreeding which will result in loss of fitness. No change in the Protocol is recommended.
- Request to re-zone the Anticosti Island and North Shore of the St. Lawrence from Zone I to Zone II to accommodate stocking programs.	- The intent of the protocols for Zone I is to give the greatest protection possible to salmon stocks which are in pristine condition. Rezoning of all the rivers from Zone I to Zone II increases the risk of adverse effects from enhancement and aquaculture activities. Rather than rezoning the entire Zone I to Zone II, it would be preferable to identify those rivers which would be down-graded to Class II, as provided for under the final paragraph of Section 1 on Page 21 of the Summary document (French version).

SUGGESTIONS FOR AMENDMENT	COMMENTS /RECOMMENDATIONS BY SCIENTIFIC WORKING GROUP
Province of Newfoundland and Labrador (correspondence dated December 21, 1993)	
- Protocols are too restrictive and are impeding the development of aquaculture in Bay d'Espoir region and on the west coast of Newfoundland. The Province wishes to use reproductively viable Saint John River strain Atlantic salmon in Bay d'Espoir.	- There is no new scientific information available to revise the Protocol to permit a distant stock to be used in cage rearing operations in Zone II. Some recommended amendments to Protocols for Zone I and rezoning parts of west coast of NF are discussed below.
DFO - Newfoundland Region	
- Request that cage rearing of Arctic charr and brook trout be permitted in Zone I.	- The Working Group supports this change. Empirical data suggest that there would be no negative interaction of Arctic charr or brook trout on wild Atlantic salmon. However, there may be adverse ecological effects on indigenous populations of Arctic charr and brook trout.
- Request to rezone a part of west coast NF from Zone I to Zone II.	- The Working Group supports this approach; whereby, the major salmon rivers are kept within Zone I.
- Request to permit use of, in Zone I, reproductively viable brook trout and Arctic charr and reproductively sterile rainbow trout and Atlantic salmon in fish-out ponds that have adequate safeguards such that the risk of fish escaping is low (e.g., triple screening of outlet and inlet streams).	- The Working Group agreed that such cases could be treated as land-based facilities.

SUGGESTIONS FOR AMENDMENT	COMMENTS /RECOMMENDATIONS BY SCIENTIFIC WORKING GROUP
DFO - Newfoundland Region (Cont'd.)	
- Request modifying Zone I Protocols to permit the stocking of unfed fry as an appropriate management option to restore salmon stocks when the spawning population is at low levels, and stock restoration by adjusting fishing mortality is not practical.	- It is recommended that there be no change to the protocols for restoration of a salmon stock in Zone I rivers. If a stock is threatened because of low stock size and stocking is required, then the classification of the river should be changed to Class II.
- NF Region wishes to support the development of salmon aquaculture in Bay d'Espoir (Zone II); however, no local or nearby stock with suitable growth performance has been found. The Region proposes to allow continued use of Saint John R strain. Reasonable measures would be developed, in consultation with industry and the Province, to reduce the chances of the farmed salmon interbreeding with wild stocks. In addition, the Region proposes to continue with a broodstock development program.	- The issue of the use of non-local stocks in Bay d'Espoir will be addressed during the upcoming review of amendments to the Protocols. The Working Group would consider proposals outlining safeguards which would minimize the risk of adverse effects on wild stocks from escapes from aquaculture operations which use distant stocks. The proposed safeguards must meet the intent of Zone II Protocols.

Three additional issues were raised in the correspondence from the head of the Canadian delegation. These are:

A. Do the Protocols reflect the NASCO Working Group Agreement?

It is the understanding of the Scientific Working Group that the proposed NASCO Agreement would require each party to develop legislation and policies that conform to the principles of the Agreement. The NAC Protocols reflect and are consistent with the Agreement.

B. Can the Scientific Working Group be expanded to include aquaculturists?

The Working Group recommends that only government (Federal, Provincial, or State) representatives with scientific expertise be appointed to the Scientific Working Group. Non-government expertise has and should continue to participate in the Sub-groups/discussions.

C. What are the "significant issues re - salmon aquaculture and how can they be mitigated?

The primary issues relate to the use of non-indigenous stocks and transfer of disease pathogens. Mitigation is possible by the use of reproductively sterile salmon,

development of local broodstocks, effective containment, recovery of escapees, and disease control.

Recommendations:

1. It is recommended that the amendments identified above which are supported by the Scientific Working Group be adopted, thereby allowing some activities to be conducted without contravening the Protocols.

2. It is recommended that the Scientific Working Group re-draft the Protocols taking into consideration:

   i) requests from the USA and Canada;

   ii) the most-up-to-date information available;

   ii) combining the Protocols from Parts I, II, III, and IV into one set of Protocols;

   iv) the necessity to remove inconsistency

   v) having one expanded Glossary with consistent terminology

   vi) Report of the NASCO Working Group on Impacts of Aquaculture

   vii) Any Agreement adopted by NASCO to minimize the impacts from salmon aquaculture on the wild salmon stocks.

It would be desirable for the Fish Health and Genetics Sub-groups to meet to provide input as required.

Reference

Utter F., K. Hindar and N. Ryman. Genetic effects of aquaculture on natural salmonid populations. In Salmon Aquaculture edited by K. Heen, R.L. Monahan, and F. Utter. pp 144-165.

SUMMARY OF SALMONID INTRODUCTIONS AND TRANSFERS IN EASTERN NORTH AMERICA 1986-1993

PREPARED FOR THE:
NORTH AMERICAN COMMISSION (NASCO) SCIENTIFIC WORKING GROUP
ON INTRODUCTIONS AND TRANSFERS OF SALMONIDS
May 17, 1994

ABBREVIATIONS USED IN TABLES

COUNTRIES/PROVINCES/STATES

AK	ALASKA
AUS	AUSTRALIA
BC	BRITISH COLUMBIA
CAN	CANADA
CA	CALIFORNIA
CO	COLORADO
CT	CONNECTICUT
FIN	FINLAND
ICE	ICELAND
ID	IDAHO
IN	INDIANA
LAB	LABRADOR
ME	MAINE
MAN	MANITOBA
MA	MASSACHUSETTS
MI	MICHIGAN
MT	MONTANA
NB	NEW BRUNSWICK
NFLD	NEWFOUNDLAND
NH	NEW HAMPSHIRE
NJ	NEW JERSEY
NOR	NORWAY
NY	NEW YORK
NS	NOVA SCOTIA
ONT	ONTARIO
OR	OREGON
PA	PENNSYLVANIA
PEI	PRINCE EDWARD ISLAND
QUE	QUEBEC
RI	RHODE ISLAND
SASK	SASKATCHEWAN
SCO	SCOTLAND
SWE	SWEDEN
TN	TENNESSEE
US	UNITED STATES OF AMERICA
UT	UTAH
VT	VERMONT
WA	WASHINGTON
WV	WEST VIRGINIA
WY	WYOMING
YUK	YUKON

OTHER TERMS

AF	ATYPICAL FURUNCOLOSIS
ANAD	ANADROMOUS
ATL	ATLANTIC
AQC	AQUACULTURE
BOF	BAY OF FUNDY
BK	BROOK
BKD	BACTERIAL KIDNEY DISEASE
CK	CREEK
CM	CENTIMETRE(S)
CNTR	CENTRE
DOM	DOMESTIC
E EGGS	EYED EGGS
ENV	ENVIRONMENT
EXP	EXPERIMENTAL/RESEARCH
FCS	FISH CULTURE STATION
FF	FISH FARM
FING	FINGERLING(S)
G	GRAM
G EGGS	GREEN EGGS
H	HATCHERY
HARB	HARBOUR
IPN	INFECTIOUS PANCREATIC NECROSIS
IS	ISLAND
JUV	JUVENILE
LAB	LABORATORY
LK	LAKE
LL	LANDLOCKED
MA	MOTILE AEROMONAS
MO	MONTH
NW	NORTHWEST
P	PROPOSED
PS	PUBLIC STOCKING
P SMT	POST SMOLT
P/S	PARR/SMOLT TRANSITION
PYP	POST-YEARLING PARR
QUAR	QUARANTINE (FACILITY)
R	RIVER
RET	RETURN(ING)
SJR	SAINT JOHN RIVER
SKAM	SKAMANIA
S	SPRING(S)
SS	STEELHEAD STRAIN
STR	STRAIN
S/FRY	SAC FRY
S YEAR	SPRING YEARLING
TF	TROUT FARM
TR	TRIPLOID
U	UNIVERSITY
UNID	UNIDENTIFIED
UNK	UNKNOWN
UY PARR	UNDER-YEARLING PARR
W	WILD
WS	WATERSHED
YEAR	YEARLING
*	REVISION

ORGANIZATIONS

ASF	ATLANTIC SALMON FEDERATION
ASI	ATLANTIC SALMON (MAINE) INC
ASL	ATLANTIC SMOLTS LIMITED
ASRSC	ATLANTIC SEA-RUN SALMON COMMISSION
AVC	ATLANTIC VETERINARY COLLEGE
CDEP	CONNECTICUT DEPARTMENT OF ENVIRONMENTAL PROTECTION
DEC	DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DFO	DEPARTMENT OF FISHERIES AND OCEANS (CANADA)
EPS	ENVIRONMENTAL PROTECTION SERVICE (CANADA)
FMS	FUNDY MARINE SURVEYORS
GNPDC	GREAT NORTHERN PENINSULA DEVELOPMENT CORPORATION
IAS	INTEGRATED AQUATIC SYSTEMS LIMITED
HML	HUNTSMAN MARINE LABORATORY
MAPA	QUEBEC MINISTERE AGRICULTURE, PECHERIE, ALIMENTATION
MCN	MAINE COAST NORDIC
MDFW	MASSACHUSETTS DIVISION OF MARINE FISHERIES
MDMR	MAINE DEPARTMENT OF MARINE RESOURCES
MINL	MARINE INSTITUTE OF NEWFOUNDLAND AND LABRADOR
MMOP	MERI MER OCEAN PRODUCTS
MPL	MARICULTURE PRODUCTS LIMITED
MPS	MAINE PRIDE SALMON
MSRL	MARINE SCIENCES RESEARCH LABORATORY
NBNDRE	NEW BRUNSWICK DEPARTMENT OF NATURAL RESOURCES AND ENERGY
NBFWB	NEW BRUNSWICK FISH AND WILDLIFE BRANCH
NEFFI	NEW ENGLAND FISHING ENTERPRISES INC
NHFG	NEW HAMPSHIRE FISH AND GAME DEPARTMENT
NMFS	NATIONAL MARINE FISHERY SERVICE
NSDF	NOVA SCOTIA DEPARTMENT OF FISHERIES
NWAFC	NORTHWEST ATLANTIC FISHERIES CENTRE
NYDEC	NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
ONMR	ONTARIO MINISTRY OF NATURAL RESOURCES
OPI	OCEAN PRODUCTS INCORPORATED
OSL	OCEAN SCIENCES LABORATORY, MEMORIAL UNIVERSITY
RIDFW	RHODE ISLAND DIVISION OF FISH AND WILDLIFE
SMBDA	ST. MARYS BAY DEVELOPMENT ASSOCIATION
USFWS	UNITED STATES FISH AND WILDLIFE SERVICE

SUMMARY OF SALMONID INTRODUCTIONS AND TRANSFERS, 1986-1993 CONNECTICUT

FILE LOCATION	ORIGINAL SOURCE (STOCK/STRAIN)	TRANSFERS YEAR	NUMBER	STAGE	SPONSOR/FACILITY	(PURPOSE)	YEAR	NUMBER	STAGE	FINAL DISPOSITION LOCATION	(PURPOSE)
ONCORHYNCHUS MYKISS [RAINBOW TROUT]											
7001 MT,	INNES HATCHERY (ERWIN)	1987	15000	EGGS	CT, CDEP/BURLINGTON HATCHERY					HOUSATONIC RIVER	
8001 TN,	ERWIN HATCHERY (ERWIN)	1988	15000	EGGS	CT, CDEP/BURLINGTON HATCHERY					HOUSATONIC RIVER	
9001 MT,	INNES HATCHERY (ERWIN)	1989	15000	EGGS	CT, CDEP/BURLINGTON HATCHERY					HOUSATONIC RIVER	
0001 MT,	INNES HATCHERY (ERWIN)	1990	15000	EGGS	CT, CDEP/BURLINGTON HATCHERY		*			NOT YET RELEASED: 17/01/91	
0002 MT,	INNES HATCHERY (ERWIN)	P1991	15000	EGGS	CT, CDEP/BURLINGTON HATCHERY						
1001 MT,	INNES NFH (ERWIN)	1990	15000	EGGS	CT, BURLINGTON SFH					HOUSATONIC RIVER	
1002 MT,	INNES NFH (ERWIN)	1991	15000	EGGS	CT, BURLINGTON SFH					NOT RELEASED YET 11/2/92	
1003 MT,	INNES NFH (ERWIN)	1992	15000	EGGS	CT, BURLINGTON SFH					NOT RELEASED YET 11/2/92	
SALMO TRUTTA [BROWN TROUT]											
0003 NY,	CATSKILL HATCHERY (SEEFORELLEN)	1990	20000	EGGS	CT, CDEP/BURLINGTON HATCHERY		*			NOT YET RELEASED: 17/01/91	
0004 NY,	CATSKILL HATCHERY (SEEFORELLEN)	P1991	35000	EGGS	CT, CDEP/BURLINGTON HATCHERY						
1004 NY,	CATSKILL SFH (SEEFORELLEN)	1990	20000	EGGS	CT, BURLINGTON SFH					SAUGATUCK RESERVOIR	
1005 NY,	CATSKILL SFH (SEEFORELLEN)	1991	35000	EGGS	CT, BURLINGTON SFH					NOT RELEASED YET 11/2/92	
1006 NY,	CATSKILL SFH (SEEFORELLEN)	1992	35000	EGGS	CT, BURLINGTON SFH					NOT RELEASED YET 11/2/92	

SUMMARY OF SALMONID INTRODUCTIONS AND TRANSFERS, 1986-1993 MAINE

FILE	ORIGINAL SOURCE				TRANSFERS				FINAL DISPOSITION	
	LOCATION	(STOCK/STRAIN)	YEAR	NUMBER	STAGE	SPONSOR/FACILITY (PURPOSE)	YEAR	NUMBER	STAGE	LOCATION (PURPOSE)
ONCORHYNCHUS KETA [CHUM SALMON]										
6001	WA,	MINTER CREEK H (MINTER CR/WILD)	1986	500000	EGGS	ME, SEA RUN INC/DEAD RIVER H				CASCO BAY (SEA RANCHING)
ONCORHYNCHUS MYKISS [RAINBOW TROUT]										
9003	FIN,	OY BALTIC (BALTIC/DONALDSON DOM)	1989	10000	EGGS	ME, PINE TREE TROUT				(STOCK ACCIDENTALLY KILLED)
9004	FIN,	OY BALTIC (BALTIC/DONALDSON DOM)	1989	110000	EGGS	ME, MPL/BINGHAM HATCHERY	1990			
0012	ONT,	RAINBOW SP H (DOMESTIC/STEVENSON)	1990	5000	EGGS	ME, PINE TREE TROUT/SANFORD				
0013	ONT,	RAINBOW SP H (DOMESTIC/STEVENSON)	1990	15000	EGGS	ME, PIERCE ASSOCIATES/WEST BUXTON				
1002	SWE,	ALVDALSLAX AB(OSTER/DONALDSON)	1991	240000	EGGS	ME, MPL/BINGHAM HAT	1991	50000	F FING	FRENCHBORO (CAGE CULTURE)
1002							1992	125000	S YEAR	SWANS IS (CAGE CULTURE)
1003	SWE,	ALVDALSLAX AB(OSTER/DONALDSON)	1991	75000	EGGS	ME, PENOBSCOT SALMON FRANKLIN	1992	60000	1+	PREBLE IS (CAGE CULTURE)
1004	SWE,	ALVDALSLAX AB(OSTER/DONALDSON)	1991	50000	EGGS	ME, SEA RUN HOLDINGS DEAD RIVER H	1992	500	SMOLT 1+	NESC, GOVE PT (CAGE CULTURE)
1004							1992	15000	1+	GARY SMALL, BIRCH PT (CAGE CULTURE)
1004							1992	30000	1+	NELLIE B FISH INC, LUBEC (CAGE CULTURE)
1004							1992	10000	1+	MAINE SALMON, COBSCOOK (CAGE CULTURE)
1004							1992	7700	1+	FRIENDSHIP ENT, EASTPORT (CAGE CULTURE)
1009	ONT,	RAINBOW SP H (STEVENSON)	1991	15000	EGGS	ME, PIERCE ASSO W BUXTON	P			
1010	ONT,	RAINBOW SP H (STEVENSON)	1991	10000	EGGS	ME, PIERCE ASSP W BUXTON	P			
1011	ONT,	RAINBOW SP H (STEVENSON)	1991	30000	EGGS	ME, ROMMY HAINES JR FORT FAIRFIELD				
1012	ONT,	RAINBOW SP H (STEVENSON)	1991	10000	EGGS	ME, ROMMY HAINES JR FORT FAIRFIELD				
2093	ONT,	RAINBOW SP H (STEVENSON)	1992	5000	EGGS	ME, PINE TREE TROUT/SANFORD	P			
2094	ONT,	RAINBOW SP H (STEVENSON)	1992	35000	EGGS	ME, PIERCE ASSO W BUXTON	P			
2095	SWE,	ALVDALSLAX AB(OSTER/DONALDSON)	1992	115000	EGGS	ME, PENOBSCOT SALMON FRANKLIN	1992	17500	F FING	MDMR (SPORT FISHERY)
2096	ONT,	RAINBOW SP H (STEVENSON)	1992	15000	EGGS	ME, ROMMY HAINES JR FORT FAIRFIELD	P			
SALMO SALAR [ATLANTIC SALMON]										
6005	NB,	SEA FARMS H (SAINT JOHN RIVER)	1986	25000	SMOLTS	ME, OCEAN PRODUCTS INCORPORATED				EASTPORT CAGES (AQC)
6004	SCO,	ALLT MOR H (ARAY RIVER/WILD)	1986	50000	EGGS	ME, SEA RUN INC/DEAD RIVER H	P			
6003	NB,	MACTAQUAC FCS (SAINT JOHN RIVER)	1986	1060000	EGGS	ME, ASRSC/GREEN LAKE HATCHERY	P			AROOSTOOK R (RESTORATION)
6002	NB,	MACTAQUAC FCS ? (SAINT JOHN R)	1986	200	ADULTS	ME, ASRSC				AROOSTOOK R (RESTORATION)
7002	NB,	FLORENCEVILLE H (SJR/MINTO)	1987	40000	UY PARR	ME, SALEN INCORPORATED				UPPER SJR (ENHANCEMENT)
7004	NB,	MACTAQUAC FCS (SAINT JOHN RIVER)	1987	55	GRILSE	ME, ASRSC				AROOSTOOK R (RESTORATION)
7007	SCO,	WESTER ROSS H (DOMESTIC)	1987	500000	EGGS	ME, ASI/OQUOSSOC H (REARING)	1989	25000	SMOLTS	CROSS IS (AQUACULTURE)
7006	NB,	SEA FARMS (AQC BROODSTOCK)	1987	25000	SMOLTS	ME, OCEAN PRODUCTS INCORPORATED				EASTPORT CAGES (AQC)
7001	FIN,	OY BALTIC (DOMESTIC SEA CAGES)	1987	500000	EGGS	ME, OPI/DEBLOIS HATCHERY	1988	27000	SMOLTS	SEE NEXT LINE
7001						ME, OPI/GARDINER LAKE H	1989	22000	SMOLTS	BROAD COVE (AQUACULTURE)
7005	NB,	SEA FARMS (AQC BROODSTOCK)	1987	18000	SMOLTS	ME, FRANK RIER				LUBEC CAGES (AQUQCULTURE)
7008	NB,	JAIL IS SALMON (FUNDY/SAINT JOHN)	1987	1000000	EGGS	NB, SEA FARMS/OROMOCTO H	1989	30000	SMOLTS	JOHNSON BAY (AQUACULTURE)
7003	NB,	FLORENCEVILLE H (SAINT JOHN R)	1987	150000	FRY	ME, ASRSC				UPPER SJR (ENHANCEMENT)
8001	ICE,	ELDI FISH FARMS (AQC BROODSTOCK)	1988	156000	EGGS	ME, MPL/BINGHAM HATCHERY	P1989			(AQUACULTURE)
8012	ICE,	ELDI FISH FARMS	1988	500000	EGGS	ME, MPL/BINGHAM HATCHERY	1989	3000	SMOLTS	ALLEN IS (AQUACULTURE)
8012							1989	100000	SMOLTS	SWANS IS (AQUACULTURE)
8012							1989	80000	SMOLTS	LUBEC (AQUACULTURE)
8012							1989	20000	SMOLTS	TREAT IS (AQUACULTURE)
8013	ICE,	ISNO SEA CAGES (AQC BROODSTOCK)	1988	280000	EGGS	ME, MPL/BINGHAM HATCHERY	1989	15000	SMOLTS	MATHEWS IS (AQUACULTURE)
8013							1989	60000	SMOLTS	SWANS IS (AQUACULTURE)
8013							1989	80000	SMOLTS	LUBEC (AQUACULTURE)
8013							1989	20000	SMOLTS	TREAT IS (AQUACULTURE)
8014	FIN,	OY BALTIC (MOORUM)	1988	1000000	EGGS	ME, MPL/BINGHAM HATCHERY	1989	100000	SMOLTS	SWANS IS (AQUACULTURE)
8014							1989	80000	SMOLTS	COOPER IS (AQUACULTURE)
8014							1989	30000	SMOLTS	TREAT IS (AQUACULTURE)
8004	SCO,	LANDCATCH (AQC/2 NORWAY STRAINS)	1988	1000000	EGGS	ME, ASI/OQUOSSOC HATCHERY	P1989			(AQUACULTURE)
8004	SCO,	LANDCATCH (AQC/2 NORWAY STRAINS)	1988	1000000	EGGS	ME, ASI/OQUOSSOC HATCHERY	P1989			(AQUACULTURE)
8004	SCO,	LANDCATCH (DOMESTIC)	1988	1500000	EGGS	ME, ASI/OQUOSSOC HATCHERY	1989	20000	SMOLTS	GR WASS IS (AQUACULTURE)

FILE	ORIGINAL SOURCE				TRANSFERS					FINAL DISPOSITION		
	LOCATION	(STOCK/STRAIN)	YEAR	NUMBER	STAGE	SPONSOR/FACILITY (PURPOSE)	YEAR	NUMBER	STAGE	LOCATION	(PURPOSE)	
SALMO SALAR (ATLANTIC SALMON) CONTINUED												
8004							1989	80000	SMOLTS	TREAT IS	(AQUACULTURE)	
8004							1989	80000	SMOLTS	ROGERS IS	(AQUACULTURE)	
8004							1989	5000	SMOLTS	MATHEWS IS	(AQUACULTURE)	
8004							1989	35000	SMOLTS	TREAT IS	(AQUACULTURE)	
8004							1989	225000	SMOLTS	CROSS IS	(AQUACULTURE)	
8004												
8017	NB,	JAIL IS SALMON (FUNDY/SAINT JOHN)	1988	1600000	EGGS	NB, SEA FARMS/DIG & SPRING H	1988	200000	FRY	(SEE NEXT LINE)		
8017						NH, BRISTOL HATCHERY	1989	90000	SMOLTS	CUTLER HARB	(AQUACULTURE)	
8017							1989	60000	SMOLTS	GR WASS IS	(AQUACULTURE)	
8015			1988	1500000	EGGS	NB, SEA FARMS/DIG & SPRING H	1988	200000	FRY	(SEE NEXT LINE)		
8015						NH, BRISTOL HATCHERY	1989	10000	SMOLTS	GROVE PT	(AQUACULTURE)	
8016			1988	1000000	EGGS	NB, SEA FARMS/DIGDEQUASH H	1989	100000	SMOLTS	LUBEC	(AQUACULTURE)	
8016							1989	20000	SMOLTS	ROGERS IS	(AQUACULTURE)	
8016							1989	20000	SMOLTS	GROVE PT	(AQUACULTURE)	
8005	NB,	DIGDEQUASH H (AQC/SAINT JOHN)	1988	30000	SMOLTS	NB, J STEVENS/LK UTOPIA H				LUBEC SEA CAGES	(AQC)	
8006	NB,	DIGDEQUASH H (AQC/SAINT JOHN)	1988	99300	SMOLTS	ME, SEA FARMS				LUBEC SEA CAGES	(AQC)	
8007	NB,	DIGDEQUASH H (AQC/SAINT JOHN)	1988	350000	UY PAR	ME, SALEN INCORPORATED				UPPER SJR	(ENHANCEMENT)	
8008	NB,	FLORENCEVILLE H (SJR/MINTO & ASF)	1988	20000	UY PAR	ME, SALEN INCORPORATED				UPPER SJR	(ENHANCEMENT)	
8009	NB,	FLORENCEVILLE H (SJR & MINTO)	1988	27000	FRY	ME, SALEN INCORPORATED				UPPER SJR	(ENHANCEMENT)	
8010	NB,	MACTAQUAC FCS (SAINT JOHN RIVER)	1988	100	ADULTS	ME, ASRSC				AROOSTOOK R	(RESTORATION)	
8011	NB,	MACTAQUAC FCS (SAINT JOHN RIVER)	1988	100000	EGGS	ME, ASRSC/GREEN LK H (HATCHING)	1988		FRY	AROOSTOOK R	(RESTORATION)	
9001	NB,	FLORENCEVILLE H (DOMESTIC/SJR)	1989	30000	PARR	ME, SALEN INCORPORATED				SJR	(ENHANCEMENT)	
9002	NB,	FLORENCEVILLE H (DOMESTIC/SJR)	1989	80000	FRY	ME, SALEN INCORPORATED				SJR	(ENHANCEMENT)	
9005	NB,	SAINT JOHN FCS (SAINT JOHN)	1989	10000	SMOLTS	ME, DFO				AROOSTOOK R	(SURVIVAL TEST)	
9007	NB,	SEA FARMS CANADA (ATLANTIC/SJR)	1989	627000	EGGS	ME, OPI/GARDNER LAKE				(NOT SPECIFIED)		
9008	NB,	GRANGER COVE SALMON (ATL/SJR)	1989	225000	EGGS	ME, OPI/GARDNER LAKE				(NOT SPECIFIED)		
9009	NB,	GRANGER COVE SALMON (ATL/SJR)	1989	250000	EGGS	ME, ASI/OQUOSSOC HATCHERY				(NOT SPECIFIED)		
9010	NB,	KELLY COVE SALMON (ATLANTIC/SJR)	1989	550000	EGGS	ME, MPL/BINGHAM HATCHERY				(NOT SPECIFIED)		
9011	NB,	AQUA VENTURES (ATLANTIC/SJR)	1989	550000	EGGS	ME, MPL/BINGHAM HATCHERY				(NOT SPECIFIED)		
9012	NB,	KELLY COVE SALMON (ATLANTIC/SJ)	1989	187500	EGGS	ME, NEFFE, KENNEBEC AQUACULTURE				(NOT SPECIFIED)		
9013	NB,	AQUA VENTURES (ATLANTIC/SJR)	1989	187500	EGGS	ME, NEFFE, KENNEBEC AQUACULTURE				(NOT SPECIFIED)		
9014	NB,	AQUA VENTURES (ATLANTIC/SJR)	1989	250000	EGGS	ME, NEFFE, KENNEBEC AQUACULTURE				(NOT SPECIFIED)		
9015	NB,	KELLY COVE SALMON (ATLANTIC/SJ)	1989	250000	EGGS	ME, NEFFE, KENNEBEC AQUACULTURE				(NOT SPECIFIED)		
9016	NB,	AQUA VENTURES (ATLANTIC/SJR)	1989	125000	EGGS	ME, ASI/OQUOSSOC HATCHERY				(NOT SPECIFIED)		
9017	NB,	KELLY COVE SALMON (ATLANTIC/SJ)	1989	125000	EGGS	ME, ASI/OQUOSSOC HATCHERY				(NOT SPECIFIED)		
9018	NB,	CONNORS BROS (ATLANTIC/SJ)	*1989	200000	EGGS	ME, PICARD FARMS/FRENCHVILLE	1991	80000	SMOLT	PRINCE COVE	(CAGE CULTURE)	
0001	NB,	SAINT JOHN FCS (SJR WILD)	1990	40000	FRY	ME, ASRSC (PUBLIC STOCKING)				WASHBURN, AROOSTOOK RIVER		
0002	NB,	SAINT JOHN FCS (SJR WILD)	1990	7569	SMOLTS	NB, DFO (PUBLIC STOCKING/RESEARCH)				PRESQUE ISLE, AROOSTOOK R		
0003	NB,	SAINT JOHN FCS (SJR WILD)	1990	6164	SMOLTS	NB, DFO (PUBLIC STOCKING/RESEARCH)				VAN BRUEN, SAINT JOHN RIVER		
0004	SCO,	LANDCATCH (AQUACULTURE/DOMESTIC)	*1990	1216804	EGGS	ME, ASI/OQUOSSOC HATCHERY	1991	100000	SMOLT	EASTPORT	(CAGE CULTURE)	
0004							1991	750000	SMOLT	CROSS ISLAND	(CAGE CULTURE)	
0005	NB,	AQUA VENTURES (ATLANTIC/SJR)	1990	299830	EGGS	ME, KENNEBEC AQUACULTURE/EMBDEN						
0006	NB,	KELLY COVE SALMON (ATLANTIC/SJR)	1990	140500	EGGS	ME, PENOBSCOT SALMON COMPANY INC	1990	5000	SMOLT	FRENCHMANS BAY	(CAGE CULTURE)	
	SEE 0005 & 0006 COMBINED		1990			AQUA VENTURE/KELLY COVE	1990	370000	EGGS	KENNEBEC AQUACULTURE EMBDEN		
0006							1990	88000	YEAR	PENOBSCOT(FRANKLIN H)		
0006							1991	30000	SMOLT	FRENCHMANS BAY(CAGE CULTURE)		
0007	NB,	GRANGER COVE SALMON (ATL/SJR)	1990	178640	EGGS	ME, ASI/OQUOSSOC HATCHERY						
0008	NB,	AQUA VENTURES (ATLANTIC/SJR)	1990	230782	EGGS	ME, ASI/OQUOSSOC HATCHERY						
0009	NB,	KELLY COVE SALMON (ATLANTIC/SJR)	*1990	274890	EGGS	ME, MPL/BINGHAM HATCHERY	1991	164936	SMOLT	SWANS ISLAND	(CAGE CULTURE)	
1001	NB,	DIGDEQUASH HAT (ATL OCEAN ST JOHN)	U/K	U/K	U/K	U/K	1991	122000	SMOLT	LUBEC	(CAGE CULTURE)	
1005	NB,	GRANGER COVE SALMON (DOMESTIC)	1991	450000	EGGS	ME, RANGLEY HATCHERY	1992	450000	S1	ASI, CROSS IS	(CAGE CULTURE)	
1006	NB,	AQUA VENTURES (ATLANTIC ST JOHN)	1991	1195789	EGGS	ME, KENNEBEC AQUACULTURE/EMBDEN	1992	35000	FRY	PENOBSCOT(FRANKLIN H)		
1006							1992	48000	FING	PENOBSCOT(FRANKLIN H)		

FILE	ORIGINAL SOURCE				TRANSFERS				FINAL DISPOSITION	
	LOCATION	(STOCK/STRAIN)	YEAR	NUMBER	STAGE	SPONSOR/FACILITY (PURPOSE)	YEAR	NUMBER	STAGE	LOCATION (PURPOSE)
SALMO SALAR (ATLANTIC SALMON) CONTINUED										
1006							1992	158000	EGGS	ASI/RANGELY HATCHERY
1007	NB,	AQUA VENTURES (ATLANTIC ST JOHN)	1991	150000	EGGS	ME, PENOBSCOT SALMON FRANKLIN				
1008	NB,	AQUA VENTURES (ATLANTIC ST JOHN)	1991	200000	EGGS	ME, ASI/RANGELEY HAT	P			
1013	NB,	SEA FARMS FRYE ISLAND (ATL ST J)	1991	450000	EGGS	ME, ASI/RANGELEY HAT	1992	450000	S1	ASI, CROSS IS (CAGE CULTURE)
1014	NB,	AQUA VENTURES (ATLANTIC ST JOHN)	1991	300000	EGGS	ME, ASI/RANGELEY HATCHERY	P			
1015	NB,	AQUA VENTURES (ATLANTIC ST JOHN)	1991	576163	EGGS	ME, KENNEBEC AQUACULTURE/EMBDEN	1992	15000	S1	ASI, CROSS IS (CAGE CULTURE)
1015							1992	25000	S1	TREATS IS (CAGE CULTURE
1015							1992	15000	S1	ASI, CROSS ISLAND (CAGE CULTURE)
1015							1992	80000	S1	MCN, CUTLER HARB (CAGE CULTURE)
1016	NB,	GRANGER COVE SALMON (ATL ST JOHN)	1991	170000	EGGS	ME, PENOBSCOT SALMON FRANKLIN	1992	150000	SMOLT	PREBLE IS (CAGE CULTURE)
1017	NB,	GRANGER COVE SALMON (ATL ST JOHN)	1991	300000	EGGS	ME, PICARD HATCHERY FRENCHVILLE	1992	15000	S1	MPS, PRINCE COVE (CAGE CULTURE)
1017							1992	85000	SMOLT	MPS, COOPER IS (GAGE CULTURE)
1017							1992	45000	S1	MPS, COOPER IS (CAGE CULTURE)
1017							1992	30000	SMOLT	MPS, PRINCE COVE (CAGE CULTURE)
1018	NB,	GRANGER COVE SALMON (ATL ST JOHN)	1991	315000	EGGS	ME, ASI/RANGELEY HATCHERY	1992	315000	S1	ASI, CROSS ISLAND (CAGE CULTURE)
1019	NB,	KELLY COVE SALMON (ATL ST JOHN)	1991	420000	EGGS	ME, MARICULTURE PRO BINGHAM H				
2088	NB,	AQUA VENTURES (ATLANTIC ST JOHN)	1992	175000	EGGS	ME, PENOBSCOT SALMON FRANKLIN				
2089	NB,	GRANGER COVE SALMON (ATL ST JOHN)	1992	792000	EGGS	ME, ASI/RANGELEY HATCHERY				
2090	AUS,	PURVES FISHERIES (RIVER PHILIP,NS)	1992	750000	EGGS	ME, MAINE PRIDE SALMON/PICARD H				
2091	NB,	SEA FARMS DIGDEGUASH (ATL ST JOHN)	1992	40000	S1	ME, TREATS ISLAND FISHERIES	1992	40000	S1	TREATS ISLAND (CAGE CULTURE)
2091				25000	S2	ME, TREATS ISLAND FISHERIES	1992	25000	S2	TREATS ISLAND (CAGE CULTURE)
2092	NB,	SEA FARMS DIGDEGUASH (ATL ST JOHN)	1992	110000	S1	ME, SEA FARM MAINE INC	1992	110000	S1	JOHNSON BAY (CAGE CULTURE)
2092				50000	S2	ME, SEA FARM MAINE INC	1992	50000	S2	JOHNSON BAY (CAGE CULTURE)
SALVELINUS ALPINUS [ARCTIC CHAR]										
9006	NB,	HML (HML/FRASER R, LABRADOR)	1989	20000	EGGS	ME, MPL/BINGHAM HATCHERY	P1990			(NOT SPECIFIED)
SALVELINUS FONTINALIS [BROOK TROUT]										
0010	CO,	4 SEASONS TF (WILDCAT RESERVOIR)	1990	20000	EGGS	ME, PIERCE ASSOCIATES/WEST BUXTON				
0011	UT,	EGAN HATCHERY (EGAN H/OWHI)	1990	145327	EGGS	ME, MDIFW/COBB STATE HATCHERY	1990	112019	FING	VARIOUS (PUBLIC STOCKING)

SUMMARY OF SALMONID INTRODUCTIONS AND TRANSFERS, 1986-1993

MASSACHUSETTS

FILE	LOCATION	ORIGINAL SOURCE (STOCK/STRAIN)	YEAR	NUMBER	STAGE	TRANSFERS SPONSOR/FACILITY (PURPOSE)	YEAR	NUMBER	STAGE	FINAL DISPOSITION LOCATION (PURPOSE)
ONCORHYNCHUS KISUTCH [COHO SALMON]										
6003	OR,	ORE AQUA INC (UNKNOWN)	1986	25000	EGGS	MA, SP INC/SALEM LABORATORY				SALEM LAB TANKS (AQC)
6001	MA,	SULLIVAN & SANDWICH H (NORTH R/WA)					1986	24942	SMOLT	NORTH RIVER (RESEARCH)
7001	OR,	ORE AQUA INC (UNKNOWN)	1987	35000	EGGS	MA, R T CAPELESS				HINSDALE TANKS (AQU)
8002	MI,	PLATTE RIVER HATCHERY				MA, SULLIVAN HATCHERY	1988	30000	JUV	NORTH RIVER (RESEARCH)
8001	MA,	(NORTH RIVER)				MA, SULLIVAN HATCHERY	1988	21000	JUV	NORTH RIVER (RESEARCH)
9001	MI,	PLATTE RIVER HATCHERY	*			MA, SULLIVAN HATCHERY	1989	50000		NORTH RIVER (RESEARCH)
9002	NY,	SALMON RIVER HATCHERY	*			MA, SULLIVAN HATCHERY	1989	50000		NORTH RIVER (RESEARCH)
1004	NY,	AQUA ARBOR(Hinchinbrooke)	1991	10000	EGGS	MA, MDFW/BANCROFT MILL FARM				RESEARCH/FOOD PRO
8029	MI,	NY	1988	193968	EGGS	MA,	1988			SEE BELOW
8029	MI,					MA,	1988	10023		STOCKED
8029	MI,	NY				MA,	1988	4321		STOCKED
8029	MI,					MA,	1989	41977		STOCKED
8029	NY,					MA,	1989	44897		STOCKED
9018	NH,	MILFORD HATCHERY	1989	8000	EGGS	MA,	1989	8000		STOCKED
9019	NY,	SALMON RIVER HATCHERY	1989	63480	EGGS	MA,	1989	63480		STOCKED
ONCORHYNCHUS MYKISS [RAINBOW TROUT]										
6004	WA,	TROUT LODGE (UNKNOWN)	1986	50000	EGGS	MA, MOHAWK TROUT HATCHERY				SUTHERLAND PONDS (AQC)
9005	WA,	TROUT LODGE (DOMESTIC)	1989	550000	EGGS	MA, MCLAUGHLIN HATCHERY	1990	100000	FRY	SEE NEXT LINE
9005						SANDWICH HATCHERY	*1991		1+	(PUBLIC FISHING)
9005						MA, MCLAUGHLIN HATCHERY	1990	75000	FRY	SEE NEXT LINE
9005						SUNDERLAND HATCHERY	*1991		1+	(PUBLIC FISHING)
9005						MA, MCLAUGHLIN HATCHERY	1990	75000	FRY	SEE NEXT LINE
9005						MONTAGUE HATCHERY	*1991		1+	(PUBLIC FISHING)
9006	ID,	BLACK CANYON TF (DOMESTIC)	1989	30000	EGGS	MA, MCLAUGHLIN HATCHERY	*1991		1+	(PUBLIC FISHING)
0001	ONT,	AQUAFARMS CANADA (DOMESTIC)	1990	20000	EGGS	MA, D J ADAMS HATCHERY				(PRIVATE AQUACULTURE)
0002	UT,	TROPHY FISH RANCH INC (DOMESTIC)	1990	500000	G EGGS	MA, MDFW/MCLAUGHLIN HATCHERY	1991	80000	FRY	SEE NEXT 2 LINES
0002						SUNDERLAND HATCHERY	*1991		VARIOUS	(PUBLIC FISHING)
0002						SUNDERLAND HATCHERY	*1992		VARIOUS	(PUBLIC FISHING)
0002						MA, MDFW/MCLAUGHLIN HATCHERY	1991	80000	FRY	SEE NEXT 2 LINES
0002						MONTAGUE HATCHERY	*1991		VARIOUS	(PUBLIC FISHING)
0002						MONTAGUE HATCHERY	*1992		VARIOUS	(PUBLIC FISHING)
0003	UT,	TROPHY FISH RANCH INC (DOMESTIC)	1990	100000	G EGGS	MA, MDFW/SANDWICH HATCHERY	*1991		VARIOUS	(PUBLIC FISHING)
0003						MA, MDFW/SANDWICH HATCHERY	*1992		VARIOUS	(PUBLIC FISHING)
0004	ONT,	AQUAFARMS CANADA (DOMESTIC)	1990	700	FING	MA, MDFW/PLYMOUTH ROCK TROUT CO.			UNKNOWN	
0005	ONT,	RAINBOW SPRINGS H (DOMESTIC)	1990	60000	E EGGS	MA, MDFW/PLYMOUTH ROCK TROUT CO.			UNKNOWN	
0006	ONT,	WILDCAT TROUT FARM (DOMESTIC)	1990	100000	E EGGS	MA, MDFW/PLYMOUTH ROCK TROUT CO.			UNKNOWN	
1001	UT,	TROPHY FISH RANCH INC(DOMESTIC)	1991	600000	FRY	MA, MDFW/McLAUGHLIN HATCHERY	*1992	270000	FRY	SEE NEXT 3 LINES
1001			1992	100000	FRY	SANDWICH STATE HATCHERY	P1993			(PUBLIC FISHING)
1001			1992	80000	FRY	SUNDERLAND STATE HATCH	P1993			(PUBLIC FISHING)
1001			1992	90000	FRY	MONTAGUE STATE HATCH	P1993			(PUBLIC FISHING)
1005	MT,	SPRING CREEK HAT(DOMESTIC)	1991	10000	FRY	MA, MDFW/GAUTHIER TROUT FARM				PRIVATE SECTOR DOMAIN
2097	UT,	TROPHY FISH RANCH INC(DOMESTIC)	1992	650000	EGGS	MA, MDFW/McLAUGHLIN HATCHERY	1993	270000	FRY	SEE NEXT 3 LINES
2097			1993	100000	FRY	SANDWICH HATCHERY	P1994			(PUBLIC FISHING)
2097			1993	80000	FRY	SUNDERLAND STATE HATCHERY	P1994			(PUBLIC FISHING)
2097			1993	90000	FRY	MONTAGUE STATE HATCHERY	P1994			(PUBLIC FISHING)
3001	TN,	ERWIN HATCHERY (DOMESTIC)	1993	177000	EGGS	MA, MDFW/McLAUGHLIN HATCHERY	P1995		S YEAR	(PUBLIC FISHING)
ONCORHYNCHUS MYKISS KAMLOOPS [KAMLOOPS TROUT]										
6002	WA,	TROUT LODGE (UNKNOWN)	1986	10000	EGGS	MA, CANDEES TROUT HATCHERY				EGERMONT PONDS (AQC)
ONCORHYNCHUS TSHAWYTSCHA [CHINOOK SALMON]										
9017	NY,	SALMON RIVER HATCHERY	1989	153899	EGGS	MA,	1989	76880		STOCKED

SUMMARY OF SALMONID INTRODUCTIONS AND TRANSFERS, 1986-1993

FILE LOCATION	ORIGINAL SOURCE (STOCK/STRAIN)	TRANSFERS YEAR	NUMBER	STAGE	SPONSOR/FACILITY (PURPOSE)	YEAR	NUMBER	STAGE	FINAL DISPOSITION LOCATION (PURPOSE)
SALMO SALAR [ATLANTIC SALMON]									
8003 ME,	(UNION RIVER)				MA, MDFW/REED HATCHERY	1988	6033	FRY	WESTFIELD RIVER
8003						1988	27467	FRY	MANHAN RIVER
8003						1988	14969	FRY	BEAR RIVER
8003						1988	23430	FRY	COLD RIVER
8003						1988	12000	FRY	SOUTH RIVER
8004 ME,	(UNION RIVER)				MA, MDFW/REED HATCHERY	1988	22600	SMOLTS	DEERFIELD RIVER
8004						1988	22800	SMOLTS	MILLERS RIVER
8005 ME,	(UNION RIVER)				MA, MDFW/REED HATCHERY	1988	2700	PARR	MILLERS RIVER
8005						1988	2300	PARR	DEERFIELD RIVER
9003 CT,	(CONNECTICUT RIVER)				MA, MDFW/REED HATCHERY	1989	120000	FRY	DEERFIELD RIVER
9004 CT,	(CONNECTICUT RIVER)				MA, MDFW/REED HATCHERY	1989	20000	SMOLTS	DEERFIELD RIVER
9004						1989	20000	SMOLTS	MILLERS RIVER
SALMO TRUTTA(BROWN TROUT)									
1002 MT,	SPRING CREEK H (DOMESTIC)	1991	100000	EGGS	MA, MDFW/TROUT FARM WAREHAM				PRIVATE SECTOR DOMAIN
2098 MT,	SPRING CREEK H (DOMESTIC)	1992	200000	EGGS	MA, MDFW/McLAUGHLIN H	1993	80000	FRY	SEE NEXT TWO LINES
2098		1993	40000	FRY	SUNDERLAND STATE H	P1994			(PUBLIC FISHING)
2098		1993	40000	FRY	MONTAGUE STATE H	P1994			(PUBLIC FISHING)
3111 MT,	SPRING CREEK H (DOMESTIC)	1993	197000	EGGS	MA, MDFW/McLAUGHLIN H	1994	150000	FRY	SEE NEXT TWO LINES
					SUNDERLAND STATE H	P1995		S YEAR	(PUBLIC FISHING)
					MONTAGUE STATE H	P1995		S YEAR	(PUBLIC FISHING)
SALVELINUS FONTINALIS(BROOK TROUT)									
1003 MT,	SPRING CREEK HAT (DOMESTIC)	1991	100000	EGGS	MA, MDFW/TROUT FARM WAREHAM				PRIVATE SECTOR DOMAIN
1006 NB,	GREENACES TROUT H (PIS ALLEGHANYS)	U/K	50000	EGGS	MA, MDFW/RED WING MEADOW FARM				PRIVATE SECTOR DOMAIN
3112 MT,	SPRING CREEK HAT (DOMESTIC)	1993	270000	EGGS	MA, MDFW/McLAUGHLIN H	1994	50000	FRY	SEE NEXT TWO LINES
					SUNDERLAND STATE H	P1995		S YEAR	(PUBLIC FISHING)
					MONTAGUE STATE H	P1995		S YEAR	(PUBLIC FISHING)
3113 NY,	FERNWOOD TROUT HAT (DOMESTIC)	1993	325000	EGGS	MA, MDFW/McLAUGHLIN H	1994	50000	FRY	SEE NEXT TWO LINES
					SUNDERLAND STATE H	P1995		S YEAR	(PUBLIC FISHING)
					MONTAGUE STATE H	P1995		S YEAR	(PUBLIC FISHING)

SUMMARY OF SALMONID INTRODUCTIONS AND TRANSFERS, 1986-1993 NEW BRUNSWICK

FILE	ORIGINAL SOURCE	TRANSFERS							FINAL DISPOSITION	
	LOCATION (STOCK/STRAIN)	YEAR	NUMBER	STAGE	SPONSOR/FACILITY (PURPOSE)	YEAR	NUMBER	STAGE	LOCATION	(PURPOSE)
ONCORHYNCHUS MYKISS [RAINBOW TROUT]										
7007	ONT, RAINBOW SPRINGS HATCHERY	1987	2000	EGGS	NB, ST ANDREWS BIOLOGICAL STATION					
7015	QUE, PISCICULTURE ALLEGHANYS	1987	3000	FING	NB, D WOLVERTON				CENTERVILLE	(AQUACULTURE)
7016	ONT, RAINBOW SPRINGS HATCHERY	1987	4000	FING	NB, A PHILLIPS				MONCTON	(AQUACULTURE)
7010	PEI, INTEGRATED AQUATICS	1987	4000	FING	NB, DON CHAPMAN				CAMPOBELLO	(AQUACULTURE)
7008	WA, BEITEYS RESORT	1987	75000	EGGS	NB, PURTILL HATCHERY				SUSSEX	(AQUACULTURE)
7002	ONT, AQUAFARMS CANADA LTD	1987	15000	FING	NB, FUNDY MARINE SURVEYERS				SAINT JOHN	(AQUACULTURE)
7014	QUE, PISCICULTURE ALLEGHANYS	1987	1300	FING	NB, G CORMIER				GRAND FALLS	(AQUACULTURE)
7013	PEI, INTEGRATED AQUATICS	1987	3600	FING	NB, MERI-MER OCEAN PRODUCTS				WELSHPOOL	(AQUACULTURE)
7012	QUE, PISCICULTURE ALLEGHANYS	1987	6000	FING	NB, ATLANTIS SEA FARMS				CLIFTON ROYAL	(AQUACULTURE)
7011	QUE, PISCICULTURE ALLEGHANYS	1987	200000	EGGS	NB, ATLANTIS SEA FARMS				CLIFTON ROYAL	(AQUACULTURE)
7003	ONT, RAINBOW SPRINGS HATCHERY	1987	50000	EGGS	NB, PURTILL HATCHERY				SUSSEX	(AQUACULTURE)
7017	ONT, AQUAFARMS CANADA LTD	1987	100000	EGGS	NB, ALVIN CRAFT/HATFIELD POINT				HATFIELD PT	(AQUACULTURE)
7005	ONT, RAINBOW SPRINGS HATCHERY	1987	40000	EGGS	NB, OAK BAY HATCHERY				ST STEPHEN	(AQUACULTURE)
7009	PEI, INTEGRATED AQUATICS	1987	3000	FING	NB, LLOYD COOK				ST GEORGE	(AQUACULTURE)
7001	ONT, RAINBOW SPRINGS HATCHERY	1987	177000	EGGS	NB, ATLANTIC SEA FARM				CLIFTON ROYAL	(AQC)
7018	ONT, AQUAFARMS CANADA LTD	1987	20000	EGGS	NB, MEADOW LAKE FARMS				SAINT JOHN	(AQUACULTURE)
7004	ONT, RAINBOW SPRINGS HATCHERY	1987	50000	EGGS	NB, ATLANTIC SMOLTS LTD				MINTO	(AQUACULTURE)
7006	ONT, RAINBOW SPRINGS HATCHERY	1987	20000	EGGS	NB, SISCOR CORPORATION				MONCTON	(AQUACULTURE)
8024	ONT, RAINBOW SPRINGS HATCHERY	1988	10000	FING	NB, WILLIAM KNOW (REARING)				SAINT JOHN	(AQUACULTURE)
8023	QUE, PISCICULTURE ALLEGHANYS	1988	800	FING	NB, GILLES CORMIER (REARING)				GRAND FALLS	(AQUACULTURE)
8022	PEI, INTEGRATED AQUATICS	1988	4300	FING	NB, L COOK, ST GEORGE (REARING)				BOF CAGES	(AQUACULTURE)
8021	QUE, PISCICULTURE ALLEGHANYS	1988	100000	EGGS	NB, GREEN ACRES TF (REARING)				MONCTON	(AQUACULTURE)
8020	WA, BEITEYS RESORT	1988	125000	EGGS	NB, EDWARD EUSTACE (REARING)				SUSSEX	(AQUACULTURE)
9004	PEI, BROOKVALLEY MARINE	1989	4350	EGGS	NB, MASCARINE MARICULTURE				MASCARINE	(AQC) ?
9005	ONT, RAINBOW SPRINGS HATCHERY	1989	100000	EGGS	NB, MEDARD CORMIER, MONCTON					
9006	PEI, GLYNDE RIVER AQUACULTURE	1989	20000	EGGS	NB, B GATES/BELLEISLE CREEK					
9013	ONT, AQUAFARMS CANADA LTD	1989	75000	EGGS	NB, ALVIN CRAFT/HATFIELD POINT					
0001	PEI, INTEGRATED AQUATICS	1990	5000	EGGS	NB, NB COMMUNITY COLLEGE/ST.ANDREWS					
0002	PEI, BROOKVALLEY MARINE	1990	1900	FING	NB, M.LEGERE/FORTUNE					
0003	ONT, RAINBOW SPRINGS HATCHERY	1990	50000	EGGS	NB, MEDARD CORMIER/MONCTON					
0004	QUE, PISCICULTURE ALLEGHANYS	1990	600	FING	NB, MICHEL BIRON/FREDERICTON					
0005	ONT, RAINBOW SPRINGS HATCHERY	1990	2000	FING	NB, POLLUTECH ENVIRONMENT/BATHURST					
1013	ONT, RAINBOW SPRINGS HATCHERY	1991	1000	FING	NB, POLLUTECH/CARAQUET					
1014	QUE, PISCICULTURE ALLEGHANYS	1991	20000	EGGS	NB, GREENACRES FARM/GRAND DIGUE					
1015	QUE, PISCICULTURE ALLEGHANYS	1991	20000	FING	NB, MEDARD CORMIER/MONCTON					
1016	PEI, BROOK VALLEY MARINE	1991	10000	FING	NB, LEGERE FARM/ROBICHAUD					
1017	PEI, DOVER HAT,MURRAY RIVER	1991	500	FING	NB, WOLVERTON HAT/CENTREVILLE					
1018	PEI, BROOK VALLEY MARINE	1991	6000	FING	NB, LEGERE FARM/ROBICHAUD					
1019	ONT, RAINBOW SPRINGS H,THAMESFORD	1991	1000	FING	NB, DEWINK IND/CARAQUET					
1020	PEI, BROOK VALLEY MARINE	1991	1800	FING	NB, LEGERE FARMS/ROBICHAUD					
1021	QUE, PISCICULTURE ALLEGHANYS	1991	40000	EGGS	NB, ALVIN CRAFT/HATFIELD PT					
1022	QUE, PISCICULTURE ALLEGHANYS	1991	80000	EGGS	NB, ALVIN CRAFT/HATFIELD PT					
1023	QUE, PISCICULTURE ALLEGHANYS	1991	200000	EGGS	NB, CLAUDE NADEAU/EDMUNSTON					
1026	QUE, PISCICULTURE ALLEGHANYS	1991	20000	EGGS	NB, GREENACRES H/GRAND DIGUE					
2026	ONT, RAINBOW SPRINGS H, THAMESFORD	1992	1000	FISH	NB, DEWINK IND/CARAQUET					
2027	MAN, ROCKWOOD AQUACULTURE	1992	12000	EGGS	NB, UNB/DR BENFEY/FREDERICTON					
2028	ONT, AQUAFARMS CANADA LTD	1992	50000	EGGS	NB, EDWARD GATES/DELISLE CREEK					
2031	QUE, PISCICULTURE ALLEGHANYS	1992	10000	EGGS	NB, EDWARD GATES/DELISLE CREEK					
2035	QUE, PISCICULTURE ALLEGHANYS	1992	50000	EGGS	NB, ALVIN CRAFT/HATFIELD POINT					
2037	QUE, PISCICULTURE ALLEGHANYS	1992	25000	EGGS	NB, LEGER FISH FARM/ROBICHAUD					
2038	PEI, BROOK VALLEY MARINE	1992	25000	EGGS	NB, JARVIS DUCEY/HATFIELD POINT					
2041	QUE, PISCICULTURE ALLEGHANYS	1992	50000	EGGS	NB, WOLVERTON MOUNTAIN FF/CENTREVILLE				STERILE FEMALES	
2043	ONT, RAINBOW SPRINGS H, THAMESFORD	1992	1000	FISH	NB, DEWINK IND/CARAQUET					
3022	ONT, RAINBOW SPRINGS H, THAMESFORD	1993	1000	FISH	NB, DEWINK IND/CARAQUET					
3044	ONT, RAINBOW SPRINGS H, THAMESFORD	1993	1000	FISH	NB, DEWINK IND/CARAQUET					
3057	ONT, RAINBOW SPRINGS H, THAMESFORD	1993	500	FISH	NB, DEWINK IND/CARAQUET					
3069	QUE, PISCICULTURE ALLEGHANYS	1994	10000	EGGS	NB, TAMARACK FISH FARM/GAGETOWN					

FILE LOCATION	ORIGINAL SOURCE (STOCK/STRAIN)	TRANSFERS YEAR	NUMBER	STAGE	SPONSOR/FACILITY (PURPOSE)	YEAR	NUMBER	STAGE	FINAL DISPOSITION LOCATION (PURPOSE)
OSMERUS MORDAX [RAINBOW SMELT]									
6002 NB,	(SUCKER BROOK, SKIFF LAKE)	1986	50000	E EGGS	NB, NBDNRE				UNIQUE L (LL SALMON FORAGE)
SALMO SALAR [ATLANTIC SALMON]									
2056 ME,	KENNEBEC AQUACULTURE	1992	20000	FISH	NB, HARBOUR BREEZE FISHERIES/ST GEORGE				
2057 ME,	KENNEBEC AQUACULTURE	1992	40000	FISH	NB, NORDIC ENTERPRISES/DEER ISLAND				
2058 ME,	KENNEBEC AQUACULTURE	1992	210000	FISH	NB, GRAY AQUAFARMS LTD/HAMPTON				
2059 ME,	KENNEBEC AQUACULTURE	1992	100000	FISH	NB, GRAY AQUAFARMS LTD/HAMPTON				
3028 ME,	KENNEBEC AQUACULTURE	1993	153000	FISH	NB, CONNORS BROTHERS/LAKE UTOPIA				
3029 PE,	BROOK VALLEY MARINE FARM (ST JOHN)	1993	5000	FISH	NB, JAIL ISLAND SALMON LTD/ST GEORGE				
3031 ME,	KENNEBEC AQUACULTURE	1993	25000	FISH	NB, AQUAVENTURES LTD/BACK BAY				
3033 ME,	KENNEBEC AQUACULTURE	1993	21000	FISH	NB, QUODDY SALMON LTD/DEER ISLAND				
3034 ME,	KENNEBEC AQUACULTURE	1993	21000	FISH	NB, B.J. SALMON/ST GEORGE				
3038 ME,	KENNEBEC AQUACULTURE	1993	6800	PARR1+	NB, CONNORS BROTHERS/BLACKS HARBOUR				
3039 ME,	KENNEBEC AQUACULTURE	1993	135000	FRY	NB, CONNORS BROTHERS/BLACKS HARBOUR				
3040 ME,	KENNEBEC AQUACULTURE	1993	13500	PARR1+	NB, GLEN COOK/ST GEORGE				
3043 ME,	KENNEBEC AQUACULTURE	1993	20500	FISH	NB, LAKE UTOPIA HATCHERY/LAKE UTOPIA				
3046 ME,	KENNEBEC AQUACULTURE	1993	85000	PARR0+	NB, LAKE UTOPIA HATCHERY/LAKE UTOPIA				
3049 ME,	KENNEBEC AQUACULTURE	1993	30000	FISH	NB, LAKE UTOPIA HATCHERY/LAKE UTOPIA				
SALMO SALAR [LANDLOCKED ATLANTIC SALMON]									
8019 ME,	GRAND LK STREAM H (WEST GRAND LK)	1988	35000	EGGS	NB, DFO/ST JOHN FCS (REARING)	P			(ENHANCEMENT)
9001 ME,	GRAND LAKE STREAM HATCHERY	1989	35000	EGGS	NB, DFO/SAINT JOHN FCS				
SALMO TRUTTA [BROWN TROUT]									
7022 NB,	FLOWERS COVE H (LOCH LOMOND)	1987	10000	JUV	NB, NBDNRE				EAST MUSQUASH R
8005 NB,	FLOWERS COVE H (LOCH LOMOND)	P1988	10000	JUV	NB, NBDNRE				EAST MUSQUASH R
SALVELINUS ALPINUS [ARCTIC CHAR]									
8006 MAN,	ROCKWOOD H (FRASER R, LABRADOR)	1988	3000	EGGS	NB, BOUCTOUCHE INDIAN BAND				BUCTOUCHE (AQUACULTURE)
NB,	FLOWERS COVE H (WALTON LAKE)*	1989	1000	JUV					SECOND KEDRON LAKE
9002 MAN,	ROCKWOOD HATCHERY	1989	5000	EGGS	NB, GREEN ACRES TROUT FARM/MONCTON				BUCTOUCHE (AQC) ?
9003 MAN,	ROCKWOOD HATCHERY	1989	5000	EGGS	NB, BOUCTOUCHE INDIAN BAND				
9012 MAN,	ROCKWOOD HATCHERY	1989	3000	EGGS	NB, SEA FARMS CANADA/SUSSEX				
0006 PEI,	BROOKVALLEY MARINE	1990	40000	EGGS	NB, GREEN ACRES TROUT FARM/MONCTON				
1024 PEI,	INTEGRATED AQUA	1991	4500	FRY	NB, HUNTSMAN MARINE LAB/ST ANDREWS				
1025 PEI,	INTEGRATED AQUA	1991	10000	FING	NB, ROGER GIONET/SHIPPEGAN				
2062 MAN,	ROCKWOOD HATCHERY	1992	45000	EGGS	NB, GREEN ACRES TF/GRANDE-DIQUE				
2063 MAN,	ROCKWOOD HATCHERY (LABRADOR)	1992	6000	EGGS	NB, GREEN ACRES TF/GRANDE-DIQUE				
3020 MAN,	ROCKWOOD AQUACULTURE RESEARCH	1993	6000	EGGS	NB, DR TILLMANN BENFEY, UNB/FREDERICTON				
3052 MAN,	ROCKWOOD AQUACULTURE (LABRADOR)	1993	6000	EGGS	NB, DR TILLMANN BENFEY, UNB/FREDERICTON				
SALVELINUS FONTINALIS [BROOK TROUT]									
7020 QUE,	PISCICULTURE ALLEGHANYS	1987	100000	EGGS	NB, ATLANTIS SEA FARMS				CLIFTON ROYAL (AQUACULTURE)
7019 QUE,	PISCICULTURE ALLEGHANYS	1987	180000	EGGS	NB, DOUGLAS DAIGLE/RICHIBUCTO				RICHIBUCTO (AQUACULTURE)
7021 QUE,	PISCICULTURE ALLEGHANYS	1987	130000	FING	NB, PIERRE MORIN				GRAND FALLS (AQUACULTURE)
8018 QUE,	PISCICULTURE ALLEGHANYS	1988	30000	FING	NB, PIERRE MORIN (REARING)				GRAND FALLS (AQUACULTURE)
8016 QUE,	PISCICULTURE ALLEGHANYS	1988	4000	FING	NB, GILLES CORMIER (REARING)				GRAND FALLS (AQUACULTURE)
8015 ME,	PHILLIPS HATCHERY	1988	150000	EGGS	NB, FLOWERS COVE H (REARING)				
8014 QUE,	PISCICULTURE ALLEGHANYS	1988	100000	EGGS	NB, RONALD NOWLAN (REARING)				POKEMOUCHE (AQUACULTURE)
8013 QUE,	PISCICULTURE ALLEGHANYS	1988	20000	EGGS	NB, JAMES McCRAE (REARING)				SAINT JOHN (AQUACULTURE)
8012 QUE,	PISCICULTURE ALLEGHANYS	1988	75000	EGGS	NB, ALVIN CRAFT (REARING)				HATFIELD PT (AQUACULTURE)
8011 QUE,	PISCICULTURE ALLEGHANYS	1988	300000	EGGS	NB, DOUGLAS DAIGLE (REARING)				RICHIBUCTO (AQUACULTURE)
8010 QUE,	PISCICULTURE ALLEGHANYS	1988	75000	EGGS	NB, NOEL BOSSE (REARING)				EDMUNDSTON (AQUACULTURE)
8009 QUE,	PISCICULTURE ALLEGHANYS	1988	200000	EGGS	NB, REGINALD BOSSE (REARING)				EDMUNDSTON (AQUACULTURE)
8008 QUE,	PISCICULTURE ALLEGHANYS	1988	200000	EGGS	NB, GREEN ACRES TF (REARING)				MONCTON (AQUACULTURE)
8007 QUE,	PISCICULTURE ALLEGHANYS	1988	50000	EGGS	NB, WILLIAM KNOW (REARING)				SAINT JOHN (AQUACULTURE)
9007 ONT,	WILDCAT TROUT FARM	1989	20000	EGGS	NB, D DAIGLE (REARING)				RICHIBUCTO (AQUACULTURE)
9008 PEI,	BROOK VALLEYMARINE	1989	120	FISH	NB, ROBERT METHE (REARING)				SALISBURY (AQUACULTURE)
9009 PEI,	BROOKVALLEY MARINE	1989	25000	EGGS	NB, BILL KNOR/GAGETOWN				
9010 PEI,	BROOKVALLEY MARINE	1989	5500	FISH	NB, BILL KNOR/GAGETOWN				
9011 PEI,	BROOKVALLEY MARINE	1989	21000	EGGS	NB, L McCRAE/HATFIELD POINT				
0007 PEI,	BROOKVALLEY MARINE	1990	20000	FING	NB, NBDNRE/MINTO				

FILE LOCATION	ORIGINAL SOURCE (STOCK/STRAIN)	TRANSFERS YEAR	NUMBER	STAGE	SPONSOR/FACILITY (PURPOSE)	YEAR	NUMBER	STAGE	FINAL DISPOSITION LOCATION (PURPOSE)
SALVELINUS FONTINALIS [BROOK TROUT] CONTINUED									
0008 WA,	BEITEYS RESORT	1990	60000	EGGS	NB, GREEN ACRES TF (REARING)				MONCTON (AQUACULTURE)
0009 WA,	BEITEYS RESORT	1990	50000	EGGS	NB, ALVIN CRAFT (REARING)				HATFIELD PT (AQUACULTURE)
0010 WA,	BEITEYS RESORT	1990	50000	EGGS	NB, GREEN ACRES TF (REARING)				MONCTON (AQUACULTURE)
0011 PEI,	BROOKVALLEY MARINE	1990	6000	FING	NB, BILL KNORR/SAINT JOHN				
0012 QUE,	PISCICULTURE ALLEGHANYS	1990	200000	EGGS	NB, GREEN ACRES TF (REARING)				MONCTON (AQUACULTURE)
0013 QUE,	PISCICULTURE ALLEGHANYS	1990	300000	EGGS	NB, DOUGLAS DAIGLE (REARING)				RICHIBUCTO (AQUACULTURE)
0014 QUE,	PISCICULTURE ALLEGHANYS	1990	275000	EGGS	NB, REGINALD BOSSE (REARING)				EDMUNDSTON (AQUACULTURE)
0015 QUE,	PISCICULTURE ALLEGHANYS	1990	50000	EGGS	NB, ALVIN CRAFT (REARING)				HATFIELD PT (AQUACULTURE)
0016 PEI,	BROOKVALLEY MARINE	1990	60000	EGGS	NB, LEGERE FISH FARM/CAPE PELE				
0017 QUE,	PISCICULTURE ALLEGHANYS	1990	25000	EGGS	NB, McCREA FARM LTD/HATFIELD POINT				
0018 QUE,	PISCICULTURE ALLEGHANYS	1990	50000	FING	NB, MEDARD CORMIER/MONCTON				
0019 ME,	PHILLIPS HATCHERY	1990	20000	EGGS	NB, NBDNRE/FLOWERS COVE (QUAR)				
1001 ME,	PHILLIPS HATCHERY	1991	20000	EGGS	NB, NATURAL RESOURCES/FLOWERS COVE				
1002 QUE,	PISCICULTURE ALLEGHANYS	1991	20000	FING	NB, RON NOWLAND ENT POKEMOUCHE				
1003 PEI,	BROOK VALLEY MARINE,SOURIS	1991	20000	FING	NB, LEGERE FISH FARM/ROBICHAUD				
1004 QUE,	PISCICULTURE ALLEGHANYS	1991	50000	EGGS	NB, LEGERE FISH FARMS/ROBICHAUD				
1005 QUE,	PISCICULTURE ALLEGHANYS	1991	150000	EGGS	NB, DAIGLES TROUT FARM/RICHIBUCTO				
1006 QUE,	PISCICULTURE ALLEGHANYS	1991	150000	EGGS	NB, REGINALD BOSSE/EDMUNSTON				
1007 QUE,	PISCICULTURE ALLEGHANYS	1991	25000	EGGS	NB, MCCREA FARMS/HATFIELD PT				
1008 QUE,	PISCICULTURE ALLEGHANYS	1991	20000	EGGS	NB, ALVIN CRAFT/HATFIELD PT				
1009 PEI,	BROOK VALLEY MARINE,SOURIS	1991	40000	EGGS	NB, LEGERE FISH FARMS/ROBICHAUD				
1010 PEI,	BROOK VALLEY MARINE,SOURIS	1991	80000	EGGS	NB, DUCEY&SONS FISH F/HATFIELD PT				
1011 QUE,	PISCICULTURE ALLEGHANYS	1991	50000	EGGS	NB, CLARENCE LEVESQUE/CHARLO				
1012 ME,	PHILLIPS STATE HATCHERY	1912	50000	EGGS	NB, NBFWB/FLOWERS COVE QUARANTINE				
2066 PEI,	BROOK VALLEY MARINE,SOURIS	1992	30000	EGGS	NB, CLIVE WILSON/FREDERICTON				
2067 PEI,	BROOK VALLEY MARINE,SOURIS	1992	15000	FISH	NB, GREEN ACRES TF/GRANDE-DIQUE				
2068 PEI,	BROOK VALLEY MARINE,SOURIS	1992	75000	FISH	NB, JEAN MARIE MARTIN/NEW DENMARK				
2069 PEI,	BROOK VALLEY MARINE,SOURIS	1992	5000	FISH	NB, FRANCIS BELENANS/HAMSTEAD				
2070 PEI,	BROOK VALLEY MARINE,SOURIS	1992	50000	FISH	NB, FRANCIS BELENANS/HAMSTEAD				
2071 QUE,	PISCICULTURE ALLEGHANYS	1992	5000	FISH	NB, GREEN ACRES TROUT HAT/GRANDE-DIQUE				
2072 PEI,	BROOK VALLEY MARINE,SOURIS	1992	4000	FISH	NB, DUCEY&SONS FF/HATFIELD PT				
2073 QUE,	PISCICULTURE ALLEGHANYS	1992	15000	FISH	NB, RON NOWLAN ENTERPRISES/POKEMOUCHE				
2074 PEI,	BROOK VALLEY MARINE,SOURIS	1992	2000	FISH	NB, HENRY GOGUEN/COCAGNE				
2075 QUE,	PISCICULTURE ALLEGHANYS	1992	50000	EGGS	NB, ALVIN KRAFT/HATFIELD POINT				
2076 QUE,	PISCICULTURE ALLEGHANYS	1992	200000	EGGS	NB, PAUL NAPEAU/EDMUNDSTON				
2077 QUE,	PISCICULTURE ALLEGHANYS	1992	50000	EGGS	NB, CLARENCE LEVESQUE/CHARLO				
2078 QUE,	PISCICULTURE ALLEGHANYS	1992	35000	EGGS	NB, LEGERE FISH FARM/ROBICHAUD				
2079 QUE,	PISCICULTURE ALLEGHANYS	1992	125000	EGGS	NB, REGINALD BOSSE/EDMUNDSTON				
2080 QUE,	PISCICULTURE ALLEGHANYS	1992	25000	EGGS	NB, MCCREA FARMS/HATFIELD				
2083 ME,	PHILLIPS STATE FISH HATCHERY	1992	110000	EGGS	NB, NBNDRE/FLOWERS COVE	100000			
2084 PEI,	BROOK VALLEY MARINE,SOURIS	1992	100000	FISH	NB, FRANCIS BELENANS/HAMSTEAD				
3018 PEI,	BROOK VALLEY MARINE,SOURIS	1993	75000	FISH	NB, JEAN MARIE MARTIN/DENMARK				
3019 PEI,	BROOK VALLEY MARINE,SOURIS	1993	7000	FISH	NB, ROBERT CAREY/FLORENCEVILLE				
3024 PEI,	BROOK VALLEY MARINE,SOURIS	1993	30000	FISH	NB, LEGERE FISH FARM/ROBICHAUD				
3037 PEI,	BROOK VALLEY MARINE,SOURIS	1993	2000	FISH	NB, HENRY GOGUEN/COCAGNE				
3054 QUE,	PISCICULTURE ALLEGHANYS	1993	30000	EGGS	NB, MCCREA FARMS/HATFIELD				
3056 QUE,	PISCICULTURE ALLEGHANYS	1993	200000	EGGS	NB, REGINALD BOSSE/EDMUNDSTON				
3058 QUE,	PISCICULTURE ALLEGHANYS	1993	45000	EGGS	NB, CLARENCE LEVESQUE/CHARLO				
3059 QUE,	PISCICULTURE ALLEGHANYS	1993	200000	EGGS	NB, PAUL NADEAU/EDMUNDSTON				
3060 PEI,	BROOK VALLEY MARINE,SOURIS	1993	10000	EGGS	NB, KENNETH STEVENS/FLORENCEVILLE				
3063 ME,	PHILLIPS STATE FISH HATCHERY	1993&94	200000	EGGS	NB, NB DEPT OF NATURAL RESOURCES				
3065 QUE,	PISCICULTURE ALLEGHANYS	1994	25000	FRY	NB, ALVIN CRAFT/HATFIELD POINT				
3066 PEI,	BROOK VALLEY MARINE,SOURIS	1994	150000	FISH	NB, JEAN MARIE MARTIN/DENMARK				
3067 PEI,	BROOK VALLEY MARINE,SOURIS	1994	10000	FISH	NB, KENNETH STEVENS/FLORENCEVILLE				
SALVELINUS FONTINALIS X SALVELINUS ALPINUS [CHARBROOK]									
8004 NB,	FLOWERS COVE H (WALTON X PHILLIPS)	P1988	10000	JUV	NB, NBDNRE				MINE PONDS

FILE	ORIGINAL SOURCE	TRANSFERS							FINAL DISPOSITION	
LOCATION	(STOCK/STRAIN)	YEAR	NUMBER	STAGE	SPONSOR/FACILITY	(PURPOSE)	YEAR	NUMBER	STAGE	LOCATION (PURPOSE)
SALVELINUS NAMAYCUSH X SALVELINUS FONTINALIS [SPLAKE]										
6001	NB, FLOWERS COVE H (CLEAR X PHILLIPS)	1986	100	YEAR	NB, NBDNRE					NORTH LAKE (EXP STOCKING)
6001		1986	550	YEAR						PEABODY LK (EXP STOCKING)
6001		1986	100	YEAR						BLIND LAKE (EXP STOCKING)
7023	NB, FLOWERS COVE H (CLEAR X PHILLIPS)	1987	2000	JUV	NB, NBDNRE					MULLIN STREAM LAKE
7023		1987	500	JUV						BIG MEADOW POND
7023		1987	2000	JUV						NL RIVER LAKE
7023		1987	150	JUV						GRAND MANAN
7023		1987	175	JUV						HARRIS LAKE
7023		1987	700	JUV						GLENN SEVERN
8001	NB, FLOWERS COVE H (CLEAR X PHILLIPS)	P1988	5000	JUV	NB, NBDNRE					GRAND LAKE
8001		P1988	2000	JUV						MULLIN STREAM
8001		P1988	2000	JUV						NL RIVER LAKE
	NB, FLOWERS COVE H (CLEAR X PHILLIPS)	P1989	5000	JUV						LAKE UTOPIA
	NB, FLOWERS COVE H (CLEAR X PHILLIPS)	P1989	150	JUV						GOLDSMITHS LAKE

SUMMARY OF SALMONID INTRODUCTIONS AND TRANSFERS, 1986-1993 NEWFOUNDLAND

FILE	ORIGINAL SOURCE			TRANSFERS					FINAL DISPOSITION	
	LOCATION (STOCK/STRAIN)	YEAR	NUMBER	STAGE	SPONSOR/FACILITY (PURPOSE)	YEAR	NUMBER	STAGE	LOCATION	(PURPOSE)
ONCORHYNCHUS MYKISS [RAINBOW TROUT]										
6001	ONT, RAINBOW SPRINGS HATCHERY	1986	5000	5CM					HOPEALL CAGES	(AQC)
	ONT, RINGWOOD HATCHERY ?	1986	6700	JUV					HOPEALL CAGES ?	(AQC)
7002	ONT, RAINBOW SPRINGS H (UNKNOWN)	1987	4000	JUV	NFLD, EPS/NWAFC TANKS (BIOASSAY)	P			TO BE DESTROYED	
7003	ONT, RAINBOW SPRINGS H (UNKNOWN)	1987	900	JUV	NFLD, MSRL TANKS (RESEARCH)	P			TO BE DESTROYED	
7001	ONT, AQUAFARMS CANADA (UNKNOWN)	1987	300	JUV	NFLD, MSRL TANKS (RESEARCH)	P			TO BE INCINERATED	
7004	ONT, RAINBOW SPRINGS H (UNKNOWN)	1987	10000	TR EGG	NFLD, BAY D'ESPOIR HATCHERY	P			BAY D'ESPOIR	(AQUACULTURE)
7007	ONT, RAINBOW SPRINGS H (UNKNOWN)	1987	300	JUV	NFLD, DFO/NWAFC TANKS (RESEARCH)				FISH DESTROYED	
8013	ONT, RAINBOW SPRINGS H (HATCHERY)	1988	150	15 CM	NFLD, MSRL/MEMORIAL U (RESEARCH)				ST JOHNS, STOCK	DESTROYED
8012	ONT, RAINBOW SPRINGS H (HATCHERY)	1988	500	15 CM	NFLD, NWAFC (RESEARCH)				ST JOHNS, STOCK	DESTROYED
8010	ONT, RAINBOW SPRINGS H (HATCHERY)	1988	500	10 CM	NFLD, DFO/NWAFC (RESEARCH)				ST JOHNS, STOCK	DESTROYED
8009	ONT, RAINBOW SPRINGS H (HATCHERY)	1988	500	7 CM	NFLD, DFO/NWAFC (RESEARCH)				ST JOHNS, STOCK	DESTROYED
8015	ONT, RAINBOW SPRINGS H (HATCHERY)	1988	2000	FRY	NFLD, EPS/NWAFC (BIOMONITORING)					
8016	ONT, RAINBOW SPRINGS H (HATCHERY)	1988	2000	FRY	NFLD, EPS/NWAFC (BIOMONITORING)				ST JOHNS, STOCK	DESTROYED
8008	ONT, RAINBOW SPRINGS H (HATCHERY)	1988	2000	FRY	NFLD, EPS/NWAFC (BIOMONITORING)				ST JOHNS, STOCK	DESTROYED
8017	ONT, RAINBOW SPRINGS H (HATCHERY)	1988	30000	TR EGG	NFLD, BAY D'ESPOIR HATCHERY				ST ALBANS, STOCK	DESTROYED
8014	ONT, RAINBOW SPRINGS H (HATCHERY)	1988	125000	TR EGG	NFLD, BAY D'ESPOIR HATCHERY	P1989			ROTI BAY CAGES	(AQC)
8011	ONT, RAINBOW SPRINGS H (HATCHERY)	1988	10000	EGGS	NFLD, MARINE INSTITUTE				ST JOHNS, STOCK	DESTROYED
8007	ONT,	1988	600	FING	NFLD, BAY D'ESPOIR HATCHERY					
8006	ONT,	1988	100000	EGGS	NFLD, BAY D'ESPOIR HATCHERY					
9011	ONT, RAINBOW SPRINGS H (EX H/DOMESTIC)	*1989	50	30-50G	NFLD, MINL/MINL TANKS (TEACHING)	P			TO BE DESTROYED	
9009	ONT, RAINBOW SPRINGS H (EX H/DOMESTIC)	*1989	2000	0.5 G	NFLD, DOE/NWAFC (BIOMONITORING)	P			TO BE DESTROYED	
9008	ONT, RAINBOW SPRINGS H (EX H/DOMESTIC)	*1989	2000	0.5 G	NFLD, DOE/NWAFC (BIOMONITORING)	P			TO BE DESTROYED	
9007	ONT, RAINBOW SPRINGS H (EX H/DOMESTIC)	*1989	75000	TR EGG	NFLD, BAY D'ESPOIR HATCHERY	P1990			ROTI BAY CAGES	(AQC)
9006	ONT, RAINBOW SPRINGS H (EX H/DOMESTIC)	*1989	600	13 CM	NFLD, OSL/BAY D'ESPOIR H (RESEARCH)	P			TO BE DESTROYED	
9010	ONT, RAINBOW SPRINGS H (EX H/DOMESTIC)	*1990	5000	E EGG	NFLD, MINL/MINL TANKS (TEACHING)	P			ST JOHNS, TO BE	DESTROYED
0001	ONT, RAINBOW SPRINGS H (EX H/DOMESTIC)	1990	200	FISH	NFLD, DOE/NWAFC (EXPERIMENTAL)				STOCK	DESTROYED
0002	ONT, RAINBOW SPRINGS H (EX H/DOMESTIC)	1990	60000	E EGG	NFLD, BAY D'ESPOIR HATCHERY	P			SEA CAGES	
0003	ONT, RAINBOW SPRINGS H (EX H/DOMESTIC)	1990	500	0.5-1G	NFLD, LEDREW FUDGE (BIOASSAY)				STOCK	DESTROYED
0005	ONT, RAINBOW SPRINGS H (EX H/DOMESTIC)	1990	2000	0.5 G	NFLD, ENV PROTECTION (BIOASSAY)				STOCK	DESTROYED
0006	ONT, RAINBOW SPRINGS H (EX H/DOMESTIC)	1990	500	0.5-1G	NFLD, LEM LAB INC (BIOASSAY)				STOCK	DESTROYED
0007	ONT, RAINBOW SPRINGS H (EX H/DOMESTIC)	1990	500	10-15CM	NFLD, NWAFC (INFECTION EXPERIMENTS)				STOCK	DESTROYED
0008	ONT, RAINBOW SPRINGS H (EX H/DOMESTIC)	1990	20000	E EGGS	NFLD, BAY D'ESPOIR HATCHERY	P			SEA CAGES	
0009	ONT, RAINBOW SPRINGS H (EX H/DOMESTIC)	1990	1500	0.5 G	NFLD, ENV PROTECTION (BIOASSAY)				STOCK	DESTROYED
0011	ONT, RAINBOW SPRINGS H (EX H/DOMESTIC)	1990	1500	40 MM	NFLD. SMBDA/HOLYROOD POND				(AQUACULTURE)	
0012	ONT, RAINBOW SPRINGS H (EX H/DOMESTIC)	1990	500	0.5-1G	NFLD, LEM LAB INC (BIOASSAY)				STOCK	DESTROYED
0013	ONT, RAINBOW SPRINGS H (EX H/DOMESTIC)	1990	500	10-15CM	NFLD, NWAFC (IMMUNOLOGY)				STOCK	DESTROYED
0015	ONT, RAINBOW SPRINGS H (EX H/DOMESTIC)	1990	500	1-2 G	NFLD, LEM LAB INC (BIOASSAY)				STOCK	DESTROYED
0016	ONT, RAINBOW SPRINGS H (EX H/DOMESTIC)	1990	1000	0.5-1G	NFLD, LEM LAB INC (BIOASSAY)				STOCK	DESTROYED
0017	ONT, RAINBOW SPRINGS H (EX H/DOMESTIC)	1990	200	FISH	NFLD, MARINE INSTITUTE (EXP)				STOCK	DESTROYED
0018	ONT, RAINBOW SPRINGS H (EX H/DOMESTIC)	1990	130000	E EGG	NFLD, BAY D'ESPOIR HATCHERY	P			SEA CAGES	
0019	ONT, RAINBOW SPRINGS H (EX H/DOMESTIC)	1990	1500	0.5 G	NFLD, ENV PROTECTION (BIOASSAY)				STOCK	DESTROYED
0021	ONT, RAINBOW SPRINGS H (EX H/DOMESTIC)	*	?		PEI, BROOK VALLEY MARINE	1990	1000	1-1.5G	SEE NEXT LINE	
0021		*			NFLD, LEM LAB INC (BIOASSAY)				STOCK	DESTROYED
0022	ONT, RAINBOW SPRINGS H (EX H/DOMESTIC)	1990	150	FISH	NFLD, MARINE INSTITUTE (EXP)				STOCK	DESTROYED
1001	ONT, RAINBOW SPRINGS H (HATCHERY)	1991	150000	TR EGG	NFLD, BAY D'ESPOIR HATCHERY	P1992			SEA CAGES	
1002	ONT, RAINBOW SPRINGS H (DOMESTIC)	1991	2000	FISH	NFLD, MURRAY'S POND F&C CLUB				POND FOR ANGLING	
1003	PEI, BROOKVALLEY MARINE FARM (DOMESTIC)	1991	3500	15 CM	NFLD, STEPHENVILLE IND DEV COMM				FISHOUT POND	
1004	ONT, RAINBOW SPRINGS H (DOMESTIC)	1991	300000	TR EGG	NFLD, BAY D'ESPOIR HATCHERY	P1992			SEA CAGES	
2006	ONT, RAINBOW SPRINGS H (DOMESTIC)	1992	30000	EGGS	NFLD, HOPEALL HATCHERY				FISHOUT POND	
2007	QUE, PISCICULTURE ALLEGHANYS (DOMESTIC)	1992	150000	E EGGS	NFLD, BAY D'ESPOIR HATCHERY	P1993			SEA CAGES	
2008	QUE, PISCICULTURE ALLEGHANYS (DOMESTIC)	1992	6700	FISH	NFLD, BAY D'ESPOIR HATCHERY	P1993			SEA CAGES	
2009	PEI, BROOKVALLEY MARINE FARM (DOMESTIC)	1992	52000	FISH	NFLD, BAY D'ESPOIR HATCHERY	P1993			SEA CAGES	
2010	ONT, RAINBOW SPRINGS H (DOMESTIC)	1992	2500	EGGS	NFLD, MURRAY'S POND HATCHERY				MURRAY'S POND	(SPORT FISHING)
2011	ONT, RAINBOW SPRINGS H (DOMESTIC)	1992	186000	EGGS	NFLD, BAY D'ESPOIR HATCHERY	P1994			SEA CAGES	
2012	PEI, BROOKVALLEY MARINE FARM (DOMESTIC)	1992	7500	FISH	NFLD, HAROLD SMITH/SPIRITY POND				SEA CAGES	
3083	ONT, RAINBOW SPRINGS (DOM TRIPLOID)	1993	144700	EGGS	NFLD, BAY D'ESPOIR HATCHERY	P1994			SEA CAGES	(IPN, BKD, MA, AF)
3084	QUE, PISCICULTURE ALLEGH (DOM TRIPLOID)	1993	600000	EGGS	NFLD, BAY D'ESPOIR HATCHERY	P1994			SEA CAGES	(IPN, BKD, MA, AF)
3085	PEI, BROOKVALLEY MARINE FARM (DOMESTIC)	1993	25000	EGGS	NFLD, RAINBOW FARMS H/HOPEALL	P1994			FISHOUT POND	(NONCLINICAL IPN)
3086	PEI, BROOKVALLEY MARINE FARM (DOMESTIC)	1993	15000	FISH	NFLD, RAINBOW FARMS H/HOPEALL	1993			PUT&TAKE OPERATION	IN POND
3087	QUE, PISCICULTURE ALLEGH (DOM TRIPLOID)	1993	500000	EGGS	NFLD, BAY D'ESPOIR HATCHERY	P1994			SEA CAGES	(IPN, BKD, MA, AF)
3088	PEI, BROOKVALLEY MARINE F(DOM TRIPLOID)	1993	10000	FISH	NFLD, SPIRITY POND LTD/NORRIS PT	1993			SPORTFISHING	
3089	MAN, ROCKWOOD HATCHERY (DOMESTIC)	1993	5000	EGGS	NFLD, NEW TECH CHAR F/PORT REXTON				BROODSTOCK DEVELOPMENT	

FILE	ORIGINAL SOURCE				TRANSFERS				FINAL DISPOSITION	
	LOCATION (STOCK/STRAIN)	YEAR	NUMBER	STAGE	SPONSOR/FACILITY (PURPOSE)	YEAR	NUMBER	STAGE	LOCATION	(PURPOSE)
SALMO SALAR [ATLANTIC SALMON]										
8001	NB, KELLY COVE SEA CAGES (FUNDY/SJR)	*1988	130000	EGGS	NB, BRIDEN/CHAMCOOK H (QUAR)	1989	130000	EGGS	SEE NEXT LINE	
8001					NFLD, BAY D'ESPOIR H (QUAR)					
9012	NB, KELLY COVE SEA CAGES (FUNDY/SJR)	1989	100000	EGGS	NB, CHAMCOOK HATCHERY (QUAR)	1989	100000	EGGS	SEE NEXT LINE	
9012					NFLD, BAY D'ESPOIR H (QUAR)					
1005	NB, AQUA VENTURES LTD (FUNDY)	1991	100000	EGGS	NFLD, BAY D'ESPOIR H (QUAR)	P1992	75000	FISH	SEA CAGES	
2001	NB, AQUA VENTURES LTD (FUNDY)	1992	100000	EGGS	NFLD, BAY D'ESPOIR H (QUAR)	P1993	80000	FISH	SEA CAGES	
2002	NB, AQUA VENTURES LTD (FUNDY)	1992	150000	EGGS	NFLD, BAY D'ESPOIR H (QUAR)	P1994			SEA CAGES	
SALVELINUS ALPINUS [ARCTIC CHAR]										
	LAB, (FRASER RIVER)	1986	54500	EGGS	NFLD, MSRL					
7005	LAB, (FRASER RIVER)	1987	10000	EGGS	NFLD, MSRL (INCUBATION)				EGGS DESTROYED	
7006	LAB, (FRASER RIVER)	1987	60000	EGGS	NFLD, BAY D'ESPOIR H (QUAR)				EGGS DESTROYED	
8005	MAN, DFO, WINNIPEG	1988	30000	EGGS	NFLD, AQUA BLUE FARMS/PORT REXTON					
8004	NB, HUNTSMAN MARINE LABORATORY	1988	30000	EGGS	NFLD, BAY D'ESPOIR HATCHERY					
8003	MAN, DFO, WINNIPEG	1988	10000	EGGS	NFLD, BAY D'ESPOIR HATCHERY					
8002	LAB, (IKINET BROOK)	1988	5000	EGGS	NFLD, BAY D'ESPOIR HATCHERY					
9001	PEI, INTEGRATED AQUATICS (FRASER R/DOM)	*1989	150	7-10CM	NFLD, DFO/NWAFC (RESEARCH)	P			STOCK TO BE DESTROYED	
9002	MAN, ROCKWOOD HATCHERY (FRASER R/DOM)	*1989	5000	EGGS	NFLD, BAY D'ESPOIR HATCHERY	P1990			ROTI BAY CAGES (AQC)	
9003	NB, HUNTSMAN MARINE LAB (FRASER R/DOM)	*1989	30000	E EGGS	NFLD, BAY D'ESPOIR H (QUARIN)	P1990			ROTI BAY CAGES (AQC)	
9004	MAN, ROCKWOOD HATCHERY (FRASER R/DOM)	*1989	3000	EGGS	NFLD, MARINE INSTITUTE (TEACHING)	P			STOCK TO BE DESTROYED	
9005	MAN, ROCKWOOD HATCHERY (FRASER R/DOM)	*1989	5000	EGGS	NFLD, NORDCO AQUARIUM (EXPER)	1989			ST JOHNS, STOCK DIED	
0014	PEI, IAS (EX ST JOHN EX FRASER R/DOM)	1990	200	FING	NFLD, NWAFC (RESEARCH)	P			STOCK TO BE DESTROYED	
1006	MAN, ROCKWOOD HATCHERY (FRASER R/DOM)	1991	10000	EGGS	NFLD, NEW TECH CHAR FARMS				BROODSTOCK DEVELOPMENT	
1007	PEI, IAS (PURTILL/DOM)	1991	10000	12-15CM	NFLD, VALLEY CHAR INC				LAKE CAGES, GRAND LAKE	
1008	PEI, BROOKVALLEY MARINE (FRASER R/DOM)	1991	31000	FISH	NFLD, GNPDC				INDUSTRY DEMONSTRATION	
1009	MAN, WILDWOOD ENT LTD (DOMESTIC)	1991	10000	EGGS	NFLD, NEW TECH CHAR FARMS				BROODSTOCK DEVELOPMENT	
1010	MAN, WILDWOOD TROUT F (NAUYUK L/DOM)	1991	10000	EGGS	NFLD, NEW TECH CHAR FARMS				BROODSTOCK DEVELOPMENT	
1011	PEI, BROOKVALLEY MARINE (FRASER R/DOM)	1991	310000	EGGS	NFLD, NEW TECH CHAR FARMS				BROODSTOCK DEVELOPMENT	
1012	PEI, BROOKVALLEY MARINE (FRASER R/DOM)	1991	40000	EGGS	NFLD, GNPDC				INDUSTRY DEMONSTRATION	
1013	PEI, BROOKVALLEY MARINE (DOMESTIC)	1991	10000	FISH	NFLD, NEW TECH CHAR FARMS				BROODSTOCK DEVELOPMENT	
1014	QUE, PISCICULTURE DES ALLEGHANYS	1991	40000	EGGS	NFLD, DFO/NEW TECH CHAR FARMS				RESEARCH/DEMON FISHOUT POND	
2003	MAN, WILDWOOD TROUT F (FRASER R DOM)	1992	115400	EGGS	NFLD, DFO/NEW TECH CHAR FARMS				BROODSTOCK DEVELOPMENT	
2004	MAN, ROCKWOOD HATCHERY (FRASER R/DOM)	1992	5000	EGGS	NFLD, DFR/NEW TECH CHAR FARMS				RESEARCH UNDER FIELD CONDITIONS	
3074	NB, GREEN ACRES HATCHERY (DOMESTIC)	1993	100000	EGGS	NFLD, NEW TECH CHAR FARMS				BROODSTOCK DEVELOPMENT	
3075	PEI, BROOKVALLEY MARINE (FRASER R/DOM)	1993	26500	FISH	NFLD, GREAT NOTHERN PENINSULA	P1994			SALE AND/OR GROW OUT	
3076	NB, GREEN ACRES HATCHERY (DOMESTIC)	1993	17500	FISH15g	NFLD, VALLEY CHAR INC/DEER LAKE	1993	17500		LAKE CAGES, DEER LAKE	
3077	MAN, ROCKWOOD HATCHERY (FRASER R/DOM)	1993	20000	EGGS	NFLD, GREAT NOTHERN PENINSULA	P1994			SALE AND/OR GROW OUT	
3078	YUK, ICY WATERS QUARANTI (NAUYUK L/DOM)	1993	35000	EGGS	NFLD, GREAT NOTHERN PENINSULA	P1994			SALE AND/OR GROW OUT	
3079	NB, GREEN ACRES HATCHERY (DOMESTIC)	1993	14500	FISH	NFLD, VALLEY CHAR INC/DEER LAKE	1993	14500		LAKE CAGES, DEER LAKE	
3080	PEI, BROOKVALLEY MARINE (FRASER R/DOM)	1993	50000	EGGS	NFLD, GREAT NOTHERN PENINSULA	P1994			SALE AND/OR GROW OUT	
SALVELINUS FONTINALIS [BROOK TROUT]										
2005	PEI, BROOKVALLEY MARINE (DOMESTIC)	1992	5500	6-8 IN	NFLD, STEPHENVILLE IND DEV COMM				MINE POND/AQUACULTURE	
3081	NB, GREEN ACRES HATCHERY (DOMESTIC)	1993	5000	EGGS	NFLD, NEW TECH CHAR FARMS	1993	5000		DIED DURING FIRST 6 MONTHS	
3082	PEI, BROOKVALLEY MARINE (DOMESTIC)	1993	5500	F 20CM	NFLD, STEPHENVILLE INDUSTRIAL DEV	1993	5500		GROW OUT AND FISHING	

SUMMARY OF SALMONID INTRODUCTIONS AND TRANSFERS, 1986-1993 NEW HAMPSHIRE

FILE	LOCATION	ORIGINAL SOURCE (STOCK/STRAIN)	YEAR	NUMBER	STAGE	TRANSFERS SPONSOR/FACILITY	(PURPOSE)	YEAR	NUMBER	STAGE	FINAL DISPOSITION LOCATION	(PURPOSE)
ONCORHYNCHUS KISUTCH [COHO SALMON]												
	NH,		1986	30000	FRY						GREAT BAY TRIBUTARIES	
6003	NH,	MILFORD HATCHERY (LAMPREY RIVER)	1986	61745	PARR						LAMPREY R	(SPORT FISHERY)
6002	NH,	MILFORD HATCHERY (LAMPREY RIVER)	1986	130000	SMOLTS						LAMPREY R	(SPORT FISHERY)
	NH,		1986	129665	SMOLTS						GREAT BAY ESTUARY	
7003	NH,	MILFORD HATCHERY (LAMPREY RIVER)				NH, TWIN MOUNTAIN HATCHERY ?		1987	151000	SMOLTS	LAMPREY RIVER	(RESEARCH)
8004	NY,	SALMON RIVER H (SALMON RIVER)				NH, TWIN MOUNTAIN HATCHERY		1988	99411	SMOLTS	LAMPREY R	(RECREATION)
9005	MI,	PLATTE RIVER HATCHERY (PLATTE)	1987	300000	E EGGS	NH, NHFG/TWIN MOUNTAIN HATCHERY		1989	200295	SMOLTS	LAMPREY R	(RECREATION)
0001	MI,	PLATTE RIVER HATCHERY (OREGON)	P1990	400000	SMOLTS						LAMPREY R	(RECREATION)
ONCORHYNCHUS MYKISS [RAINBOW TROUT]												
	NY,	(LAKE ONTARIO)	1986	47215	SMOLTS						GREAT BAY ESTUARY	
6004	NY,	SALMON RIVER H (SALMON RIVER)	1986	47000							LAMPREY R	(RECREATION)
7004	NY,	SALMON RIVER H (SALMON RIVER)	1987	37000							LAMPREY R	(RECREATION)
ONCORHYNCHUS TSHAWYTSCHA [CHINOOK SALMON]												
8005	NY,	SALMON R H (LK ONTARIO/SALMON R)				NH, TWIN MOUNTAIN HATCHERY		1988	110918	AGE I	LAMPREY R	(RECREATION)
8003	NY,	SALMON R H (LK ONTARIO/SALMON R)				NH, TWIN MOUNTAIN HATCHERY		1988	431460	FRY	LAMPREY R	(RECREATION)
9004	NY,	SALMON R H (LK ONTARIO/SALMON R)	1988	1100000	EGGS	NH, NHFG/MILFORD HATCHERY		1989	631000	SMOLTS	LAMPREY R	(RECREATION)
0001	NY,	SALMON R H (LK ONTARIO/SALMON R)	1989	700000	EGGS	NH, NHFG/MILFORD HATCHERY		1990	427000	SMOLTS	LAMPREY & EXETER RIVERS	
0002	NY,	SALMON R H (LK ONTARIO/SALMON R)	1990	779000	EGGS	NH, NHFG/MILFORD HATCHERY		1991	428198	SMOLTS	(RECREATIONAL FISHERY)	
1001	NY,	SALMON R H (LK ONTARIO/SALMON R)	1991	510000	G EGGS	NH, NHFG/MILFORD HATCHERY					LAMPREY & EXETER RIVERS	
1001				250000	E EGGS	NH, NHFG/MILFORD HATCHERY		1992	495000	SMOLTS	(RECREATIONAL FISHERY)	
2099	NY,	SALMON R H (LK ONTARIO/SALMON R)	1992	420000	E EGGS	NH, NHFG/MILFORD HATCHERY		P1993		SMOLTS	LAMPREY R	(RECREATION)
3017	NY,	SALMON R H (LK ONTARIO/SALMON R)	1993	375300	SMOLTS	NH, NHFG		1993	375300	SMOLTS	LAMPREY R	(RECREATION)
SALMO TRUTTA [BROWN TROUT]												
6001	NH,	MILFORD HATCHERY (DOMESTIC)	1986	9850	SMOLTS	NH, NHFG					8 RIVERS	(RESEARCH)
7001	NH,	MILFORD HATCHERY (DOMESTIC)	P1987	9850	SMOLTS	NH, NHFG					8 RIVERS	(RESEARCH)

SUMMARY OF SALMONID INTRODUCTIONS AND TRANSFERS, 1986-1993 NEW JERSEY

FILE LOCATION	ORIGINAL SOURCE (STOCK/STRAIN)	TRANSFERS YEAR	NUMBER	STAGE	SPONSOR/FACILITY	(PURPOSE)	YEAR	NUMBER	STAGE	FINAL DISPOSITION LOCATION	(PURPOSE)
ONCORHYNCHUS MYKISS [RAINBOW TROUT]											
7001 NY,	ALTMAR HATCHERY (SALMON RIVER)	1987	53000	E EGGS	NJ, HAYFORD HATCHERY		?1988			LARGE LOSS, PREDATION	
7001							1988	1128		SMOLTS RARITAN RIVER	(RESEARCH)
2001 CA, MT LASSEN T FARM	(HILDEBRAND W)	1992	5000	EGGS	NJ, STATE AQUARIUM		1993	5000	2-3JUV	FISH FOOD (LOT 07/20/92)	
2002 CA, MT LASSEN T FARM	(HILDEBRAND W)	1992	5000	EGGS	NJ, STATE AQUARIUM		1993	5000	2-3JUV	FISH FOOD (LOT 07/23/92)	
2003 CA, MT LASSEN T FARM	(HILDEBRAND W)	1992	5000	EGGS	NJ, STATE AQUARIUM		1992	5000	SWIMUP	FISH FOOD (LOT 11/30/92)	
2004 CA, MT LASSEN T FARM	(HILDEBRAND W)	1992	5000	EGGS	NJ, STATE AQUARIUM		1993	5000	SWIMUP	FISH FOOD (LOT 12/23/92)	
2005 CA, MT LASSEN T FARM	(HILDEBRAND W)	1992	5000	EGGS	NJ, STATE AQUARIUM		1993	5000	SWIMUP	FISH FOOD (LOT 12/31/92)	
3001 CA, MT LASSEN T FARM	(HILDEBRAND W	1993	5000	EGGS	NJ, STATE AQUARIUM		1993	5000	JUV	FISH FOOD (LOT 01/14/93)	
3002 CA, MT LASSEN T FARM	(HILDEBRAND W)	1993	5000	EGGS	NJ, STATE AQUARIUM		1993	5000	JUV	FISH FOOD (LOT 01/26/93)	
3003 CA, MT LASSEN T FARM	(HILDEBRAND W)	1993	5000	EGGS	NJ, STATE AQUARIUM		1993	5000	FRY	ON HAND MARCH 1993	
ONCORHYNCHUS TSHAWYTSCHA [CHINOOK SALMON]											
6001 NY,	ALTMAR HATCHERY (SALMON RIVER)	1986	70000	EGGS	NJ, NJDEP/HAYFORD H	(EXP REARING)	1987	59705		RARITAN RIVER	
7002 NY,	ALTMAR HATCHERY (SALMON RIVER)	1987	95000	E EGGS	NJ, NJDEP/HAYFORD H	(EXP REARING)	1988	91170	SMOLTS	RARITAN RIVER	

SUMMARY OF SALMONID INTRODUCTIONS AND TRANSFERS, 1986-1993

NEW YORK

FILE LOCATION	ORIGINAL SOURCE (STOCK/STRAIN)	TRANSFERS YEAR	NUMBER	STAGE	SPONSOR/FACILITY (PURPOSE)	YEAR	NUMBER	STAGE	FINAL DISPOSITION LOCATION (PURPOSE)
ONCORHYNCHUS KISUTCH [COHO SALMON]									
6004 NY,	SALMON R H (LK ONTARIO/SALMON R)	1986	547000	JUV	NY, NYDEC				LK ONTARIO (ENHANCEMENT)
6008 NY,	SALMON R H (LK ONTARIO/SALMON R)	1986	102000	YEAR	NY, NYDEC				LK ERIE (SPORT FISHING)
6011 NY,	SALMON R H (LK ONTARIO/SALMON R)	1986	194000	YEAR	NY, NYDEC				LK ONTARIO (SPORT FISHING)
6011		1986	268000	FING					LK ONTARIO (SPORT FISHING)
7011 NY,	SALMON R H (LK ONTARIO/SALMON R)	P1987	350000	YEAR	NY, NYDEC				LK ONTARIO (SPORT FISHING)
7009 NY,	SALMON R H (LK ONTARIO/SALMON R)	P1987	100000	1+	NY, NYDEC				LK ONTARIO (SPORT FISHING)
7034 NY,	2 HATCHERIES (SALMON RIVER)	1987	80000	YEAR	NY, NYDEC				LK ONTARIO (SPORT FISHING)
8015 NY,	2 HATCHERIES (SALMON RIVER)	1988	299850	YEAR	NY, NYDEC				LK ONTARIO (SPORT FISHING)
8016 NY,	2 HATCHERIES (SALMON RIVER)	1988	256500	FING	NY, NYDEC				LK ONTARIO (SPORT FISHING)
8028 NY,	SALMON R H (LK ONTARIO/SALMON R)	1988	31600	16 MO					CHAUTAUQUA CR, LK ERIE
8028		1988	32600	16 MO					18 MILE CREEK, LK ERIE
8028		1988	14500	16 MO					CANADAWAY CREEK, LK ERIE
8028		1988	90250	16 MO					CATTARAUGUS CR, LK ERIE
8028		1988	40000	6 MO					CATTARAUGUS CR, LK ERIE
8028		1988	40000	6 MO					18 MILE CREEK, LK ERIE
8027 NY,	CALEDONIA HATCHERY (SALMON R)	1988	37500	11 MO	NY, NYDEC				CATTARAUGUS CR, LK ERIE
9003 NY,	SALMON R H (LK ONTARIO/SALMON R)	1989	180000	F FING	NY, NYDEC				3 LK ERIE TRIBS (STOCKING)
9004 NY,	SALMON R H (LK ONTARIO/SALMON R)	1988	175000	F FING	NY, NYDEC/CALEDONIA HATCHERY	1989	147865	YEAR	3 LK ERIE TRIBS (STOCKING)
9013 NY,	SALMON R H (LK ONTARIO/SALMON R)	1989	143040	YEAR					LAKE ONTARIO (STOCKING)
9013		1989	53400	F FING					LAKE ONTARIO (STOCKING)
9014 NY,	CALEDONIA H (LK ONTARIO/SALMON R)	1989	54065	YEAR	NY, NYDEC				LAKE ONTARIO (STOCKING)
9014		1989	160000	F FING					LAKE ONTARIO (STOCKING)
0008 NY,	SALMON R H (LK ONTARIO/LK ONTARIO)	1990	162500	F FING	NY, NYDEC, LAKE ERIE UNIT				LAKE ERIE (STOCKING)
0009 NY,	SALMON R H (LK ONTARIO/SALMON R)	1990	144400	FING	NY, NYDEC				LAKE ONTARIO (STOCKING)
0010 NY,	SALMON R H (LK ONTARIO/SALMON R)	1990	187200	F FING	NY, NYDEC				LAKE ONTARIO (STOCKING)
0011 NY,	SALMON R H (LK ONTARIO/SALMON R)	1990	110000	YEAR	NY, NYDEC (PRODUCE SPAWNING RUN)				LAKE ONTARIO (STOCKING)
0012 NY,	SALMON R H (LK ONTARIO/SALMON R)	P1991	90000	YEAR	NY, NYDEC (PRODUCE SPAWNING RUN)				LAKE ONTARIO (STOCKING)
0013 NY,	SALMON R H (LK ONTARIO/SALMON R)	P1991	155000	FING	NY, NYDEC				LAKE ONTARIO (STOCKING)
1006 NY,	SALMON R H (LK ONTARIO/SALMON R)	1991	161250	F FING	NY, NYDEC LAKE ERIE UNIT				PUBLIC STOCKING
1007 NY,	SALMON R H (LK ONTARIO/SALMON R)	1991	131750	F FING	NY, NYDEC LAKE ONTARIO				PUBLIC FISHING
1008 NY,	SALMON R H (LK ONTARIO/SALMON R)	1991	97000	YEAR	NY, NYDEC (PRODUCE SPAWNING RUN)				PUBLIC FISHING
1009 NY,	SALMON R H (LK ONTARIO/SALMON R)	1992	155000	S FING	NY, NYDEC (LAKE ONTARIO)	1992	55000	F FING	PUBLIC FISHING
1010 NY,	SALMON R H (LK ONTARIO/SALMON R)	P1992	90000	YEAR	NY, NYDEC (PRODUCE SPAWNING RUN)				PUBLIC FISHING
2106 NY,	SALMON R H (LK ONTARIO/SALMON R)	1992	275700	FING	NY, NYDEC LAKE ERIE UNIT				PUBLIC FISHING
2107 NY,	SALMON R H (LK ONTARIO/SALMON R)	1992	290000	S FING	NY, NYDEC (LAKE ONTARIO)				PUBLIC FISHING
2108 NY,	SALMON R H (LK ONTARIO/SALMON R)	1992	94100	YEAR	NY, NYDEC (PRODUCE SPAWNING RUN)				PUBLIC FISHING
2109 NY,	SALMON R H (LK ONTARIO/SALMON R)	P1993	245000	YEAR	NY, NYDEC (PRODUCE SPAWNING RUN)				PUBLIC FISHING
3121 NY,	SALMON R H (LK ONTARIO/SALMON R)	P1994	245000	YEAR	NY, NYDEC (PRODUCE SPAWNING RUN)				PUBLIC FISHING
3122 NY,	SALMON R H (LK ONTARIO/SALMON R)	1993	95670	YEAR	NY, NYDEC (PRODUCE SPAWNING RUN)				PUBLIC FISHING
3123 NY,	SALMON R H (LK ONTARIO/SALMON R)	1993	99970	F FING	NY, NYDEC (PRODUCE SPAWNING RUN)				PUBLIC FISHING
ONCORHYNCHUS MYKISS [RAINBOW TROUT]									
6015 NY,	CALEDONIA HATCHERY (DOMESTIC)	1986	103000	JUV	NY, NYDEC				LK ONTARIO (SPORT FISHING)
6006 NY,	SALMON RIVER H (SALMON R/WA SS)	1986	100000	YEAR					LAKE ERIE (SPORT FISHING)
6003 NY,	SALMON RIVER H (SALMON R/WA SS)	1986	335000	1+					LK ONTARIO (SPORT FISHING)
6007 MI, IN,	(LK MICHIGAN/SKAMANIA SS)				NY, NYDEC/SALMON RIVER HATCHERY	1986	17950	YEAR	LAKE ERIE (SPORT FISHING)
7016 NY,	SALMON RIVER H (STEELHEAD STRAIN)	P1987	412000	YEAR					
7003 NY,	SALMON RIVER H (LK ONTARIO/WA SS)	1987	130000	JUV					4 LAKE ERIE TRIBUTARIES
7002 IN,	(LK MICHIGAN/SKAMANIA SS)				NY, NYDEC/SALMON RIVER HATCHERY	1987	20000	YEAR	CHAUTAUQUA CREEK
7027 NY,	SALMON RIVER H (DOMESTIC/WFC)	1987	23000	FING					NOT IDENTIFIED
7028 NY,	SALMON R H (DOMESTIC/WYTHEVILLE)	1987	17200	FING					NOT IDENTIFIED
7029 NY,	SALMON RIVER HATCHERY (DOMESTIC)	1987	90600	YEAR					NOT IDENTIFIED
7024 NY,	SALMON R H (WA OR SKAMANIA SS)	1987	60000	FING					LK ONTARIO TRIBUTARIES
7025 NY,	3 HATCHERIES (FINGER LAKES SS)	1987	69350	FING					LK ONTARIO TRIBUTARIES
7026 NY,	3 HATCHERIES (WA OR SKAMANIA SS)	1987	443340	YEAR					LK ONTARIO TRIBUTARIES
NY,	RANDOLPH H (DOMESTIC/NASHUA)				NY, CALEDONIA HATCHERY	1988	5000	10 MO	BUFFALO CREEK, LK ERIE
8027 NY,	CALEDONIA H (DOMESTIC/NASHUA)	1988	7500	10 MO					18 MILE CREEK
8027		1988	5000	10 MO					CANADAWAY CREEK
8027		1988	5000	10 MO					CATTARAUGUS CREEK
8027		1988	17800	14 MO					EAGLE BAY, LK ERIE
8027		1988	11600	15 MO					STURGEON POINT, LK ERIE
8026 NY,	RANDOLPH H (DOMESTIC/NASHUA)	1988	5000	14 MO					BUFFALO HARBOUR
8007 NY,	CALEDONIA H (CALEDONIA/DOMESTIC)	1988	150500	FING					LKE ONTARIO (ENHANCEMENT)

FILE LOCATION	ORIGINAL SOURCE (STOCK/STRAIN)	TRANSFERS YEAR	NUMBER	STAGE	SPONSOR/FACILITY (PURPOSE)	YEAR	NUMBER	STAGE	FINAL DISPOSITION LOCATION (PURPOSE)
ONCORHYNCHUS MYKISS [RAINBOW TROUT] CONTINUED									
8008 NY,	CALEDONIA H (CALEDONIA/DOMESTIC)	1988	77370	YEAR					LKE ONTARIO (ENHANCEMENT)
8024 NY,	SALMON RIVER H (SALMON R/WA SS)	1988	50000	6 MO					SPOONER BROOK, LK ERIE
8024		1988	50000	6 MO					CLEAR CREEK
8024		1988	18000	16 MO					CHAUTAUQUA CREEK
8024		1988	37000	16 MO					CATTARAUGUS CREEK
8024		1988	23700	16 MO					18 MILE CREEK
8025 IN,	(SKAMANIA STEELHEAD STRAIN)				NY, CALEDONIA HATCHERY	1988	10100	16 MO	CATTARAUGUS CREEK
8025		1988	18000	16 MO					CHAUTAUQUA CREEK
8005 NY,	VARIOUS (FINGER KK X DOMESTIC SS)	1988	6780	YEAR					LK ONTARIO TRIBUTARIES
8004 NY,	VARIOUS HATCHERIES (SKAMANIA SS)	1988	107000	YEAR					LK ONTARIO TRIBUTARIES
8003 NY,	VARIOUS HATCHERIES (WA SS)	1988	293700	YEAR					LK ONTARIO TRIBUTARIES
8006 NY,	VARIOUS HATCHERIES	1988	308050	FING					LK ONTARIO TRIBUTARIES
9005 NY,	SALMON RIVER H (SALMON R/SS)	1989	13100	F FING	NY, NYDEC				CATTARAUGUS CR (STOCKING)
9005		1989	102900	YEAR					4 LK ERIE TRIBS (STOCKING)
9017 NY.	CALEDONIA H (SALMON R/WA SS)	1989	212440	YEAR	NY, NYDEC				LAKE ONTARIO (STOCKING)
9018 NY,	SALMON RIVER H (SALMON R/WA SS)	1989	171970	YEAR	NY, NYDEC				LAKE ONTARIO (STOCKING)
9018		1989	75000	F FING					LAKE ONTARIO (STOCKING)
9019 NY,	CALEDONIA HATCHERY (DOM/NASHUA)	1989	93790	YEAR	NY, NYDEC				LAKE ONTARIO (STOCKING)
9019		1989	25000	F FING					LAKE ONTARIO (STOCKING)
0001 NY,	SALMON RIVER H (LK ONTARIO/WILD)				NY, NYDEC, LAKE ERIE UNIT	1990	120700	YEAR	LAKE ERIE (STOCKING)
0002 NY,	SALMON RIVER H (LK ONTARIO/WILD)	1990	48400	FING	NY, NYDEC, LAKE ERIE UNIT				LAKE ERIE (STOCKING)
0003 NY.	CALEDONIA H (SALMON RIVER/WA SS)	1990	287200	YEAR	NY, NYDEC				LAKE ONTARIO (STOCKING)
0004 NY,	SALMON RIVER H (SALMON R/WA SS)	1990	125000	YEAR	NY, NYDEC				LAKE ONTARIO (STOCKING)
0005 NY,	SALMON RIVER H (SALMON R/WA SS)	1990	180000	FING	NY, NYDEC				LAKE ONTARIO (STOCKING)
0006 NY,	SALMON RIVER H (SALMON R/WA SS)	P1991	375000	YEAR	NY, NYDEC				LAKE ONTARIO (STOCKING)
0007 NY,	SALMON R H (LK ONTARIO/SKAM SS)	P1991	82000	YEAR	NY, NYDEC (PRODUCE SPRING RUN)				LAKE ONTARIO (STOCKING)
1005 NY,	LAKE ONTARIO (STEELHEAD/WILD)	1991	143000	YEAR	NY, NYDEC LAKE ERIE UNIT				PUBLIC STOCKING (ANNUALLY SCH)
1015 NY,	LAKE ONTARIO (STEELHEAD/WILD)	P1993	375000	YEAR	NY, NYDEC LK ONTARIO				PUBLIC FISH/BROODSTOCK
1016 NY,	LAKE ONTARIO (STEELHEAD/SKAMANIC)	P1993	82000	YEAR	NY, NYDEC LAKE ONTARIO				PUBLIC FISH/BROODSTOCK
1017 NY,	LK ONTARIO(WASHINGTON/SALMON R)	1991	519300	YEAR	NY, NYDEC LAKE ONTARIO				PUBLIC FISH/BROODSTOCK
1018 NY,	LAKE ONTARIO(STEELHEAD/SKAMANIC)	1991	32000	YEAR	NY, NYDEC LAKE ONTARIO				PUBLIC FISH/BROODSTOCK
1019 NY,	LK ONT(STEELHEAD/WASH/SAL RIVER)	1991	175000	S FING	NY, NYDEC LAKE ONTARIO				PUBLIC STOCKING
1020 NY,	LK ONT(STEELHEAD/WASH/SAL RIVER)	1991	40000	F FING	NY, NYDEC LAKE ONTARIO				PUBLIC STOCKING
2115 NY,	LK ONT(STEELHEAD/WASH/SAL RIVER	1992	105000	YEAR	NY, NYDEC LAKE ERIE UNIT				PUBLIC STOCKING
2116 NY,	SALMON RIVER H (LK ONTARIO/WILD)	1992	130000	F FING	NY, NYDEC LAKE ERIE UNIT				LAKE ERIE (STOCKING)
2117 NY,	LK ONT(STEELHEAD/WASH/SAL RIVER	1992	430000	YEAR	NY, NYDEC LAKE ONTARIO				PUBLIC FISH/BROODSTOCK
2118 NY,	LAKE ONTARIO (STEELHEAD/SKAMANIC)	1992	84780	YEAR	NY, NYDEC LAKE ONTARIO				PUBLIC STOCKING
3114 CT,	EAST TWIN LAKE, DEP	1992	210000	EGG	NY, NYS DEC/CATSKILL H				(SEE NEXT LINE)
3114		1992	191000	EGG	NYSDEC/ROME H	1993	170000	S FING	INLAND LAKES AND PONDS(REC FISHING)
3124 NY,	SALMON RIVER H (LK ONTARIO/WILD)				NY, NYDEC LAKE ONTARIO	1993	369930	YEAR	LAKE ONTARIO (STOCKING)
3125 NY,	CALEDONIA H (LK ONTARIO/DOM/WILD)				NY, NYDEC	1993	74000	YEAR	LAKE ONTARIO (STOCKING)
3126 NY,	SALMON RIVER H (LK ONTARIO/WILD)				NY, NYDEC LAKE ONTARIO	1993	10000	YEAR	LAKE ONTARIO (STOCKING)
3127 NY,	CALEDONIA H (LK ONTARIO/DOM/WILD)				NY, NYDEC	P1994	82000	YEAR	LAKE ONTARIO (STOCKING)
3128 NY,	SALMON RIVER H (LK ONTARIO/WILD)				NY, NYDEC LAKE ONTARIO	P1994	430000	YEAR	LAKE ONTARIO (STOCKING)
3129 NY,	SALMON RIVER H (LK ONTARIO/WILD)				NY, NYDEC LAKE ERIE	P1994	213690	YEAR	LAKE ERIE (STOCKING)
ONCORHYNCHUS NERKA KOKANEE [KOKANEE SALMON]									
6002 CT,	EAST TWIN LAKE				NYDEC/ROME HATCHERY	P1986	165090	0+	6-10 LAKES (ENHANCEMENT)
7001 CT,	EAST TWIN LAKE	1987	197000	EGGS	NY, NYDEC/CATSKILL HATCHERY	P1987			6-10 LAKES (ENHANCEMENT)
7010 CT,	EAST TWIN LAKE				NY, NYDEC/ROME H (REARING)	P1987	90300	FRY	8 INLAND LK (ENHANCEMENT)
9001 CT,	EAST TWIN LK H (EAST TWIN LK)	1988	93000	EGGS	NY, NYDEC/CATSKILL HATCHERY	1988	93000	EGGS	SEE NEXT LINE
9001					NY, ROME HATCHERY	1989	55000	FING	INLAND LKS (STOCKING)
0014 CT,	EAST TWIN LAKE	1989	186000	EGGS	NY, NYDEC/CATSKILL HATCHERY	1989	135000	EGGS	SEE NEXT LINE
0014					NY, ROME HATCHERY	1990	115000	FING	UNIDENTIFIED (ENHANCEMENT)
1001 CT,	EAST TWIN LAKE	1990	100000	EGGS	NY, CATSKILL H				
1001		1990	100000	EGGS	NY, ROME HATCHERY				
1001					FACILITY NOT STATED	1991	78000	FING	NYDEC(REC FISHING 7 LAKES)
2109 CT,	EAST TWIN LAKE	1992	210000	EGGS	NY, CATSKILL H				SEE BELOW
2109		1992	191000	EGGS	NY, ROME HATCHERY	1993	170000	S FING	NYDEC(REC FISHING 6-10 LAKES)

FILE LOCATION	ORIGINAL SOURCE (STOCK/STRAIN)	TRANSFERS YEAR	NUMBER	STAGE	SPONSOR/FACILITY (PURPOSE)	YEAR	NUMBER	STAGE	FINAL DISPOSITION LOCATION (PURPOSE)
ONCORHYNCHUS TSHAWYTSCHA [CHINOOK SALMON]									
6009 MI,	(LAKE MICHIGAN)				NY, NYDEC/SALMON RIVER H	1986	529400	S FING	LK ERIE (SPORT FISHING)
6012 NY,	2 HATCHERIES (SALMON RIVER)	1986	2849000	S FING					LK ONTARIO (SPORT FISHING)
7033 NY,	2 HATCHERIES (SALMON RIVER)	1987	3111330		NY, NYDEC				LK ONTARIO (SPORT FISHING)
8014 NY,	2 HATCHERIES (SALMON RIVER)	1988	2848000	S FING	NY, NYDEC				LK ONTARIO (SPORT FISHING)
8029 NY,	SALMON R H (LK ONTARIO/SALMON R)	1988	500000	6 MO					CATTARAUGUS CR, LAKE ERIE
8029		1988	20000	6 MO					18 MILE CREEK, LAKE ERIE
9015 NY,	SALMON R H (LK ONTARIO/SALMON R)	1989	620000	S FING	NY, NYDEC				3 LAKE ERIE TRIBUTARIES
9015		1989	2212200	S FING					LAKE ONTARIO (STOCKING)
9016 NY,	CALEDONIA H (LK ONTARIO/SALMON R)	1989	540000	S FING	NY, NYDEC				LAKE ONTARIO (STOCKING)
0015 NY,	SALMON R H (LK ONTARIO/LK ONTARIO)	1990	574200	S FING	NY, NYDEC, LAKE ERIE UNIT				LAKE ERIE (STOCKING)
0016 NY,	CALEDONIA H (LK ONTARIO/SALMON R)	1990	540000	S FING	NY, NYDEC				LAKE ONTARIO (STOCKING)
0017 NY,	SALMON R H (LK ONTARIO/SALMON R)	1990	2180000	S FING	NY, NYDEC (PRODUCE SPAWNING RUN)				LAKE ONTARIO (STOCKING)
0018 NY,	SALMON R H (LK ONTARIO/SALMON R)	P1991	2700000	S FING	NY, NYDEC (PRODUCE SPAWNING RUN)				LAKE ONTARIO (STOCKING)
1003 NY,	SALMON R H (LK ONTARIO/SALMON R)	1991	525000	S FING	NY, NYDEC LAKE ERIE UNIT				PUBLIC STOCKING
1013 NY,	SALMON R H (LK ONTARIO/SALMON R)	P1992	2700000	S FING	NY, NYDEC LAKE ONTARIO				PUBLIC FISH/SPAWN RUN
1014 NY,	SALMON R H (LK ONTARIO/SALMON R)	1991	2835000	S FING	NY, NYDEC LAKE ONTARIO				PUBLIC FISH/SPAWN RUN
2110 NY,	SALMON R H (LK ONTARIO/SALMON R)	1992	565000	S FING	NY, NYDEC LAKE ERIE UNIT				PUBLIC STOCKING
2111 NY,	SALMON R H (LK ONTARIO/SALMON R)	1992	2798215	S FING	NY, NYDEC LAKE ONTARIO				PUBLIC FISH/SPAWN RUN
3005 NY,	SALMON R H (LK ONTARIO/SALMON R)	P1993	1600000	S FING	NY, NYDEC LAKE ONTARIO				PUBLIC FISH/SPAWN RUN
3118 NY,	SALMON R H (LK ONTARION/SALMON R)	P1994	1000000	S FING	NY, NYDEC LAKE ONTARIO				PUBLIC FISH/SPAWN RUN
3119 NY,	SALMON R H (LK ONTARION/SALMON R)	1993	1603300	S FING	NY, NYDEC LAKE ONTARIO				PUBLIC FISH/SPAWN RUN
3120 NY,	SALMON R H (LK ONTARION/SALMON R)	1993	500100	S FING	NY, NYDEC LAKE ERIE				PUBLIC STOCKING
SALMO SALAR [ATLANTIC SALMON]									
7023 NY,	CORTLAND HATCHERY (PENOBSCOT)	1987	9130	YEAR					LAKE ONTARIO (RESTORATION)
8001 NY,	CORTLAND HATCHERY (PENOBSCOT)	1988	5530	FING					LAKE ONTARIO TRIBUTARIES
9011 NY,	TUNISON HATCHERY (PENOBSCOT)	1989	290	21 MO	NY, NYDEC				LAKE ONTARIO (STOCKING)
9011		1989	4710	YEAR					LAKE ONTARIO (STOCKING)
9011		1989	14670	F FING					LAKE ONTARIO (STOCKING)
SALMO SALAR [LANDLOCKED ATLANTIC SALMON]									
6017 NY,	2 H (PENOBSCOT & LITTLE CLEAR)	1986	55000	YEAR					LAKE ONTARIO (RESTORATION)
7017 NY,	ADIRONDACK H (LITTLE CLEAR)	1987	49000	YEAR					LAKE ONTARIO (RESTORATION)
8002 NY,	ADIRONDACK H (LITTLE CLEAR)				NY, VARIOUS HATCHERIES	1988	31900	YEAR	LAKE ONTARIO TRIBUTARIES
9010 VT,	PITTSFORD H (GRAND LK STREAM)	1989	44020	YEAR	NY, NYDEC				LAKE ONTARIO (STOCKING)
3005 ME,	GRAND LAKE SFH (WEST GRAND LAKE)	1993	50000	E EGGS	PA, ALLEGHENY NFH	1993	25000	FING	ONEIDA & OSWEGO (STOCK EVALUATION)
SALMO TRUTTA [BROWN TROUT]									
6014 NY,	3 HATCHERIES (DOMESTIC)	1986	442000	YEAR					LAKE ONTARIO (SPORT FISHING)
6010 WEST GERMANY,	(SEA RUN)	1986	20000	EGGS	NY, COLD SPRINGS HATCHERY	P			LONG ISLAND
6001 WEST GERMANY,	(SEEFORELLEN)				NY, NYDEC/CATSKILL HATCHERY	P1986	12000	1+	SEVERAL LAKES (ENHANCEMENT)
7022 NY,	SEVERAL HATCHERIES (DOMESTIC)	1987	25000	YEAR	NY, NYDEC				DUNKIRK HARBOUR, LAKE ERIE
7022		1987	25000	YEAR					CATTARAUGUS CR, LAKE ERIE
7030 NY,	2 HATCHERIES (DOMESTIC)	1987	417760	YEAR					LAKE ONTARIO (ENHANCEMENT)
8023 NY,	CATSKILL H (SEEFORELLEN, W GERMAN)				NY, CALEDONIA HATCHERY (REARING)	1988	20020	3 MO	CANADAWAY CR, LAKE ERIE
8022 NY,	RANDOLPH H (DOMESTIC/RANDOLPH)	1988	5000	10 MO					BUFFALO CR, LAKE ERIE
8019 NY,	RANDOLPH H (DOMESTIC/RANDOLPH)	1988	7400	10 MO					18 MILE CREEK, LAKE ERIE
8019		1988	5000	10 M					CANADAWAY CR, LAKE ERIE
8019		1988	5000	10 MO					CATTARAUGUS CR, LAKE ERIE
8018 NY,	CATSKILL HATCHERY (ROME)				NY, CALEDONIA HATCHERY (REARING)	1988	19000	17 M0	SILVER CREEK, LAKE ERIE
8016 NY,	RANDOLPH HATCHERY (ROME LAB)	1988	5000	17 M0					DUNKIRK HARBOUR, LAKE ERIE
8017 NY,	BATH HATCHERY				NY, CALEDONIA HATCHERY (REARING)	1988	14000	17 M0	DUNKIRK HARBOUR, LAKE ERIE
8009 NY,	VARIOUS H (SEEFORELLEN)	1988	20000	FING					LAKE ONTARIO (ENHANCEMENT)
8010 NY,	VARIOUS H (DOMESTIC OR SKAMANIA)	1988	26370	FING					LAKE ONTARIO (ENHANCEMENT)
8011 NY,	VARIOUS H (DOMESTIC OR SKAMANIA)	1988	404310	YEAR					LAKE ONTARIO (ENHANCEMENT)
9002 NY,	CATSKILL H (CATSKILL/SEEFORELLEN)	1989	45000	YEAR	NY, NYDEC				SEVERAL LAKES (STOCKING)
9002		1989	15130	YEAR					DUNKIRK HARBOUR (STOCKING)
9002		1989	40000	YEAR					LAKE ONTARIO (STOCKING)
9012 NY,	CALEDONIA H (CALEDONIA/ROME LAB)	1989	282630	YEAR	NY, NYDEC				LAKE ONTARIO (STOCKING)
9012		1989	37950	F FING					LAKE ONTARIO (STOCKING)
9020 NY,	SALMON RIVER HATCHERY (ROME LAB)	1989	84680	YEAR	NY, NYDEC				LAKE ONTARIO (STOCKING)
0019 NY,	RANDOLPH H (DOMESTIC/RANDOLPH)	1990	22000	UNID	NY, DEC LK ERIE UNIT (RV FIN CLIP)				LAKE ERIE (STOCKING)
0020 NY,	CATSKILL H (CATSKILL/SEEFORELLEN)	1990	25000	YEAR	NY, DEC LK ERIE UNIT (LP FIN CLIP)				LAKE ERIE (STOCKING)

FILE LOCATION	ORIGINAL SOURCE (STOCK/STRAIN)	YEAR	NUMBER	STAGE	TRANSFERS SPONSOR/FACILITY	(PURPOSE)	YEAR	NUMBER	STAGE	FINAL DISPOSITION LOCATION	(PURPOSE)
SALMO TRUTTA [BROWN TROUT] CONTINUED											
0021 NY,	CALEDONIA H (CALEDONIA/SEEFORELLEN)	1990	37300	F FING	NY, NYDEC	LAKE ERIE UNIT				LAKE ERIE	(STOCKING)
0022 NY,	CATSKILL H (CATSKILL/SEEFORELLEN)	1990	48450	YEAR	NY, NYDEC					LAKE ONTARIO	(STOCKING)
0024 NY,	CATSKILL H (CATSKILL/SEEFORELLEN)	1990	45000	YEAR	NY, NYDEC	(FISHERY ENHANCEMENT)				LAKE ONTARIO	(STOCKING)
0023 NY,	CATSKILL H (CATSKILL/SEEFORELLEN)	P1991	40000	YEAR	NY, NYDEC					10 INLAND LAKES	(STOCKING)
1002 NY,	CALEDONIA H (CATSKILL/SEEFORELLEN)	1991	40000	YEAR	NY, NYDEC					STOCKING 10 LAKES	
1004 NY,	CATSKILL H (CATSKILL/SEEFORELLEN)	1991	23000	YEAR	NY, NYDEC	LAKE ERIE UNIT				PUBLIC STOCKING	
1012 NY,	CALEDONIA H (LK ONT/SEEFORELLEN)	P1993	40000	YEAR	NY, NYDEC	LAKE ONTARIO				PUBLIC FISHING	
1011 NY,	CALEDONIA H (LK ONT/SEEFORELLEN)	1991	36800	YEAR	NY, NYDEC	LAKE ONTARIO				PUBLIC FISHING	
2112 NY,	CATSKILL H (CATSKILL/SEEFORELLEN)	1992	25000	YEAR	NY, NYDEC	LAKE ERIE UNIT				PUBLIC STOCKING	
3004 NY,	CALEDONIA H (SEEFORELLEN)	1993	50000	S YEAR	NY, NYDEC	(FISHERY ENHANCEMENT)				8-10 INLAND LAKES	
2113 NY,	CALEDONIA H (DOMESTIC/SEEFORELLEN)	1992	45290	YEAR	NY, NYDEC	LAKE ONTARIO				PUBLIC FISHING	(BROODSTOCK)
2114 NY,	CALEDONIA H (DOMESTIC/SEEFORELLEN)	P1993	66000	YEAR	NY, NYDEC	LAKE ONTARIO				PUBLIC FISHING	(BROODSTOCK)
3115 NY,	CALEDONIA H (DOM/SEE) (FURUNCULOSIS)	1993	70000	YEAR	NY, NYDEC		1993	70000		INLAND LAKES	(RECREATIONAL FISHING)
3116 NY,	CALEDONIA H (DOMESTIC/SEEFORELLEN)	1993	84200	YEAR	NY, NYDEC		1993	84200		LAKE ONTARIO	(PUBLIC FISHING)
3117 NY,	CALEDONIA H (DOMESTIC/SEEFORELLEN)				NY, NYDEC		P1994	66000	YEAR	LAKE ONTARIO	(PUBLIC FISHING/BROODSTOCK)
SALVELINUS NAMAYCUSH [LAKE TROUT]											
6013 PA,	ALLEGHENY HATCHERY (LK ONTARIO)	1986	1382000	YEAR						LK ONTARIO	(REHABILITATION)
7031 PA,	ALLEGHENY HATCHERY (LK ONTARIO)	1987	366300	FING						LK ONTARIO	(REHABILITATION)
7032 PA,	ALLEGHENY HATCHERY (LK ONTARIO)	1987	818100	YEAR						LK ONTARIO	(REHABILITATION)
8012 PA,	ALLEGHENY HATCHERY (LK ONTARIO)	1988	247100	FING						LAKE ONTARIO	(RESTORATION)
8013 PA,	ALLEGHENY HATCHERY (LK ONTARIO)	1988	767500	YEAR						LAKE ONTARIO	(RESTORATION)
9006 PA,	ALLEGHENY HATCHERY (SENECA LAKE)	1989	352300	YEAR	NY, NYDEC					LK ONTARIO	(REHABILITATION)
9007 PA,	ALLEGHENY HATCHERY (SUPERIOR)	1989	240000	YEAR	NY, NYDEC					LK ONTARIO	(REHABILITATION)
9007		1989	19500	F FING						LK ONTARIO	(REHABILITATION)
9008 PA,	ALLEGHENY HATCHERY (LK ONTARIO)	1989	158000	YEAR	NY, NYDEC					LK ONTARIO	(REHABILITATION)
9008		1989	212500	F FING						LK ONTARIO	(REHABILITATION)
9009 NY,	CALEDONIA H (SENECA LAKE/SENECA)	1989	28000	YEAR	NY, NYDEC					LK ONTARIO	(REHABILITATION)

SUMMARY OF SALMONID INTRODUCTIONS AND TRANSFERS, 1986-1993 NOVA SCOTIA

FILE	ORIGINAL SOURCE	TRANSFERS							FINAL DISPOSITION	
	LOCATION (STOCK/STRAIN)	YEAR	NUMBER	STAGE	SPONSOR/FACILITY (PURPOSE)	YEAR	NUMBER	STAGE	LOCATION	(PURPOSE)
ONCORHYNCHUS MYKISS [RAINBOW TROUT]										
6001	WV, WHITE SULPHUR SPRINGS HATCHERY	1986	100000	EGGS	NS, DFO/MERLIN FISH FARMS				WESTCHESTER (FISH FARM)	
6001		1986	50000	EGGS	NS, DFO/COLDBROOK FCS					
6001		1986	100000	EGGS	NS, DFO, NSDF/ST PETERS HATCHERY					
7003	WA, BEITEYS RESORT	1987	550000	EGGS	NS, NSDF/ST PETERS HATCHERY	P				
7005	ONT, SPRING VALLEY HATCHERY	1987	150000	EGGS	NS, NSDF/ST PETERS HATCHERY	P				
7004	ONT, AQUAFARMS CANADA	1987	50000	EGGS	NS, MERLIN FISH FARMS				WESTCHESTER (FISH FARM)	
7001	WV, WHITE SULPHUR SP H (WYTHEVILLE)	1987	250224	EGGS	NS, DFO, NSDF/FRASERS MILLS H	P			(LOCAL STOCKING)	
7002	WA, BEITEYS RESORT	1987	100000	EGGS	NS, MERLIN FISH FARMS				WESTCHESTER (FISH FARM)	
7006	PEI, INTEGRATED AQUATICS	1987	45000	FING	NS, OSTREA SEA FARMS				SHAD BAY (AQUACULTURE)	
8013	ONT, RAINBOW SPRINGS HATCHERY	1988	2000	FING	NS, EPS/DARTMOUTH (RESEARCH)					
8012	ONT, RAINBOW SPRINGS HATCHERY	1988	35000	FRY	NS, NOVA AQUA SMOLT				GLACE BAY (AQUACULTURE)	
8011	WA, BEITEYS RESORT	1988	200000	FRY	NS, NOVA AQUA SMOLT				GLACE BAY (AQUACULTURE)	
8010	ONT, SPRING VALLEY HATCHERY	1988	250000	EGGS	NS, NSDF/FRASERS MILLS H	P			(LOCAL STOCKING)	
8009	ONT, AQUAFARMS CANADA	1988	30000	EGGS	NS, NSDF/FRASERS MILLS H (REARING)	P			(LOCAL STOCKING)	
8008	ONT, AQUAFARMS CANADA	1988	100000	EGGS	NS, NSDF/ST PETERS HATCHERY	P			(ENHANCEMENT)	
8007	WV, WHITE SULPHUR SPRINGS HATCHERY	1988	250000	EGGS	NS, NSDF/FRASERS MILLS H (REARING)	P			(ENHANCEMENT)	
8006	ONT, RAINBOW SPRINGS HATCHERY	1988	200000	TR EGG	NS, NOVA AQUA SMOLT (REARING)				GLACE BAY (AQUACULTURE)	
9004	ONT, VAN AQUA INC, BRANTFORD	1989	6000	FING	NS, NOVA AQUA SEA LIMITED				GLACE BAY	
9005	WA, BEITEYS RESORT	1989	150000	EGGS	NS, MERLIN FISH FARMS				WENTWORTH (FISH FARM)	
9007	ONT, RAINBOW SPRINGS HATCHERY	1989	100000	EGGS	NS, NOVA AQUA SMOLT				GLACE BAY (AQUACULTURE)	
9008	PEI, INTEGRATED AQUATICS	1989	125000	FING	NS, NOVA AQUA SMOLT				GLACE BAY (AQUACULTURE)	
9009	PEI, BROOKVALLEY MARINE	1989	25000	FING	NS, NOVA AQUA SMOLT				GLACE BAY (AQUACULTURE)	
9010	ONT, SPRING VALLEY H, PETERSBURG	1989	100000	EGGS	NS, LITTLE HARB TROUT FARM				TRENTON (TROUT FARM)	
9011	WV, WHITE SULPHUR SPRINGS HATCHERY	1989	250000	EGGS	NS, NSDF/FRASERS MILLS H					
0020	ONT, RAINBOW SPRINGS HATCHERY	1990	40000	FING	NS, NOVA AQUA SMOLT/GLACE BAY					
0021	PEI, INTEGRATED AQUATICS	1990	20000	FING	NS, NOVA AQUA SEA LTD/GLACE BAY					
0022	PEI, BROOKVALLEY MARINE	1990	2000	FING	NS, NOVA AQUA SMOLT/GLACE BAY					
0023	ONT, SPRING VALLEY H, PETERSBURG	1990	150000	EGGS	NS, LITTLE HARB TROUT FARM/PICTOU					
0024	ONT, RAINBOW SPRINGS HATCHERY	1990	3000	FING	NS, ENVIRONMENT CANADA/DARTMOUTH					
0025	PEI, BROOKVALLEY MARINE	1990	46000	FING	NS, LOCH BRAS D'OR SALMON					
0026	ONT, RAINBOW SPRINGS HATCHERY	1990	50000	TR EGG	NS, SUGAR LOAF FISH FARM/OXFORD					
0027	ONT, SPRING VALLEY H, PETERSBURG	1990	100000	EGGS	NS, FRASERS MILLS H/ ST ANDREWS					
1001	ONT, RAINBOW SPRINGS H,THAMESFORD	1991	75000	EGGS	NS, SUGAR LOAF FISH FARM/OXFORD					
1002	ONT, RAINBOW SPRINGS H, THAMESFORD	1991	25000	EGGS	NS, R PHILIP TROUT FARM/OXFORD					
1003	ONT, RAINBOW SPRINGS H, THAMESFORD	1991	5000	EGGS	NS, ENVIRONMENT CANADA/DARTMOUTH					
1004	ONT, AQUAFARMS CANADA,FEVERSHAM	1991	20000	FING	NS, MERLIN FARMS/WENTWORTH VALLEY					
1006	QUE, PISCICULTURE ALLE/ST PHILEMON	1991	150000	EGGS	NS, MERLIN FISH FARMS/WENTWORTH V					
1007	PEI, BROOK VALLEY MARINE	1991	5000	FING	NS, R PHILIP TROUT FARM/OXFORD					
1008	PEI, BROOK VALLEY MARINE	1991	12600	FING	NS, R PHILIP TROUT FARM/OXFORD					
1009	ONT, RAINBOW SPRINGS H, THAMESFORD	1991	2000	FING	NS, ENVIRONMENT CANADA/DARTMOUTH					
1010	PEI, BROOK VALLEY MARINE	1991	18000	FING	NS, SUGARLOAF FISH FARM					
1011	ONT, RAINBOW SPRINGS H, THAMESFORD	1991	1000	FING	NS, ENVIRONMENT CANADA/DARTMOUTH					
1012	ONT, RAINBOW SPRINGS H, THAMESFORD	1991	50000	EGGS	NS, SUGARLOAF FISH FARM					
1013	ONT, SPRING VALLEY H, PETERSBURG	1991	125000	EGGS	NS, LITTLE HARBOUR FARM/PICTOU					
1014	ONT, RAINBOW SPRINGS H,THAMESFORD	1991	100000	EGGS	NS, LITTLE HARBOUR FARM/PICTOU					
1015	ONT, AQUAFARMS CANADA,FEVERSHAM	1991	85000	FING	NS, ST PETERS HATCHERY/ST PETERS					
1016	ONT, RAINBOW SPRINGS H, THAMESFORD	1991	2500	FING	NS, ENVIRONMENT CANADA/DARTMOUTH					
1017	MT, ENNIS NATIONAL F HATCHERY	1991	250000	EGGS	NS, DFO FRASERS MILLS HATCHERY					
1018	ONT, RAINBOW SPRINGS H, THAMESFORD	1991	3000	FING	NS, ENVIRONMENT CANADA/DARTMOUTH					
1019	PEI, BROOK VALLEY MARINE,SOURIS	1991	4000	FING	NS, SUGARLOAF FISH H/WENTWORTH					
2025	ONT, RAINBOW SPRINGS H, THAMESFORD	1992	50000	EGGS	NS, SUGARLOAF FISH H/WENTWORTH					
2029	ONT, AQUAFARMS CANADA,FEVERSHAM	1992	50000	EGGS	NS, SALMONID PROPAGATION ASSOC/ST PETERS					
2030	SASK,ARCTIC FISH CO, WALDHEIM	1992	100000	EGGS	NS, SPA COOP/ST PETERS					
2032	NB, GREENACRES TROUT H/GRANDE-DIQUE	1992	10000	FISH	NS, SUGARLOAF FISH HATCHERY/OXFORD					
2033	ONT, RAINBOW SPRINGS H, THAMESFORD	1992	3000	FISH	NS, ENVIRONMENT CANADA, EPS/DARTMOUTH					
2034	ONT, AQUAFARMS CANADA,FEVERSHAM	1992	50000	EGGS	NS, SALMONID PROPAGATION ASSOC/ST PETERS					
2036	QUE, PISCICULTURE ALLEGHANYS	1992	50000	EGGS	NS, SUGARLOAF FISH FARM/OXFORD					
2039	QUE, PISCICULTURE ALLEGHANYS	1992	100000	EGGS	NS, SALMONID PROPAGATION ASSOC/ST PETERS					
2040	ONT, RAINBOW SPRINGS H, THAMESFORD	1992	3000	FISH	NS, ENVIRONMENT CANADA, EPS/DARTMOUTH					
2042	ONT, RAINBOW SPRINGS H, THAMESFORD	1992	25000	EGGS	NS, LITTLE HARBOUR TROUT FARM/TRENTON					
2043	ONT, RAINBOW SPRINGS H, THAMESFORD	1992	1000	FISH	NS, HARRIS INDUSTRIAL/MILFORD STATION					
2045	ONT, RAINBOW SPRINGS H, THAMESFORD	1992	2000	FISH	NS, ENVIRONMENT CANADA, EPS/DARTMOUTH					
2046	ONT, RAINBOW SPRINGS H, THAMESFORD	1992	1000	FISH	NS, HARRIS INDUSTRIAL/MILFORD STATION					

FILE	ORIGINAL SOURCE				TRANSFERS				FINAL DISPOSITION	
	LOCATION (STOCK/STRAIN)	YEAR	NUMBER	STAGE	SPONSOR/FACILITY (PURPOSE)	YEAR	NUMBER	STAGE	LOCATION	(PURPOSE)
ONCORHYNCHUS MYKISS [RAINBOW TROUT] CONTINUED										
2047	ONT, RAINBOW SPRINGS H, THAMESFORD	1992	100000	EGGS	NS, SUGAR LOAF FF/OXFORD					
2048	ONT, SPRING VALLEY HATCHERY, PETERSBURG	1992	100000	EGGS	NS, W STRICKLAND/TRENTON					
2049	ONT, SPRING VALLEY HATCHERY, PETERSBURG	1992	100000	EGGS	NS, FRASER MILLS H/ST ANDREWS					
2050	ONT, RAINBOW SPRINGS H, THAMESFORD	1992	1000	FISH	NS, HARRIS INDUSTRIAL/MILFORD STATION					
2051	ONT, SPRING VALEY HATCHERY, PETERSBURG	1992	50000	EGGS	NS, W STRICKLAND/TRENTON					
2052	ONT, RAINBOW SPRINGS H, THAMESFORD	1992	2000	FISH	NS, HARRIS INDUSTRIAL/MILFORD STATION					
2053	ONT, RAINBOW SPRINGS H, THAMESFORD	1992	75000	EGGS	NS, LITTLE HARBOUR TF/TRENTON					
2055	ONT, RAINBOW SPRINGS H, THAMESFORD	1992	25000	EGGS	NS, SUGAR LOAF FF/OXFORD					
3021	ONT, RAINBOW SPRINGS H, THAMESFORD	1993	2000	FISH	NS, ENVIRONMENT CANADA, EPS/DARTMOUTH					
3025	ONT, RAINBOW SPRINGS H, THAMESFORD	1993	1000	FISH	NS, HARRIS INDUSTRIAL/MILFORD STATION					
3026	ONT, RAINBOW SPRINGS H, THAMESFORD	1993	1000	FISH	NS, HARRIS INDUSTRIAL/MILFORD STATION					
3027	ONT, RAINBOW SPRINGS H, THAMESFORD	1993	1000	FISH	NS, HARRIS INDUSTRIAL/MILFORD STATION					
3030	ONT, RAINBOW SPRINGS H, THAMESFORD	1993	1000	FISH	NS, HARRIS INDUSTRIAL/MILFORD STATION					
3032	ONT, RAINBOW SPRINGS H, THAMESFORD	1993	2000	FISH	NS, ENVIRONMENT CANADA, EPS/DARTMOUTH					
3035	QUE, PISCICULTURE ALLEGHANYS (STERILE)	1993	100000	EGGS	NS, GOLDEN EAGLE FISHEREIS/NEW WATERFORD					
3036	QUE, PISCICULTURE ALL (DIPLOID&TRIPLOID)	1993	360	FISH	NS, E OJOLICK, DAL U, AQUATRON/HALIFAX					
3041	ONT, RAINBOW SPRINGS H, THAMESFORD	1993	1000	FISH	NS, HARRIS INDUSTRIAL/MILFORD STATION					
3042	ONT, RAINBOW SPRINGS H, THAMESFORD	1993	1000	FISH	NS, HARRIS INDUSTRIAL/MILFORD STATION					
3045	ONT, RAINBOW SPRINGS H, THAMESFORD	1993	2000	FISH	NS, ENVIRONMENT CANADA, EPS/DARTMOUTH					
3047	ONT, RAINBOW SPRINGS H, THAMESFORD	1993	1000	FISH	NS, HARRIS INDUSTRIAL/MILFORD STATION					
3048	ONT, SPRING VALLEY HATCHERY, PETERSBURG	1993	100000	EGGS	NS, NSDF, FRASER MILLS H/ST ANDREWS					
3050	ONT, RAINBOW SPRINGS H, THAMESFORD	1993	1500	FISH	NS, HARRIS INDUSTRIAL/MILFORD STATION					
3051	ONT, RAINBOW SPRINGS H, THAMESFORD	1993	2000	FISH	NS, ENVIRONMENT CANADA, EPS/DARTMOUTH					
3053	ONT, RAINBOW SPRINGS H, THAMESFORD	1993	75000	EGGS	NS, SUGAR LOAF FISH FARM/OXFORD					
3055	QUE, PISCICULTURE ALLEGHANYS	1993	100000	EGGS	NS, SPA COOP LTD/ST PETERS					
3062	ONT, RAINBOW SPRINGS H, THAMESFORD	1993-94	1000	FISH	NS, HARRIS INDUSTRIAL/MILFORD STATION					
3064	QUE, PISCICULTURE ALLEGHANYS	1994	50000	EGGS	NS, SUGAR LOAF FISH FARM/OXFORD					
3068	ONT, RAINBOW SPRINGS H, THAMESFORD	1994	1000	FISH	NS, HARRIS INDUSTRIAL/MILFORD STATION					
ONCORHYNCHUS KISUTCH [COHO SALMON]										
2085	ID, AQUA LIFE CORP, FALL CREEK	1992		ADULT	NS, SEABRIGHT SMOKEHOUSE LTD/TANTALLON					
2086	ID, AQUA LIFE CORP, FALL CREEK	1992		ADULT	NS, SEABRIGHT SMOKEHOUSE LTD/TANTALLON					
2087	ID, AQUA LIFE CORP, BUHL	1992		ADULT	NS, SEABRIGHT SMOKEHOUSE LTD/TANTALLON					
SALMO SALAR [ATLANTIC SALMON]										
8004	NB, HUNTSMAN MARINE LAB (SJR C)	1988	50000	FRY	NS, NOVA AQUA SMOLT					(AQUACULTURE)
8003	NB, MACTAQUAC FCS (SAINT JOHN RIVER)	1988	50000	EGGS	NS, DFO/COLDBROOK FCS (REARING)	P				(AQUACULTURE BROODSTOCK)
9012	NB, MACTAQUAC FCS	1989	50000	EGGS	NS, DFO/COLDBROOK FCS (REARING)	P				(AQUACULTURE BROODSTOCK)
9013	NB, AQUA VENTURES	1989	100000	EGGS	NS, NOVA AQUA SMOLT (EXPERIMENTAL)					GLACE BAY
9006	NB, CHAMCOOK	1989	50000	FING	NS, NOVA AQUA SMOLT					GLACE BAY (AQUACULTURE)
0028	NB, BRIDEN ASSOCIATION & SEA FARMS	1990	72000	FING	NS, NOVA AQUA SMOLT (EXPERIMENTAL)					GLACE BAY
0029	NB, SEA FARMS CANADA, SPRINGDALE	1990	130000	S/FRY	NS, NOVA AQUA SMOLT (QUARANTINE)					GLACE BAY (EXPERIMENTAL)
1021	NB, ASF CHAMCOOK	1991	270	PARR	NS, MARINE GENE LAB,DALHOUSIE UNIV					OUT OF QUARANTINE
1022	QUE, BAIE DES CHALEURS,ST OMER	1991	180	PARR 0+	NS, DFO HALIFAX LAB					OUT OF QUARANTINE
2060	NB, FUNDY AQUACULTURE, GRAND MANAN	1992	200000	EGGS	NS, SCOTIA SALMON FARMS/WEYMOUTH					
2061	NB, HARBOUR DELOUTRE, CAMPOBELLO IS	1992	250000	EGGS	NS, FRASER MILLS HATCHERY/ST ANDREWS					
3070	NB, AQUA VENTURES	1993	100000	EGGS	NS, LITTLE HARBOUR TROUT FARM/TRENTON					
3071	NB, L INGALLS, BAR ISLAND	1993	80000	EGGS	NS, MERLIN FISH FARMS/WENTWORTH VALLEY					
3072	NB, AQUA VENTURES	1993	100000	EGGS	NS, MERLIN FISH FARMS/WENTWORTH VALLEY					
3073	NB, R POLLAND, BACK BAY	1993	600000	EGGS	NS, MERLIN FISH FARMS/WENTWORTH VALLEY					
SALMO SALAR [LANDLOCKED ATLANTIC SALMON]										
8005	ME, GRAND LAKE STREAM HATCHERY	1988	25000	EGGS	NS, M MULLEN/WEYMOUTH (REARING)					BEAR RIVER (AQUACULTURE)
9002	ME, GRAND LAKE STREAM HATCHERY	1989	50000	EGGS	NS, FRASERS MILLS HATCHERY					

SUMMARY OF SALMONID INTRODUCTIONS AND TRANSFERS, 1986-1993 — NOVA SCOTIA (cont.)

FILE LOCATION	ORIGINAL SOURCE (STOCK/STRAIN)	TRANSFERS: YEAR	NUMBER	STAGE	SPONSOR/FACILITY (PURPOSE)	YEAR	NUMBER	STAGE	FINAL DISPOSITION LOCATION (PURPOSE)
SALVELINUS ALPINUS [ARCTIC CHAR]									
8001 MAN,	ROCKWOOD HATCHERY	1988	1600	EGGS	NS, NOVA AQUA SMOLT	P			GLACE BAY (AQUACULTURE)
9001 MAN,	ROCKWOOD HATCHERY	1989	3000	EGGS	NS, SALMONID PROPAGATION ASSOC LTD				ST PETERS
9003 MAN,	ROCKWOOD HATCHERY	1989	5000	EGGS	NS, MICMAC SMOLTS				WEYMOUTH
9014 NB,	PURTILL, SUSSEX	1989	10000	EGGS	NS, BRAS D'OR SALMON (TEST)				LITTLE NARROWS
9015 NB,	PURTILL, SUSSEX	1989	10000	EGGS	NS, SPA CO-OP (EXPERIMENTAL)				ST PETERS
0030 NB,	PURTILL, SUSSEX	1990	8000	FRY	NS, SALMONID PROPAGATION ASSOC LTD				ST PETERS (EXPERIMENTAL)
0031 NB,	PURTILL, SUSSEX	1990	5000	FRY	NS, LOCH BRAS D'OR SALMON				BADDECK (EXPERIMENTAL)
1020 PEI,	INTEGRATED AQUATIC,CHAR QUARANTINE	1991	4500	FING	NS, SALMONID PROPAGATION ASSOC LTD				ST PETERS
2064 NB,	GREEN ACRES TROUT, GRANDE-DIQUE	1992	30000	FISH	NS, SALMONID PROPAGATION ASSOC LTD				ST PETERS
2065 PEI,	BROOK VALLEY MARINE FARM, SOURIS	1992	10000	EGGS	NS, SALMONID PROPAGATION ASSOC LTD				ST PETERS
SALVELINUS FONTINALIS [BROOK TROUT]									
8002 ME,	PHILLIPS HATCHERY	1988	100000	EGGS	NS, NSDF/FRASERS MILLS H (REARING)	P			VARIOUS WATERS (STOCKING)
1023 NB,	GREENACRES TROUT H,GRAND DIGUE	1991	400	3" 4"	NS, LARRY PEDERSON/AMHERST				
2081 QUE,	PISCICULTURE ALLEGHANYS	1992	50000	EGGS	NS, MERLIN FF/WENTWORTH VALLEY				
2082 PEI,	BROOK VALLEY MARINE FARM, SOURIS	1992	10000	EGGS	NS, C&G TROUT FARMS/MIDDLETON				
3023 PEI,	BROOK VALLEY MARINE FARM, SOURIS	1993	10000	FISH	NS, C&G TROUT FARMS/MIDDLETON				
3061 NB,	GREENACRES FISH H,GRAND DIGUE	1993-94	20000	EGGS	NS, ROYAL STEVENS/MULGRAVE				

SUMMARY OF SALMONID INTRODUCTIONS AND TRANSFERS, 1986-1993 — ONTARIO

FILE	ORIGINAL SOURCE				TRANSFERS					FINAL DISPOSITION	
	LOCATION	(STOCK/STRAIN)	YEAR	NUMBER	STAGE	SPONSOR/FACILITY	(PURPOSE)	YEAR	NUMBER	STAGE	LOCATION	(PURPOSE)
ONCORHYNCHUS MYKISS [RAINBOW TROUT]												
8004	IN,	MIXSABAH HATCHERY (/SKAMANIA)	1988	56000	E EGGS	ONT, OMNR/NORMANDALE H (QUAR)		1988	30000	FING	SEE NEXT LINE	
8004						ONT, NORMANDALE HATCHERY		1989	25000	YEAR	GEORGIAN BAY (RESTORATION)	
8006	MAN,	ROCKWOOD HATCHERY (DOM/TAGWERKER)	1988	25000	E EGGS	ONT, PINE VALLEY HATCHERY (QUAR)		1989	?	YEAR	PRIVATE POND (AQUACULTURE)	
9005	IN,	TWIN BRANCH H (LK MICHIGAN/SKAM)	1989	80000	E EGGS	ONT, OMNR/NORMANDALE H (QUAR)		1989	35000	FING	SEE NEXT LINE	
9005						ONT, NORMANDALE HATCHERY		1990	31000	YEAR	GEORGIAN BAY (RESTORATION)	
0002	IN,	TWIN BRANCH H (LK MICHIGAN/SKAM)	*1990	115000	E EGGS	ONT, OMNR/NORMANDALE H (QUAR)		1990	45000	FING	SEE NEXT LINE	
0002						ONT, NORMANDALE HATCHERY		1991	35000	YEAR	GEORGIAN BAY (RESTORATION)	
1002	WA,	BEITEYS RESORT (DOMESTIC SP RUN)	*1991	70000	E EGGS	ONT, OMNR/ALMA HATCHERY (QUAR)		1992	45000	FING	(PRIVATE AQUACULTURE)	
2002	WA,	BEITEYS RESORT (DOMESTIC SP RUN)	1992	70000	E EGGS	ONT, U OF GUELPH(ALMA QUAR FAC)		P1992	50000	FING	PRIVATE SECTOR (VARIOUS)	
SALMO SALAR [ATLANTIC SALMON]												
7010	NS,	COLDBROOK FCS (LAHAVE RIVER)	*1987	50000	E EGGS	ONT, OMNR/NORMANDALE H (QUAR)		1988	35000	FING	SEE NEXT LINE	
7010						NORMANDALE HATCHERY		1989	27000	YEAR	LK ONTARIO (RESTORATION)	
7003	ME,	GREEN LK H (PENOBSCOT RIVER)	*1987	58000	E EGGS	ONT, OMNR/NORMANDALE H (QUAR)		1987	35000	FING	SEE NEXT LINE	
7003						NORMANDALE HATCHERY		1988	27000	YEAR	LK ONTARIO (RESTORATION)	
7002	SCO,	ALLT MOR HATCHERY (LOCAL RIVER)	*1987	35000	E EGGS	ONT, OMNR/NORMANDALE H (QUAR)		1987			SEE NEXT LINE	
7002						NORMANDALE HATCHERY		1987	25000	FING	(PRIVATE AQUACULTURE)	
7011	NB,	MACTAQUAC FCS (SAINT JOHN RIVER)	*1987	35000	E EGGS	ONT, OMNR/NORMANDALE H (QUAR)		1987			SEE NEXT LINE	
7011						NORMANDALE HATCHERY		1988	32000	YEAR	(PRIVATE AQUACULTURE)	
1003	NS,	MERSEY HATCHERY	*1987	800	FING	ONT, ONTARIO HYDRO (RESEARCH)		1988			STOCK DESTROYED	
8011	NS,	COLDBROOK FCS (LAHAVE RIVER)	*1988	61000	E EGGS	ONT, OMNR/NORMANDALE H (QUAR)		1989	FING		SEE NEXT LINE	
8011						NORMANDALE HATCHERY		1990	32000	YEAR	LK ONTARIO (RESTORATION)	
9001	NS,	COLDBROOK FCS (LAHAVE RIVER)	*1989	60000	E EGGS	ONT, OMNR/NORMANDALE H (QUAR)		1990	40500	FING	SEE NEXT LINE	
9001						NORMANDALE HATCHERY		1991	36000	YEAR	LK ONTARIO (RESTORATION)	
9001						NORMANDALE HATCHERY		1991	4500	YEAR	INLAND RESTORATION	
0003	NS,	COLDBROOK FCS (LAHAVE RIVER)	*1990	80000	E EGGS	ONT, OMNR/NORMANDALE H (QUAR)		1991	35000	FING	SEE NEXT LINE	
0003						NORMANDALE HATCHERY		P1992	32000	YEAR	LK ONTARIO (RESTORATION)	
1004	NS,	COLDBROOK FCS (LAHAVE RIVER)	1991	60000	E EGGS	ONT, OMNR/NORMANDALE H (QUAR)		P1992	50000	FING	SEE NEXT LINE	
1004						RINGWOOD FCS		P1993	45000	YEAR	LK ONTARIO (RESTORATION)	
2001	NB,	ST ANDREWS RESEARCH STA(UNKNOWN)	1991	40000	EGGS	UNIVERSITY OF GUELPH(RESEARCH)		1992	40000	SAC FRY	DESTROYED	
2004	NS,	COLDBROOK HAT (LAHAVE RIVER)	P1992	80000	E EGGS	ONT, OMNR/NORMANDALE H (QUAR)		P1993	50000	FING	RINGWOOD FCS	
2004						OMNR LAKE ONTARIO		P1994		YEAR	REHAB STOCKING	
3132	NS,	COLDBROOK HAT (LAHAVE RIVER)	1993	78000	E EGGS	ONT, OMNR/NORMANDALE H (QUAR)		P1994	55000	FING	SEE NEXT LINE	
3132						RINGWOOD HATCHERY		P1995	50000	YEAR	LK ONTARIO (REHAB STOCKING)	
3134	NS,	COLDBROOK HAT (LAHAVE RIVER)	P1994	80000	E EGGS	ONT, OMNR/NORMANDALE H (QUAR)		P1995	55000	FING	SEE NEXT LINE	
3134						RINGWOOD HATCHERY		P1996	50000	YEAR	LK ONTARIO (REHAB STOCKING)	
SALMO SALAR [LANDLOCKED ATLANTIC SALMON]												
6002	NY,	ADIRONDACK H (LITTLE CLEAR POND)	*1986	3400	E EGGS	ONT, OMNR/NORMANDALE H (QUAR)		1987			SEE NEXT LINE	
6002						NORMANDALE HATCHERY		1987	1000	SMOLTS	LK ONTARIO (RESTORATION)	
8005	ME,	GRAND LK STREAM H (WEST GRAND LK)	*1988	75000	E EGGS	ONT, OMNR/NORMANDALE H (QUAR)		1988		FING	SEE NEXT LINE	
8005						NORMANDALE HATCHERY		1989	58000	YEAR	LK ONTARIO (RESTORATION)	
9002	ME,	GRAND LK STREAM H (WEST GRAND LK)	1989	63000	E EGGS	ONT, OMNR/NORMANDALE H (QUAR)		1989		FING	SEE NEXT LINE	
9002						NORMANDALE HATCHERY		1989	52000	YEAR	LK ONTARIO (RESTORATION)	
0006	ME,	GRAND LK STREAM H (WEST GRAND LK)	*1990	110000	E EGGS	ONT, OMNR/NORMANDALE & ALMA (QUAR)		1990	81000	FING	SEE NEXT 2 LINES	
0006						NORMANDALE & ALMA HATCHERIES		1991	31000	YEAR	(REHABILITATION STOCKING)	
0006						NORMANDALE & ALMA HATCHERIES		1991	24000	YEAR	BROODSTOCK DEV	
SALVELINUS ALPINUS [ARCTIC CHAR]												
7007	NB,	HUNTSMAN MARINE LABORATORY	1987	30	FING	ONT, SIR WILFRED U (RESEARCH)					STOCK DESTROYED	
7009	ICE,	UNIVERSITY OF ICELAND	1987	3000	EGGS	ONT, U OF GUELPH (RESEARCH)					STOCK DESTROYED	
7006	NB,	HUNTSMAN MARINE LABORATORY	1987	200	FING	ONT, U OF GUELPH (RESEARCH)					STOCK DESTROYED	
8009	ICE,	U OF ICELAND (THINGVALLAVATN LK)	1988	2000	EGGS	ONT, U OF GUELPH (RESEARCH)					STOCK DESTROYED	
8007	MAN,	ROCKWOOD H (FRASER R, LAB)	*1988	5000	E EGGS	ONT, PINE VALLEY HATCHERY (QUAR)		1989	3500		COLD WATER H (PRIVATE AQC)	
9006	MAN,	ROCKWOOD H (FRASER R, LAB)	*1989	5000	E EGGS	ONT, ONTARIO VET COLLEGE (AQC DEV)					ALL FISH DIED	
9003	MAN,	ROCKWOOD H (FRASER R, LAB)	*1989	30000	E EGGS	ONT, COLDWATER & ALMA H (QUAR)		P1990	20000	FING	(PRIVATE AQC BROODSTOCK)	
0001	MAN,	ROCKWOOD HATCHERY (VARIOUS\)	*1990	67000	E EGGS	ONT, OMN/COLDWATE ALMA H (QUAR)		1991	30000	FING	(PRIVATE AQUACULTURE)	
1001	MAN,	ROCKWOOD HATCHERY (VARIOUS\)	*1991	68800	E EGGS	ONT, COLDWATER & ALMA H (QUAR)		P1992			SEE NEXT 2 LINES	
1001						COLDWATER & ALMA HATCHERIES		P1992		FING	(AQC BROODSTOCK)	
1001						COLDWATER & ALMA HATCHERIES		P1992		FING	(AQC BROODSTOCK)	
2005	MAN,	ROCKWOOD HATCHERY(VARIOUS)	P1992	50000	E EGGS	U OF GUELPH (ALMA QUAR UNIT)		P1993			SEE NEXT LINE	
2005								P1993	40000	FING	PRIVATE SECT (BROODSTOCK DEV)	
3131	NB,	UNIVERSITY OF N B (VARIOUS)	1992	500	FING	ONT, LAKEHEAD UNIVERSITY		1992	500	FING	TO BE DESTROYED	

FILE	LOCATION (STOCK/STRAIN) ORIGINAL SOURCE	YEAR	NUMBER	STAGE	SPONSOR/FACILITY (PURPOSE)	YEAR	NUMBER	STAGE	LOCATION (PURPOSE) FINAL DISPOSITION
					TRANSFERS				
SALVELINUS FONTINALIS X SALVELINUS ALPINUS [CHARBROOK]									
8008	QUE, SILVER SPRINGS HATCHERY	1988	500	FISH	ONT, U OF OTTAWA (RESEARCH)				INCINERATED
SALVELINUS NAMAYCUSH [LAKE TROUT]									
1005	NY, SENECA LAKE (SENECA LAKE/WILD)	*1990	70000	G EGGS	ONT, OMNR/NORMANDALE QUAR UNIT	1991	65000	FING	SEE NEXT LINE
1005					WHITE LAKE HATCHERY	P1992	51000	YEAR	LK ONTARIO (REHABILITATION)
1005					LAKE ONTARIO	P1992	14000	YEAR	BROODSTOCK DEV
1006	NY, SENECA LAKE (SENECA LAKE/WILD)	1991	70000	G EGGS	ONT, OMNR/NORMANDALE H (QUAR)	P1992	60000	FING	SEE NEXT LINE
1006					WHITE LAKE HATCHERY	P1993	50000	YEAR	LK ONTARIO (REHAB & BRD STOCK)
2003	NY, SENECA LAKE (SENECA LAKE/WILD)	P1992	70000	G EGGS	ONT, OMNR/NORMANDALE H (QUAR)	P1993	60000	FING	SEE NEXT LINE
2003					NORMANDALE FCSP	1994	50000	YEAR	REHAB & BROODSTOCK DEV
3130	NY, SENECA LAKE (SENECA LAKE/WILD)	1993	70000	G EGGS	ONT, OMNR/NORMANDALE H (QUAR)	P1994	60000	FING	SEE NEXT LINE
3130					NORMANDALE FCSP	P1995	50000	YEAR	LK ONTARIO (REHAB & BROODSTOCK DEV)
3133	PA, ALLEGHENY NFH (LAKE ERIE)				ONT, BAYFIELD INSTITUTE	1994	5000	EGGS	TO BE DESTROYED
3135	NY, SENECA LAKE (SENECA LAKE/WILD)	P1994	70000	G EGGS	ONT, OMNR/NORMANDALE H (QUAR)	P1995	60000	FING	SEE NEXT LINE
3135					NORMANDALE FCSP	P1996	50000	YEAR	LK ONTARIO (REHAB & BROODSTOCK DEV)

SUMMARY OF SALMONID INTRODUCTIONS AND TRANSFERS, 1986-1993

PRINCE EDWARD ISLAND

FILE	LOCATION (STOCK/STRAIN) ORIGINAL SOURCE	YEAR	NUMBER	STAGE	SPONSOR/FACILITY (PURPOSE)	YEAR	NUMBER	STAGE	LOCATION (PURPOSE) FINAL DISPOSITION
		TRANSFERS							
ONCORHYNCHUS KISUTCH [COHO SALMON]									
9017	BC, PRIVATE AQUACULTURE FACILITY	1989	10000	E EGGS	PEI, AQUA HEALTH (VACCINE DEV)				TO BE DESTROYED
0009	BC, CHILLIWACK RIVER HATCHERY	1990	40000	E EGGS	PEI, AQUA HEALTH (VACCINE DEV)				TO BE DESTROYED
1008	BC, BIG QUALICUM HATCHERY	1991	40000	E EGGS	PEI, AQUA HEALTH (VACCINE RESEARCH)				TO BE DESTROYED
2013	BC, BIG QUALICUM HATCHERY	1992	50000	E EGGS	PEI, AQUA HEALTH (VACCINE RESEARCH)				TO BE DESTROYED
3096	BC, BIG QUALICUM HATCHERY	1993	21000	E EGGS	PEI, AQUA HEALTH (VACCINE RESEARCH)				TO BE DESTROYED
ONCORHYNCHUS MYKISS [RAINBOW TROUT]									
	ONT, RAINBOW SPRINGS HATCHERY	1986	50000	EGGS	PEI, GLYNDE RIVER AQUACULTURE				BREADALBANE (AQUACULTURE)
7004	ONT, RAINBOW SPRINGS HATCHERY	1987	50000	FING	PEI, SILVER SEA AQUACULTURE				LITTLE YORK (AQUACULTURE)
7007	ONT, AQUAFARMS CANADA	1987	25000	FING	PEI, BROOKVALLEY MARINE FARMS				SOURIS (AQUACULTURE)
7003	ONT, RAINBOW SPRINGS HATCHERY	1987	100000	EGGS	PEI, GLYNDE RIVER AQUACULTURE				BREADALBANE (AQUACULTURE)
7002	ONT, RAINBOW SPRINGS HATCHERY	1987	100000	EGGS	PEI, INTEGRATED AQUATIC SYSTEMS				BROOKVALE (AQUACULTURE)
7011	ONT, RAINBOW SPRINGS HATCHERY	1987	75000	EGGS	PEI, GLYNDE RIVER AQUACULTURE				BREADALBANE (AQUACULTURE)
7010	ONT, VAN AQUA INC	1987	250000	EGGS	PEI, BROOKVALLEY MARINE FARMS				SOURIS (AQUACULTURE)
7009	QUE, PISCICULTURE ALLEGHANYS	1987	15000	FING	PEI, EDWARD MURPHY				KENSINGTON (AQUACULTURE)
7008	WA, BEITEYS RESORT	1987	200000	FING	PEI, INTEGRATED AQUATIC SYSTEMS				BROOKVALE (AQUACULTURE)
7001	ONT, RAINBOW SPRINGS HATCHERY	1987	50000	EGGS	PEI, GLYNDE RIVER AQUACULTURE				BREADALBANE (AQUACULTURE)
7005	ONT, RAINBOW SPRINGS HATCHERY	1987	50000	FING	PEI, BROOKVALLEY MARINE FARMS				SOURIS (AQUACULTURE)
7012	ONT, AQUAFARMS CANADA	1988	30000	EGGS	PEI, BROOKVALLEY MARINE FARMS				SOURIS (AQUACULTURE)
8001	QUE, PISCICULTURE ALLEGHANYS	1988	50000	FING	PEI, EDWARD MURPHY (REARING)				HUNTER R (AQUACULTURE)
8002	WA, BEITEYS RESORT	1988	200000	EGGS	PEI, BROOKVALLEY MARINE FARMS				SOURIS (AQUACULTURE)
8003	WA, BEITEYS RESORT	1988	250000	EGGS	PEI, INTEGRATED AQUATICS (REARING)				BROOKVALE (AQUACULTURE)
8004	ONT, RAINBOW SPRINGS HATCHERY	1988	125000	EGGS	PEI, GLYNDE RIVER AQUACULTURE				GLYNDE R (AQUACULTURE)
8005	ONT, RAINBOW SPRINGS HATCHERY	1988	25000	TR EGG	PEI, GLYNDE RIVER AQUACULTURE				GLYNDE R (AQUACULTURE)
9001	ONT, RAINBOW SPRINGS HATCHERY	1989	25000	FING	PEI, DOVER FISH HATCHERY				DOVER (AQUACULTURE)
9002	ONT, RAINBOW SPRINGS HATCHERY	1989	43500	E EGGS	PEI, DOVER FISH HATCHERY				DOVER (AQUACULTURE)
9003	ONT, RAINBOW SPRINGS HATCHERY	1989	68500	E EGGS	PEI, BROOKVALLEY MARINE FARMS)				SOURIS (AQUACULTURE)
9004	ONT, RAINBOW SPRINGS HATCHERY	1989	20000	E EGGS	PEI, AQUA HEALTH (VACCINE DEV)				TO BE DESTROYED
9005	WA, BEITEYS RESORT	1989	24384	E EGGS	PEI, AQUA HEALTH (VACCINE DEV)				TO BE DESTROYED
9009	ONT, RAINBOW SPRINGS HATCHERY	1989	75000	E EGGS	PEI, BROOKVALLEY MARINE FARMS				SOURIS (AQUACULTURE)
9010	ONT, RAINBOW SPRINGS HATCHERY	1989	10000	E EGGS	PEI, AQUA HEALTH (VACCINE DEV)				TO BE DESTROYED
0007	ONT, RAINBOW SPRINGS HATCHERY	1989	10000	E EGGS	PEI, AQUA HEALTH (VACCINE DEV)				TO BE DESTROYED
0012	ONT, RAINBOW SPRINGS HATCHERY	1990	10000	E EGGS	PEI, AQUA HEALTH (VACCINE DEV)				TO BE DESTROYED
0001	ONT, RAINBOW SPRINGS HATCHERY	1990	50000	TR EGG	PEI, DOVER FISH HATCHERY				DOVER (AQUACULTURE)
0002	ONT, RAINBOW SPRINGS HATCHERY	1990	165100	E EGG	PEI, DOVER FISH HATCHERY				DOVER (AQUACULTURE)
0003	ONT, RAINBOW SPRINGS HATCHERY	1990	50000	TR EGG	PEI, DOVER FISH HATCHERY				DOVER (AQUACULTURE)
0004	ONT, RAINBOW SPRINGS HATCHERY	199	200000	E EGGS	PEI, DOVER FISH HATCHERY				DOVER (AQUACULTURE)
0005	ONT, RAINBOW SPRINGS HATCHERY	1990	100000	E EGGS	PEI, DOVER FISH HATCHERY				DOVER (AQUACULTURE)
0006	WA, BEITEYS RESORT	1990	20000	E EGGS	PEI, AQUA HEALTH (VACCINE DEV)				CHARLOTTETOWN (DESTROYED)
1001	QUE, PISCICULTURE ALLEGHANYS	1991	25000	E EGGS	PEI, BROOKVALLEY MARINE FARMS				SOURIS (AQUACULTURE)
1002	WA, BEITEYS RESORT	1991	20000	E EGGS	PEI, AQUA HEALTH (VACCINE RESEARCH)				TO BE DESTROYED
1003	QUE, PISCICULTURE ALLEGHANYS	1991	50000	E EGGS	PEI, DOVER FISH HATCHERY				DOVER (AQUACULTURE)
1004	NB, GREENACRES TROUT HATCHERY	1991	4000	FING	PEI, AQUA HEALTH (VACCINE RESEARCH)				TO BE DESTROYED
1005	QUE, PISCICULTURE ALLEGHANYS	1991	10000	FING	PEI, DOVER FISH HATCHERY				DOVER (AQUACULTURE)
1006	NB, GREENACRES TROUT HATCHERY	1991	1500	FING	PEI, AQUA HEALTH (VACCINE RESEARCH)				TO BE DESTROYED
1007	NB, SEA FARMS (CANADA)	1991	40000	E EGGS	PEI, AQUA HEALTH (VACCINE RESEARCH)				TO BE DESTROYED
1019	NB, GREENACRES TROUT HATCHERY	1992	35000	E EGGS	PEI, BROOKVALLEY MARINE FARMS				SOURIS (AQUACULTURE)
2014	QUE, PISCICULTURE ALLEGHANYS	1992	75000	E EGGS	PEI, DOVER FISH HATCHERY				DOVER (AQUACULTURE)
2015	NB, GREENACRES TROUT HATCHERY	1992	2000	FING	PEI, AQUA HEALTH (VACCINE RESEARCH)				TO BE DESTROYED
2016	NB, GREENACRES TROUT HATCHERY	1992	4500	FING	PEI, AQUA HEALTH (VACCINE RESEARCH)				TO BE DESTROYED
2017	NB, GREENACRES TROUT HATCHERY	1992	1000	FING	PEI, AQUA HEALTH (VACCINE RESEARCH)				TO BE DESTROYED
2018	NB, GREENACRES TROUT HATCHERY	1992	20000	FING	PEI, BROOKVALLEY MARINE FARMS				SOURIS (AQUACULTURE)
2019	WA, BEITEYS RESORT	1992	10000	E EGGS	PEI, AQUA HEALTH (VACCINE RESEARCH)				TO BE DESTROYED
2054	ONT, RAINBOW SPRINGS HATCHERY	1992	65000	EGGS	PEI, BROOKVALLEY MARINE FARM/SOURIS				SOURIS (AQUACULTURE)
3090	QUE, PISCICULTURE ALLEGHANYS	1993	60000	E EGGS	PEI, DOVER FISH HATCHERY				DOVER (AQUACULTURE)
3091	QUE, PISCICULTURE ALLEGHANYS (SEX REV)	1993	10	GONADS	PEI, BROOKVALLEY MARINE FARM/SOURIS				SOURIS (AQUACULTURE)
3092	WA, TROUTLODGE INC	1993	20000	E EGGS	PEI, DOVER FISH HATCHERY				DOVER (AQUACULTURE)
3093	ONT, RAINBOW SPRINGS HATCHERY	1993	1000	FRY	PEI, AQUA HEALTH (VACCINE RESEARCH)				

FILE	LOCATION (STOCK/STRAIN) ORIGINAL SOURCE	YEAR	NUMBER	STAGE	SPONSOR/FACILITY (PURPOSE) TRANSFERS	YEAR	NUMBER	STAGE	LOCATION (PURPOSE) FINAL DISPOSITION
SALVELINUS ALPINUS [ARCTIC CHAR]									
7013	MAN, ROCKWOOD HATCHERY	1987	5000	EGGS	PEI, ATL VETERINARY COLLEGE				
8006	NB, HUNTSMAN MARINE LABORATORY	1988	500	FING	PEI, INTEGRATED AQUATICS (REARING)				BROOKVALE (AQUACULTURE)
9006	NB, HML (FRASER R, LABRADOR)	1989	50000	E EGGS	PEI, IAS/BROOKVALE (QUARANTINE)	1989	45600	FING	BROOKVALE (AQUACULTURE)
9008	MAN, ROCKWOOD H (FRASER R, LABRADOR)	*1989	3000	E EGGS	PEI, DOVER FISH HATCHERY				DOVER (BROODSTOCK DEV)
0018	NB, PURTILL B FISH	1989	12000	E EGGS	PEI, IAS (EXP QUARANTINE PROGRAM)	1990	131397	FING	BROOKVALE (AQUACULTURE)
0019	NB, PURTILL B FISH	1990	88000	E EGGS	PEI, IAS (EXP QUARANTINE PROGRAM)				-RELEASED FROM
0020	NB, PURTILL B FISH	1990	15000	S FRY	PEI, IAS (EXP QUARANTINE PROGRAM)				QUARANTINE, BROOKVALE
0021	NB, PURTILL B FISH	1990	62000	S FRY	PEI, IAS (EXP QUARANTINE PROGRAM)				(AQUACULTURE)
SALVELINUS FONTINALIS [BROOK TROUT]									
7006	ONT, WILDCAT TROUT FARM	1987	20000	JUV	PEI, GLYNDE RIVER AQUACULTURE				BREADALBANE (AQUACULTURE)
SALMO SALAR [ATLANTIC SALMON]									
8007	NB, HML (SAINT JOHN CULTURED)	1988	45000	FRY	PEI, ATL VET COLLEGE (REARING				(AQUACULTURE)
9007	NB, BOF CAGE SITE (SAINT JOHN RIVER)	1989	50000	E EGGS	PEI, IAS/BROOKVALE (QUARANTINE)	1989	18300	FING	BROOKVALE (AQUACULTURE)
9011	NB, SEA FARMS CANADA	1989	2000	FRY	PEI, ATL VET COLLEGE (RESEARCH)				TO BE DESTROYED
9012	NB, HUNTSMAN MARINE LABORATORY	1989	1500	PYP	PEI, ATL VET COLLEGE (RESEARCH)				TO BE DESTROYED
9013	NB, SEA FARMS CANADA	1989	10000	E EGGS	PEI, AQUA HEALTH (VACCINE DEV)				TO BE DESTROYED
9014	NS, MERSEY FCS	1989	7500	FING	PEI, AQUA HEALTH (VACCINE DEV)				TO BE DESTROYED
9015	SCO, PRIVATE FACILITY	1989	10000	E EGGS	PEI, AQUA HEALTH (VACCINE DEV)				TO BE DESTROYED
9016	NOR, PRIVATE AQUACULTURE FACILITY	1989	10000	E EGGS	PEI, AQUA HEALTH (VACCINE DEV)				TO BE DESTROYED
0008	NS, COLDBROOK FCS	1989	20000	E EGGS	PEI, AQUA HEALTH (VACCINE DEV)				TO BE DESTROYED
0022	NB, MIRAMICHI FCS (MIRAMICHI)	1989	70000	G EGGS	PEI, DFO/CARDIGAN FCS (QUAR)				PEI (ENHANCEMENT PROGRAMS)
0010	NB, SEA FARMS CANADA	1990	15000	E EGGS	PEI, AQUA HEALTH (VACCINE DEV)				TO BE DESTROYED
0011	NB, SEA FARMS CANADA	1990	400	FING	PEI, AQUA HEALTH (VACCINE DEV)				TO BE DESTROYED
0013	SCO, MARINE HARVEST LIMITED	1990	10000	E EGGS	PEI, AQUA HEALTH (VACCINE DEV)				TO BE DESTROYED
0014	NOR, JAKTA FISKEOPPDRETT AS	1990	10000	E EGGS	PEI, AQUA HEALTH (VACCINE DEV)				TO BE DESTROYED
0015	ME, KENNEBEC AQUACULTURE	1990	2000	PARR	PEI, AQUA HEALTH (RESEARCH)				TO BE DESTROYED
0016	NB, SEA FARMS CANADA	1990	2050	FING	PEI, AQUA HEALTH (VACCINE DEV)				TO BE DESTROYED
0017	NB, SEA FARMS CANADA	1990	393	P SMT	PEI, AQUA HEALTH (RESEARCH)				TO BE DESTROYED
0023	NB, MIRAMICHI FCS (MIRAMICHI/NW)	1990	55000	G EGGS	PEI, DFO/CARDIGAN FCS (QUAR)				PEI (ENHANCEMENT PROGRAMS)
0024	NS, COLDBROOK FCS	1990	20000	E EGGS	PEI, AQUA HEALTH (VACCINE DEV)				TO BE DESTROYED
0025	NB, SALMON DEMONSTRATION FARM	1990	250	1 Kg	PEI, ATL VET COLLEGE (RESEARCH)				TO BE DESTROYED
1009	ME, KENNEBEC AQUACULTURE	1991	2500	PARR	PEI, AQUA HEALTH (VACCINE RESEARCH)				TO BE DESTROYED
1010	NB, SEA FARMS (CANADA)	1991	1600	PARR	PEI, AQUA HEALTH (VACCINE RESEARCH)				TO BE DESTROYED
1011	NB, SEA FARMS (CANADA)	1991	5000	PARR	PEI, AQUA HEALTH (VACCINE RESEARCH)				TO BE DESTROYED
1012	ME, KENNEBEC AQUACULTURE	1991	6000	PARR	PEI, AQUA HEALTH (VACCINE RESEARCH)				TO BE DESTROYED
1013	NS, COLDBROOK FCS	1991	20000	E EGGS	PEI, AQUA HEALTH (VACCINE RESEARCH)				TO BE DESTROYED
1014	NB, SEA FARMS (CANADA)	1991	350	SMOLT	PEI, AVC (FISH HEALTH RESEARCH)				TO BE DESTROYED
1015	NB, SALMON DEMONSTRATION FARM	1991	350	P SMT	PEI, AVC (FISH HEALTH RESEARCH)				TO BE DESTROYED
1016	NB, SALMON DEMONSTRATION FARM	1991	60	ADULT	PEI, AVC (FISH HEALTH RESEARCH)				TO BE DESTROYED
1017	NH, NEW ENG FISH FARM ENT	1991	19000	FRY	PEI, BROOKVALLEY MARINE FARMS				SOURIS(BROODSTOCK DEV)
1018	NB, BRIDEN CONSULTANTS LTD	1991	10000	FRY	PEI, BROOKVALLEY MARINE FARMS				SOURIS(BROODSTOCK DEV)
2020	ME, KENNEBEC AQUACULTURE INC	1992	5000	PARR	PEI, AQUA HEALTH (VACCINE RESEARCH)				TO BE DESTROYED
2021	NB, BRIDEN CONSULTANTS LTD	1992	30000	E EGGS	PEI, BROOKVALLEY (QUARANTINE)	1992	22000	FRY	SOURIS(BROODSTOCK DEV)
2022	NB, SEA FARMS (CANADA)	1992	9000	PARR	PEI, AQUA HEALTH (VACCINE RESEARCH)				TO BE DESTROYED
2023	NS, MERSEY FCS	1992	10000	PARR	PEI, AQUA HEALTH (VACCINE RESEARCH)				TO BE DESTROYED
2024	ME, KENNEBEC AQUACULTURE INC	1992	125	PARR	PEI, AQUA HEALTH (VACCINE RESEARCH)				TO BE DESTROYED
3094	NB, BRIDEN CONSULTANTS LTD (ST JOHN)	1993	40000	E EGGS	PEI, BROOKVALLEY MARINE/SOURIS	1993	20000	FRY	SOURIS (AQUACULTURE)
3095	NB, JAIL ISLAND SALMON LTD (ST JOHN)	1993	200000	G EGGS	PEI, BROOKVALLEY MARINE /SOURIS	P1994		FRY	SOURIS (AQUACULTURE)
3097	NS, COLDBROOK FCS (LAHAVE RIVER)	1993	30000	E EGGS	PEI, AQUA HEALTH (VACCINE RESEARCH)				TO BE DESTROYED

SUMMARY OF SALMONID INTRODUCTIONS AND TRANSFERS, 1986-1993 QUEBEC

FILE	LOCATION (STOCK/STRAIN) ORIGINAL SOURCE	YEAR	NUMBER	STAGE	SPONSOR/FACILITY (PURPOSE)	YEAR	NUMBER	STAGE	LOCATION (PURPOSE) FINAL DISPOSITION
					TRANSFERS				
COREGONUS CLUPEAFORMIS [LAKE WHITEFISH]									
8004	ONT, WHITELAKE HATCHERY	1988	700	FING	LAVAL UNIVERSITY P(RESEARCH)				TO BE DESTROYED
COREGONUS LAVARETUS [LAKE WHITEFISH]									
7003	FIN, (VAASA)	1987	150	G EGGS	LAVAL UNIVERSITY (RESEARCH)	P			TO BE DESTROYED
ONCORHYNCHUS KISUTCH [COHO SALMON]									
7001	BC, ROSEWALD CREEK HATCHERY	1987	150	JUV	LAVAL UNIVERSITY (RESEARCH)	P			TO BE DESTROYED
ONCORHYNCHUS MYKISS [RAINBOW TROUT]									
7002	ONT, AQUAFARMS CANADA	1987	50000	EGGS	QUE, BILL NOWELL				(AQUACULTURE)
8001	PEI, GLYNDE RIVER AQUACULTURE	1988	80000	FING	QUE, FERME ST MATHIEU				(AQUACULTURE-MARKET)
8002	ONT, REDBOW FARMS	1988	80000	FING	QUE, FERME ST MATHIEU				(AQUACULTURE-MARKET)
8003	ONT, ABERFOYLE FISHERIES	1988	80000	FING	QUE, FERME ST MATHIEU				(AQUACULTURE-MARKET)
8005	ONT, SPRING VALLEY HATCHERY	1988	600000	EGGS	QUE, FERME ST MATHIEU				(AQUACULTURE-MARKET)
9007	ONT, AQUAFARMS CANADA (DOMESTIC)	1988	100000	EGGS	QUE, FERME ST MATHIEU				(AQUACULTURE-MARKET)
9003	ONT, SPRING VALLEY H (DOMESTIC)	1989	100000	FRY	QUE, FERME ST MATHIEU				(AQUACULTURE-MARKET)
9008	ONT, SPRING VALLEY H (DOMESTIC)	1989	1000000	EGGS	QUE, FERME ST MATHIEU				(AQUACULTURE-MARKET)
0001	ONT, WILDCAT TROUT FARM	1990	40000	FRY	QUE, SALMONID INC/HATCHERY				(AQUACULTURE)
1001	ONT, RAINBOW SPRING HATCHERY	1991	1000	FRY	QUE, ANALEX INC/LAB				BIOASSAY
1002	ONT, RAINBOW SPRING HATCHERY	1991	1000	FRY	QUE, CONSULTANTS BEAK LTEE/LAB				BIOASSAY
1003	ONT, RAINBOW SPRING HATCHERY	1991	1000	FRY	QUE, LAB. CENTRE ST-LAURENT				BIOASSAY
2087	ONT, RAINBOW SPRING HATCHERY	1992	1000	FRY	QUE, ANALEX INC/LABORATORY				BIOASSAY
2088	ONT, RAINBOW SPRING HATCHERY	1992	150000	EGGS	QUE, FERME ST MATHIEU				(AQUACULTURE)
2089	NY, HINCHENBROOKE HATCHERY	1992	350	YEAR	QUE, GRAHAM FLOWERS/FISH POND				STOCKING
2090	NY, HINCHENBROOKE HATCHERY	1992	450	YEAR	QUE, S. LEGER/FISH POND				STOCKING
2091	NY, HINCHENBROOKE HATCHERY	1992	550	YEAR	QUE, FRED FARQUHAR/FISH POND				STOCKING
2092	NY, HINCHENBROOKE HATCHERY	1992	500	YEAR	QUE, GEORGE DAIGLE/FISH POND				STOCKING
2093	ONT, RAINBOW SPRING HATCHERY	1992	9150	FRY	QUE, CONSULTANTS BEAK LTEE/LAB				
2094	ONT, RAINBOW SPRING HATCHERY	1992	2000	FRY	QUE, CONSULTANTS BEAK LTEE/LAB				BIOASS
3098	ONT, SPRING VALLEY TROUT	1993	150000	EGGS	QUE, TRUITE ST MATHIEU				(AQUACULTURE)
3100	ONT, RAINBOW SPRING HATCHERY	1993	3500	FRY	QUE, ANALEX INC/LABORATORY				BIOASSAY
3101	NY, HINCHENBROOKE HATCHERY	1993	200	YEAR	QUE, CLAIRMONT FAILLE/FISH POND				STOCKING
3102	ONT, RAINBOW SPRING HATCHERY	1993	12000	FRY	QUE, CONSULTANTS BEAK/LABORATORY				BIOASSAY
3103	WA, TROUTLODGE	1993	200000	EGGS	QUE, SCOTT GRAHAM/HATCHERY				(AQUACULTURE)
3104	ONT, RAINBOW SPRING HATCHERY	1993	10000	EGGS	QUE, ECO-CNFS/LABORATORY				BIOASSAY
3105	WA, TROUTLODGE	1993	1000000	EGGS	QUE, MICHEL BOMBARDIER/HATCHERY				(AQUACULTURE)
3106	ONT, RAINBOW SPRING HATCHERY	1993	2000	FRY	QUE, MENVIQ/LABORATORY				BIOASSAY
3108	WA, TROUTLODE	1993	100000	EGGS	QUE, JEAN-PIERRE REVILLE/HATCHERY				(AQUACULTURE)
SALMO SALAR [ATLANTIC SALMON]									
0005	NB, SEA FARMS, DIGDEGUASH	1990	?	SMOLTS	QUE, BAIE DES CHALEURS AQC				(AQUACULTURE)
1004	NB, KELLY COVE BROODSTOCK	1991	60000	EGGS	QUE, BAIE DES CHALEURS AQC				(AQUACULTURE)
SALVELINUS ALPINUS [ARCTIC CHAR]									
9002	MAN, ROCKWOOD HATCHERY (WILD)	1989	20000	FRY	QUE, INRS/RIMOUSKI (RESEARCH)				
9005	MAN, ROCKWOOD HATCHERY (WILD)	1989	5000	EGGS	QUE, J P THONNEY HATCHERY				(AQUACULTURE)
9006	MAN, ROCKWOOD HATCHERY (WILD)	1989	5000	EGGS	QUE, RECHERCHE LA PETITE NATION				(AQUACULTURE)
0002	BC, SUN VALLEY TROUT FARM	1990	15000	EGGS	QUE, PISCICULTURE ALLEGHANYS				
0003	BC, SUN VALLEY TROUT FARM	1990	12000	EGGS	QUE, INRS/RIMOUSKI (RESEARCH)				
0004	MAN, ROCKWOOD HATCHERY	1990	15000	EGGS	QUE, MAPA (RESEARCH)				
1005	NB, GREENACRES TROUT HATCHERY	1991	3000	EGGS	QUE, INSTITUT TECHNOLOGIE AGRICOLE				RESEARCH
1006	NB, GREENACRES TROUT HATCHERY	1991	15000	EGGS	QUE, PISCICULTURE ALLEGHANYS				(AQUACULTURE)
1007	MAN, WILDWOOD TROUT FARM	1991	13000	EGGS	QUE, MAPA (RESEARCH)				RESEARCH
2095	NB, GREENACRES TROUT HATCHERY	1992	3000	EGGS	QUE, MAPAC				(RESEARCH)
2096	NB, GREENACRES TROUT HATCHERY	1992	3000	FRY	QUE, FERME ST MATHIEU				(AQUACULTURE)
2097	NB, GREENACRES TROUT HATCHERY	1992	15000	EGGS	QUE, PISCICULTURE ALLEGHANYS				(AQUACULTURE)
3099	NB, GREENACRES TROUT HATCHERY	1993	15000	FRY	QUE, TRUITE STe MATHIEU/HATCHERY				(AQUACULTURE)
3107	NB, GREENACRES TROUT HATCHERY	1993	30000	EGGS	QUE, PISCICULTURE ALLEGHANYS				(AQUACULTURE)
3109	YUK, POLAR SEAS FISHERIES	1993	35000	EGGS	QUE, BAIE DES CHALEURS/HATCHERY				(AQUACULTURE)
SALVELINUS FONTINALIS [BROOK TROUT]									
9001	ONT, THISTLE SPRINGS FARM (DOMESTIC)	1989	2000	YEAR	QUE, CENTRE DE PECHE BLAINVILLE				(POND FISHING)
9004	ME, PHILLIPS HATCHERY (DOMESTIC)	1989	10000	FRY	QUE, (HOLDING PRIOR TO STOCKING ?)	1989	10000	FRY	SJR, MAINE (STOCKING)

SUMMARY OF SALMONID INTRODUCTIONS AND TRANSFERS, 1986-1993

RHODE ISLAND

FILE	LOCATION (STOCK/STRAIN) ORIGINAL SOURCE	YEAR	NUMBER	STAGE	SPONSOR/FACILITY (PURPOSE)	YEAR	NUMBER	STAGE	LOCATION (PURPOSE) FINAL DISPOSITION
		TRANSFERS							
ONCORHYNCHUS MYKISS [RAINBOW TROUT]									
6001	WA, TROUT LODGE (UNKNOWN)	1986	150000	EGGS	RI,	P1988?		2+	STATEWIDE (STOCKING)
7001	WA, TROUT LODGE (UNKNOWN)	1987	150000	EGGS	RI,	P1989?		2+	STATEWIDE (STOCKING)
3013	MA, PLYMOUTH ROCK TROUT H (DOM)	1994	61500	EGGS	RI, PERRYVILLE TROUT H (HISTORY OF BF)				
SALMO SALAR [ATLANTIC SALMON]									
2100	ME, KENNEBEC H (PEN-ST JOHN)	1992	20300	PARR	RI, RIDFW	1992	20300	PARR	PAWCATUCK R (RESTORATION)
2101	RI, PERRIVILE H (PAWCATUCK R)	1992	5000	PARR	RI, RIDFW	1992	5000	PARR	PAWCATUCK R (RESTORATION)
2102	MA, N ATTLEBORO H (MERRIMAC R)	1992	2500	SMOLT	RI, RIDFW	1992	2500	SMOLT	BEAVER RIVER (URI RESEARCH)
2103	MA, N ATTLEBORO H (MERRIMAC R)	1992	45500	PARR	RI, RIDFW	1992	45500	PARR	PAWCATUCK R (RESTORATION)
2104	NH, NASHUA H (MERRIMAC R)	1992	5000	P/S	RI, RIDFW	1992	5000	P/S	PAWCATUCK R (RESTORATION)
2105	NH, NEFFI, (PENOBSCOT)	1992	250000	E EGGS	RI, RIDFW	1992	250000	E EGGS	PAWCATUCK R (RESTORATION)
3006	MA, N ATTLEBORO H (MERRIMAC R)	1993	77300	FRY	RI, RIDFW	1993	77300	FRY	PAWCATUCK R (RESTORATION)
3007	NH, NASHUA H (MERRIMAC R)	1993	4000	PARR	RI, RIDFW	1993	4000	PARR	PAWCATUCK R (RESTORATION)
3008	VT, WHITE RIVER H (ST JOHN R) (DOM)	1993	42000	FRY	RI, RIDFW	1993	42000	FRY	PAWCATUCK R (RESTORATION)
3009	MA, N ATTLEBORO H (MERRIMAC R)	P1994	800000	FRY	RI, RIDFW	P1994	800000	FRY	PAWCATUCK R (RESTORATION)
3010	VT, WHITE RIVER H (ST JOHN R) (DOM)	1993	3000	PARR	RI, RIDFW	1993	3000	PARR	PAWCATUCK R (RESTORATION)
3011	NH, NE FISH FARMS (ST JOHN R) (DOM)	1993	7000	PARR	RI, RIDFW	1993	7000	PARR	PAWCATUCK R (RESTORATION)
3012	NH, NE FISH FARMS (ST JOHN R) (DOM)	1993	245000	FRY	RI, RIDFW	1993	245000	FRY	(RESTORATION)
SALMO TRUTTA [BROWN TROUT]									
3014	VA, PAINT BANK FCS (CRAWFORD, DOM)	1993	20000	EGGS	RI, PERRYVILLE TROUT H (HISTORY OF BF)				
SALVELINUS FONTINALIS [BROOK TROUT]									
3015	NY, FERNWOOD TROUT H (DOMESTIC)	1993	50000	EGGS	RI, LAFAYETTE TROUT H (HISTORY OF BF)				
3016	ME, PHILLIPS STATE FISH H (ASSINICA D)	1992	39000	EGGS	RI, LAFAYETTE TROUT H (HISTORY OF BF)				

SUMMARY OF SALMONID INTRODUCTIONS AND TRANSFERS, 1986-1993 VERMONT

FILE	LOCATION (STOCK/STRAIN) ORIGINAL SOURCE	YEAR	NUMBER	STAGE	SPONSOR/FACILITY (PURPOSE)	YEAR	NUMBER	STAGE	LOCATION (PURPOSE) FINAL DISPOSITION
		TRANSFERS							
SALMO SALAR [ATLANTIC SALMON]									
3130	ME, GREEN LAKE (PENOBSCOT)	1993	1000000	EGGS	VT, WHITE RIVER FISH CULTURE	P1994		FRY	CONNECTICUT RIVER

ANNEX 7

NORTH AMERICAN COMMISSION

NAC(94)9

NORTH AMERICAN COMMISSION'S REQUEST FOR SCIENTIFIC ADVICE TO THE SCIENTIFIC WORKING GROUP ON SALMONID INTRODUCTIONS AND TRANSFERS

1. Provide an update of the inventory of the introduction and transfer of salmonids in the NAC Area and rivers flowing into the NAC Area. Advise on deviations from the NAC Protocols.

2. Provide an update on the status of scientific knowledge on the effects of using non-local strains of salmon in marine and freshwater cage-rearing.

3. Provide a review of the fish health aspects of the NAC Protocols in light of the current reviews which are being undertaken of the Canadian Fish Health Protection Regulations, the New England Fish Health Guidelines, and amendments to the US Title 50.

ANNEX 8

CNL(94)58

DECISION OF THE COUNCIL TO REQUEST SCIENTIFIC ADVICE FROM ICES

1. With respect to Atlantic salmon in each Commission area, where relevant:

   a) describe the events of the 1994 fisheries with respect to catches (including unreported catches), gear, effort, composition and origin of the catch (including fish farm escapees and sea-ranched fish) and rates of exploitation;
   b) describe the status of the stocks (including the contribution to these stocks of fish farm escapees and sea-ranched fish) occurring in the Commission area, and where possible evaluate spawning escapement against targets;
   c) specify data deficiencies and research needs.

2. Evaluate the effects of the following management measures on the stocks and fisheries occurring in the respective Commission areas:

   a) quota management and closures implemented after 1991 in the Canadian commercial salmon fisheries;
   b) the suspension of commercial fishing activity at Faroes;
   c) the suspension of commercial fishing activity at West Greenland.

3. With respect to the fishery in the West Greenland Commission area:

   a) provide catch options with an assessment of risks relative to the management objective of achieving target spawning escapement;
   b) review the target spawning level in US rivers in the light of the present condition of the rivers and the stocks.

4. With respect to fisheries and stocks in the North-East Atlantic Commission area:

   a) provide estimates of spawning targets for optimal production;
   b) develop methods which could be used in providing advice on catch quotas in relation to stock abundance and, if possible, provide catch options.

5. Report on significant research developments which might assist NASCO with the management of salmon stocks, with special reference to:

   a) the impacts of fish farm escapees and sea-ranched fish on the wild stocks;
   b) criteria for identifying recruitment overfishing of Atlantic salmon;
   c) predictive models of annual migration and distribution of Atlantic salmon stock complexes;
   d) biological (such as maturation, predation, forage base) and environmental (such as oceanographic, productivity) variables which provide interpretation of trends in salmon abundance.

6. With respect to Atlantic salmon in the NASCO area, provide a compilation of microtag, finclip and external tag releases by ICES Member Countries in 1994.

ANNEX 9

NORTH AMERICAN COMMISSION

NAC(94)5

NASCO TAG RETURN INCENTIVE SCHEME

1994 PRIZES

The draw for the 10 winners in the North American Commission was made by the Auditor at NASCO Headquarters on 26 May 1994. At the Eleventh Annual Meeting of the Commission in Oslo, the Chairman of the Commission, Mr Jean-Paul Duguay, announced the winners:

First prize - $1500 - Glendon Irving, RR#2, Salisbury, New Brunswick, Canada E0A 3EO

Second prize - $1000 - Ken Levi, Box 644, RR#2, Newcastle, New Brunswick, Canada E1V 3Z9

Third prize - $500 - John Lambert, RR#2, Box 94, Lagaceville, New Brunswick, Canada E0C 1KO

Fourth prizes - $100

Steven Nye, Box 205, Station Road, Centreville, New Brunswick, Canada E0J 1HO

Wayne Ward, Box 18, Site 3, RR#1, Newcastle, New Brunswick, Canada E1V 318

Don Grant, 102 Blue Heron Drive, Moncton, New Brunswick, Canada E1C 9N8

Dick Leyden, 15 Fox Crossing, South Hero, Vermont, USA 05486

Edward T Barry Jr., Box 67, 61 Highland Avenue, Needham Heights, Massachusetts, USA 02194

Janet D Teagle, Cleft Road, Mill Neck, New York, USA 11765

Dan Ball, P O Box 372, Deer Lake, Newfoundland, Canada AOK 2EO

The Commission offers its congratulations to the winners.

ANNEX 10

LIST OF NORTH AMERICAN COMMISSION PAPERS

Paper No.	Title
NAC(94)1	Provisional Agenda
NAC(94)2	Draft Agenda
NAC(94)3	Election of Officers
NAC(94)4	Salmon Fisheries on St Pierre et Miquelon
NAC(94)5	NASCO Tag Return Incentive Scheme, 1994 Prizes
NAC(94)6	Draft Report of the Eleventh Annual Meeting
NAC(94)7	Report of Activities 1993/94, NAC Scientific Working Group on Salmonid Introductions and Transfers
NAC(94)8	Status of Atlantic Salmon Stocks in the United States of America in 1993
NAC(94)9	North American Commission's Request for Scientific Advice to the Scientific Working Group on Salmonid Introductions and Transfers
NAC(94)10	1994 Atlantic Salmon Management Plan, Tabled by Canada
NAC(94)11	Figures used by the Chairman of ACFM in his Presentation to the North American Commission
NAC(94)12	Agenda
NAC(94)13	Report of the Eleventh Annual Meeting
CNL(94)13	Report of the ICES Advisory Committee on Fishery Management

NOTE: This list contains all papers submitted to the Commission prior to and at the meeting. Some, but not all, of these papers are included in this report as annexes.

REPORT OF THE

ELEVENTH ANNUAL MEETING

OF THE

NORTH-EAST ATLANTIC COMMISSION

6-10 JUNE 1994
OSLO, NORWAY

CHAIRMAN:	MR HENRIK SCHMIEGELOW (EUROPEAN UNION)
VICE-CHAIRMAN:	MR PEKKA NISKANEN (FINLAND)
RAPPORTEUR:	MR HELGE LORENTZEN (NORWAY)
SECRETARY:	DR MALCOLM WINDSOR

NEA(94)13

CONTENTS

NEA(94)13

REPORT OF THE ELEVENTH ANNUAL MEETING OF THE NORTH-EAST ATLANTIC COMMISSION OF THE NORTH ATLANTIC SALMON CONSERVATION ORGANIZATION 6-10 JUNE 1994, GRAND HOTEL, OSLO, NORWAY

1. OPENING OF THE MEETING

1.1 In the absence of the Chairman, Mr Henrik Schmiegelow (European Union), the Eleventh Annual Meeting of the North-East Atlantic Commission was opened by the Vice-Chairman, Mr Pekka Niskanen (Finland), who welcomed delegates to Oslo. He referred to the excellent work of the retiring Chairman, and asked the representative of the European Union to convey the best wishes of the Commission to Mr Schmiegelow in his new post.

1.2 A list of participants is given in Annex 1.

2. ADOPTION OF THE AGENDA

2.1 The Commission adopted its agenda, NEA(94)11, (Annex 2).

3. NOMINATION OF A RAPPORTEUR

3.1 The Commission nominated Mr Helge Lorentzen (Norway) as Rapporteur for the meeting.

4. ELECTION OF OFFICERS

4.1 The Commission elected Mr Pekka Niskanen (Finland) as its Chairman.

4.2 The Commission elected Mr Ernesto Penas (European Union) as its Vice-Chairman.

5. NON-GOVERNMENT OBSERVERS AT COMMISSION MEETINGS

5.1 At its Tenth Annual Meeting the Commission had endorsed a recommendation from the Council to permit attendance of Non-Government Organizations at its meetings for a trial period of two years commencing in 1994. The Chairman welcomed the representatives of these Organizations to the Eleventh Annual Meeting of the Commission.

6. REVIEW OF THE 1993 FISHERY

6.1 The Commission reviewed the 1993 offshore fishery in the Faroe Islands which had been described in detail in the ACFM report from ICES. The representative of Denmark (in respect of the Faroe Islands and Greenland) referred the Commission to the ACFM report, CNL(94)13.

7. ACFM REPORT FROM ICES ON SALMON STOCKS IN THE COMMISSION AREA

7.1 The Chairman of the ACFM, Mr Eskild Kirkegaard, presented the scientific advice from ICES relevant to the North-East Atlantic Commission, CNL(94)13, prepared in response to a request from the Commission at its Tenth Annual Meeting. The ACFM report from ICES, which contains the scientific advice relevant to all three Commissions, is included on page 197 of this document.

7.2 The representative of Norway, referring to a statement in the ACFM report which indicated that the aquaculture industry was responsible for the introduction of *Gyrodactylus salaris* to Norway, said that there was no conclusive scientific evidence to support this statement.

8. ENVIRONMENTAL QUALITY OF SALMON RIVERS

8.1 The Chairman referred to Council documents CNL(94)28 and CNL(94)30 concerning Impacts of Aquaculture and Diseases and Parasites.

8.2 The representative of Sweden tabled a document NEA(94)5, (Annex 3) concerning alarming trends in Swedish west-coast rivers. In four river systems the average total fry abundance in 1993 amounted to only approximately 40% of the mean during the period 1988-1993. The causes for this decline in fry abundance are not clear but changes in environmental conditions in the Atlantic feeding areas as well as in the rivers cannot be excluded. In addition, reduced recaptures of tagged, reared smolts together with an increased proportion of grilse have been observed.

8.3 The representative of Norway referred to similar trends in some Norwegian rivers following the introduction of *Gyrodactylus salaris* and asked if the parasite had been observed in the Swedish west-coast rivers. The representative of Sweden confirmed that *Gyrodactylus salaris* had been found and that further investigations are now being undertaken. Referring to the brackish water current which passes Sweden and continues to Norway, the representative of Norway underlined the need for cooperation between the two Parties to control the parasite and prevent its spread.

9. PROPOSED WORKING GROUP ON INTRODUCTIONS AND TRANSFERS

9.1 The Chairman referred to paper CNL(94)30 which includes information on the spread of the parasite *Gyrodactylus salaris*. At its Tenth Annual Meeting the Commission had decided in principle to convene a Working Group to look at the possibility of developing agreements concerning introductions and transfers for the North-East Atlantic area. The Commission had asked the Secretary to prepare initial documents for the Working Group drawing on the experience of the North American Commission. The Secretary introduced paper NEA(94)4, (Annex 4) which included draft Terms of Reference for a Working Group.

9.2 The representative of Norway stated that Introductions and Transfers could result in serious damage to wild stocks and he referred to the initiatives of the North American Commission and of international organizations including ICES and EIFAC. Norway has taken action nationally and bilaterally with Russia and with Finland to prevent

damage from introductions and transfers and would like to see some international progress, and therefore supports the setting up of the Working Group. The representative of Russia expressed serious concern about *Gyrodactylus salaris* which has been recorded in the Keret river. Russia therefore supported the initiative of the Commission to address the problem. The representative of the European Union welcomed the proposal for the Working Group but indicated that he would like to see clearer terms of reference formulated for the Group.

9.3 The Commission considered and agreed revised Terms of Reference for the Working Group, NEA(94)12, (Annex 5) which will be chaired by the Secretary. It was suggested that the Working Group should meet twice before the next Annual Meeting of the Commission with the first meeting being held in October or November.

10. REGULATORY MEASURES

10.1 The representative of Denmark (in respect of the Faroe Islands and Greenland) referred to the measure adopted by the Commission last year which applied to the calendar year 1994. He indicated that the Faroese authorities would be prepared to agree to a continuation of this measure in 1995.

10.2 The representative of Iceland stated that a quota of 550 tonnes represented approximately 17% of the homewater catch and that this was too high. He referred to the decline in abundance of juvenile salmon in freshwater and would therefore seek a reduction in quota. The representative of Norway referred to the decline in catches for six years in succession despite the contribution of escaped farmed and ranched salmon to the catch. He referred to the deliberations within the Council on the Precautionary Approach to fishery management. He indicated that Norway supported ICES' approach which should be adopted in establishing management measures for salmon stocks. In the last ten years Norway has spent approximately $100 million to protect and enhance salmon stocks and given the present situation it would be reasonable for action to be taken even though clear scientific advice is not available.

10.3 The representative of the European Union supported the comments made by Norway and indicated that there was a need for an adjustment in the quota given the indications of reduced stocks. He recognised that there was a lack of clear scientific evidence but referred to the reference in the ACFM report which stated that the occurrence of farmed fish could mask a more serious decline in the wild stocks.

10.4 The representative of Denmark (in respect of the Faroe Islands and Greenland) stated that he had taken note of the statements by other members of the Commission and reiterated that the Faroese authorities care about the wild stocks and that they want all management decisions to be based on the best available scientific information. He referred to the assertion that the quota corresponded to 17% of the total catch and he stated that unreported catches should be included in the calculation together with the 550 tonnes which was not taken in previous years, which would lead to an estimated figure below 10%. The Faroese authorities would not wish to change the quota until an objective method for quota calculations has been established, a process in which Faroese scientists will cooperate. The representative of Denmark (in respect of the Faroe Islands and Greenland) also stated that the measure is not only a quota but restricts the fishing effort, which will make it difficult to catch the quota if the

abundance is low. It would be a disservice to the salmon if negotiations for a regulatory measure failed and he therefore asked that his suggestion be treated as a proposal.

10.5 The Commission adopted a proposal from the Chair for a regulatory measure for fishing of salmon in the Faroe Islands for the calendar year 1995, NEA(94)14, (Annex 6). In this regard, the following statement was made:

"The majority of delegates expressed concern as to the current level of the quota allocated to the Faroe Islands considering the actual abundance of the stocks in the Commission area. This prolongation by one year of the quota of 550 tonnes was not opposed subject to the condition that the situation be thoroughly examined, on the basis of all available information, at the Twelfth Annual Meeting".

11. FISHING FOR SALMON IN INTERNATIONAL WATERS BY NON-CONTRACTING PARTIES

11.1 The Chairman referred to the deliberations within the Council on this issue. The Commission agreed that further actions to stop fishing for salmon in the Commission area should continue to be coordinated by the Council.

12. RECOMMENDATIONS TO THE COUNCIL ON SCIENTIFIC RESEARCH

12.1 At its Ninth Annual Meeting the Commission had appointed Mr Kjartan Hoydal (Denmark (in respect of the Faroe Islands and Greenland)) and Dr Lars Petter Hansen (Norway) to represent the Commission on the Standing Scientific Committee. In view of Mr Hoydal's absence from the meeting, the Commission appointed Mr Jan Arge Jacobsen (Denmark (in respect of the Faroe Island and Greenland)) to serve on the Committee.

12.2 The Commission reviewed document SSC(94)4, and following some modifications, agreed to recommend it to the Council as part of the annual request to ICES for scientific advice. The request to ICES for scientific advice agreed by the Council, CNL(94)58 is contained in Annex 7.

13. REPORT ON THE NASCO TAG RETURN INCENTIVE SCHEME AND ANNOUNCEMENT OF AWARDS

13.1 The Chairman announced that the draw for the prizes in the Tag Return Incentive Scheme was made by the Auditor at NASCO Headquarters on 26 May 1994. The winner of the first prize was M Withers, Dorset, UK. A list of all prize winners was presented to the Commission, NEA(94)7, (Annex 8). The Commission offered its congratulations to all of the winners.

14. OTHER BUSINESS

14.1 There was no other business.

15. DATE AND PLACE OF THE NEXT MEETING

15.1 The Commission agreed to hold its next annual meeting during the Twelfth Annual Meeting of the Council, 12-16 June 1995 in Glasgow.

16. CONSIDERATION OF THE DRAFT REPORT OF THE MEETING

16.1 The Commission agreed the draft report of the meeting, NEA(94)6.

ANNEX 1

NORTH ATLANTIC SALMON CONSERVATION ORGANIZATION
ELEVENTH ANNUAL MEETING
OF THE NORTH-EAST ATLANTIC COMMISSION
6-10 JUNE 1994, OSLO, NORWAY

LIST OF PARTICIPANTS

* Denotes Head of Delegation

MEMBERS OF THE COMMISSION

DENMARK (IN RESPECT OF THE FAROE ISLANDS AND GREENLAND)

*MR EINAR LEMCHE	Representative Greenland Home Rule Government, Copenhagen
MR ARNI OLAFSSON	Representative Faroese Home Government, Torshavn
MR OLE SAMSING	Representative Ministry of Foreign Affairs, Copenhagen
MS ANNA MARIA HOLBECH	Faroese Home Government, Torshavn
MR FLEMMING ENEQUIST	The Organization of Hunters & Fishermen in Greenland, Nuuk
MR JAN ARGE JACOBSEN	Fishery Laboratory, Torshavn
MR JENS MOELLER JENSEN	Greenland Fisheries Research Institute, Copenhagen
MR JASPUR KRUSE	Felagid Laksaskip, Faroe Islands
MR HENRIK NIELSEN	Greenland Home Rule, Nuuk
MR SOFUS POULSEN	Faroese Commercial Attaché, Aberdeen
MR ANTHON SIEGSTAD	The Organization of Hunters & Fishermen in Greenland, Nuuk

EUROPEAN UNION

*MR OLE TOUGAARD	Representative Commission of the European Communities, Brussels

MR ERNESTO PENAS	Representative Commission of the European Communities, Brussels
MRS MARIA ZOGRAFOU	Ambassador, Embassy of Greece, Oslo
MR MICHAEL WALDRON	Secretariat General of the Council of the EU, Brussels
MR JOHN BROWNE	Department of the Marine, Dublin
MR DAVID DICKSON	Scottish Office Agriculture and Fisheries Department, Edinburgh
MS CATERINA N DIMAKIS	Embassy of Greece, Oslo
MR DAVID DUNKLEY	Scottish Office Agriculture and Fisheries Department, Montrose
DR PADDY GARGAN	Central Fisheries Board, Dublin
MR JOHN KEOHANE	Department of the Marine, Dublin
MR IVOR LLEWELYN	Ministry of Agriculture, Fisheries and Food, London
VISCOUNT CHRIS MILLS	National Rivers Authority, NW Region, Preston
MR PHILIPPE PERONNE	Ministry of Agriculture and Fisheries, Paris
MR TED POTTER	Ministry of Agriculture, Fisheries and Food, Lowestoft
MR WILLIAM SCRIVEN	Ministry of Agriculture, Fisheries and Food, London
MR JOSE SERRANO	Secretaria General de Pesca Maritima, Madrid
MR BOB WILLIAMSON	Scottish Office Agriculture and Fisheries Department, Edinburgh

FINLAND

*MR PEKKA NISKANEN	Representative Ministry of Agriculture and Forestry, Helsinki
MR EERO NIEMELA	Representative Finnish Game and Fisheries Research Institute, Helsinki

ICELAND

*MR HELGI AGUSTSSON	Representative Icelandic Ambassador to the United Kingdom, London

MR ARNI ISAKSSON	Representative Institute of Freshwater Fisheries, Reykjavik
MR ORRI VIGFUSSON	Ministry of Agriculture, Reykjavik

NORWAY

MR BØRRE PETTERSEN	President of NASCO Ministry of the Environment, Oslo
*MR TORMOD KARLSTRØM	Representative Ministry of the Environment, Oslo
MR SVEIN MEHLI	Representative Ministry of the Environment, Oslo
MS INGER LAVIK OPDAHL	Representative Ministry of Foreign Affairs, Oslo
MR RAOUL BIERACH	Directorate for Nature Management, Trondheim
MR ARNE EGGEREIDE	Directorate for Nature Management, Trondheim
MR PER FOLKESTAD	Ministry of Agriculture, Oslo
DR LARS PETTER HANSEN	Norwegian Institute for Nature Research, Trondheim
MR STEINAR HERMANSEN	Ministry of the Environment, Oslo
MR STIG JOHASSON	Directorate for Nature Management, Trondheim
MR TERJE KARTERUD	Directorate for Nature Management, Trondheim
MR HAAKON KRYVI	Ministry of the Environment, Oslo
MR HELGE LORENTZEN	Ministry of the Environment, Oslo
MR HARALD MULADAL	Ministry of Fisheries, Oslo
MR GEORG RIEBER-MOHN	Ministry of the Environment, Oslo
MR ARNE SIVERTSEN	Directorate for Nature Management, Trondheim
MR YNGVE SVARTE	Directorate for Nature Management, Trondheim

RUSSIAN FEDERATION

*DR ALEXANDER SOROKIN	Representative PINRO, Murmansk

MR GUENRIKH BOROVKOV	Committee of Russian Federation on Fisheries, Moscow
MR GEORGY LUKA	Embassy of the Russian Federation, Oslo
MR VICTOR A NESVETOV	JV Arctic Salmon, Murmansk
MR BORIS F PRISCHEPA	Murmanrybvod, Murmansk
MS ELENA SAMOILOVA	PINRO, Murmansk

SWEDEN

*DR INGEMAR OLSSON	Representative National Board of Fisheries, Göteborg
MRS LENA ELLWERTH-STEIN	Representative Ministry of Agriculture, Stockholm

OBSERVERS - PARTIES

CANADA

MR RICHARD HEGAN	Department of Fisheries and Oceans, Ottawa, Ontario
MR DAVID MEERBURG	Vice-President of NASCO Department of Fisheries and Oceans, Ottawa, Ontario

USA

*MR ALLEN PETERSON	Representative National Marine Fisheries Service, Woods Hole, Massachusetts
MR CLINTON TOWNSEND	Representative Maine Council of the Atlantic Salmon Federation, Canaan, Maine
DR KEVIN FRIEDLAND	National Marine Fisheries Service, Woods Hole, Massachusetts
MR GILBERT C RADONSKI	Sport Fishing Institute, Warrenton, Virginia
MR ANDREW V STOUT	New England Atlantic Salmon Association, Newburyport, Massachusetts
DR DEAN SWANSON	National Marine Fisheries Service, Silver Springs, Maryland
MR STETSON TINKHAM	Department of State, Office of Fisheries Affairs, Washington DC

ICES

PROFESSOR CHRIS HOPKINS	International Council for the Exploration of the Sea, Copenhagen
DR ROGER BAILEY	International Council for the Exploration of the Sea, Copenhagen
MR ESKILD KIRKEGAARD	Danish Institute for Fisheries and Marine Research, Charlottenlund

NON-GOVERNMENT OBSERVERS

DR FREDERIC MAZEAUD	AIDSA
CAPTAIN JEREMY READ	Atlantic Salmon Trust
MR JIM MAXWELL MR RICHARD BEHAL	Federation of Irish Salmon and Sea-Trout Anglers
MR ED CHANEY	International Friends of Wild Salmon
MR SIRI PARMANN	Norwegian Association of Hunters and Anglers (Norges Jeger og Fiskerforbund)
MR BJORN MOE	Norwegian Salmon Rivers (Norske Lakseelver)
MR THOMAS A F BARNES	Salmon and Trout Association
MR WILLIAM SHEARER	Salmon Net Fishing Association of Scotland
MR JOUNI KITTI	Sami Parlamenta
MR WILLIAM BROWN MR ALASTAIR HUME	Scottish Anglers National Association

SECRETARIAT

DR MALCOLM WINDSOR	Secretary
DR PETER HUTCHINSON	Assistant Secretary

ANNEX 2

NEA(94)11
ELEVENTH ANNUAL MEETING OF THE NORTH-EAST ATLANTIC COMMISSION
6-10 JUNE 1994, OSLO, NORWAY

AGENDA

1. Opening of the Meeting
2. Adoption of the Agenda
3. Nomination of a Rapporteur
4. Election of Officers
5. Non-Government Observers at Commission Meetings
6. Review of the 1993 Fishery
7. ACFM Report from ICES on Salmon Stocks in the Commission Area
8. Environmental Quality of Salmon Rivers
9. Proposed Working Group on Introductions and Transfers
10. Regulatory Measures
11. Fishing for Salmon in International Waters by Non-Contracting Parties
12. Recommendations to the Council on Scientific Research
13. Report on NASCO Tag Return Incentive Scheme and Announcement of Awards
14. Other Business
15. Date and Place of Next Meeting
16. Consideration of the Draft Report of the Meeting

ANNEX 3

NORTH-EAST ATLANTIC COMMISSION

NEA(94)5

ALARMING TRENDS IN SALMON POPULATIONS IN SWEDISH WEST COAST RIVERS

NEA(94)5

ALARMING TRENDS IN SALMON POPULATIONS IN SWEDISH WEST-COAST RIVERS

The recruitment of salmon in some Swedish west-coast rivers during the period 1988-1993

The salmon migrates into and spawns in about 15 river systems along the Swedish west coast. In the late 1980's the potential annual, natural production of salmon in these rivers was estimated to be 125,000-200,000 smolts with about 60% of this smolt production attributed to four of the largest river systems, ie Örekilsälven, Viskan, Ätran and Fylleån.

As part of the on-going monitoring programmes related to liming operations, pollution impacts etc the National Board of Fisheries (Department of Research, Fisheries Research Office in Jönköping) carried out electrofishing in the four rivers mentioned above during the 1980's and the early 1990's. It has been of interest to compare the status of the west-coast rivers with that of the Baltic salmon rivers with M74 syndrome (very high mortality of salmon fry in rearing plants and in rivers with natural reproduction).

The results during the period 1988-1993 for two sampling sites from each of the four rivers indicate an alarming decline in abundance of salmon fry (Figure 1). A decline has been observed in each of the four rivers and at all the sampling sites, which implies that the results are statistically significant. Of course the four rivers exhibit somewhat different conditions and the variation is relatively high. The greatest change has been in the river Högvadsån, a tributary of the river Ätran. Despite improved environmental conditions in Högvadsån after the first years of mitigation liming, a considerable reduction in the number of fry has been observed.

In the four river systems, the average total fry abundance in 1993 amounted to only approximately 40% of the mean for the period 1988-1993 (variation about 20-60%). The abundance of about 0.3-1.0 fry/m^2 (sum of 0+ and > 1+) may, however, be regarded as relatively high. On the other hand it should be pointed out that densities of 2-4 fry/m^2 were recorded earlier in the investigation period. The causes of the observed decline in fry numbers are not clear but changes in environmental conditions in the Atlantic feeding areas as well as in the rivers cannot be excluded.

Decreased recapture of tagged salmon smolts

Reduced recaptures of tagged, reared salmon smolts have been observed in some Swedish west-coast rivers (report from the County Board, Halland) and an increased proportion of grilse has also been observed. Figure 2 demonstrates the decreasing trends in yield (in kg/1000 released smolts) during the period 1981-1992 in the rivers Lagan, Nissan, Högvadsån (Ätran) and Göta älv/Säveån. In addition, the number of recaptured naturally produced, tagged smolts in Högvadsån shows a similar trend. It should be noted that the recaptures of sea trout do not exhibit a decreasing trend.

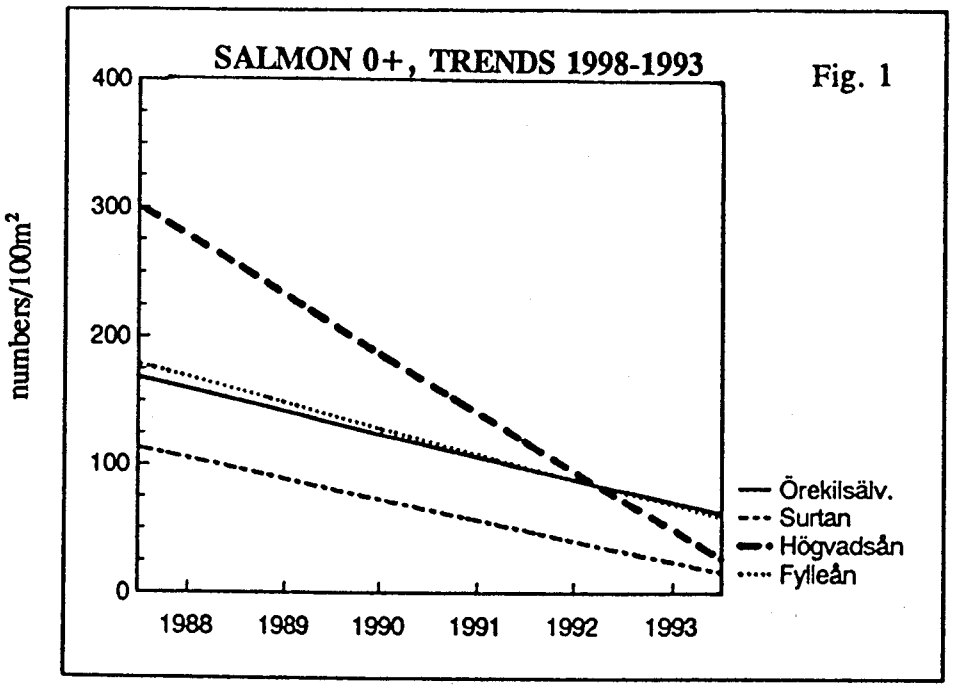

SALMON 0+, TRENDS 1998-1993
numbers/100m²
400
300
200
100
0
1988
1989
1990
1991
1992
1993
Örekilsälv.
Surtan
Högvadsån
Fylleån

Fig. 1

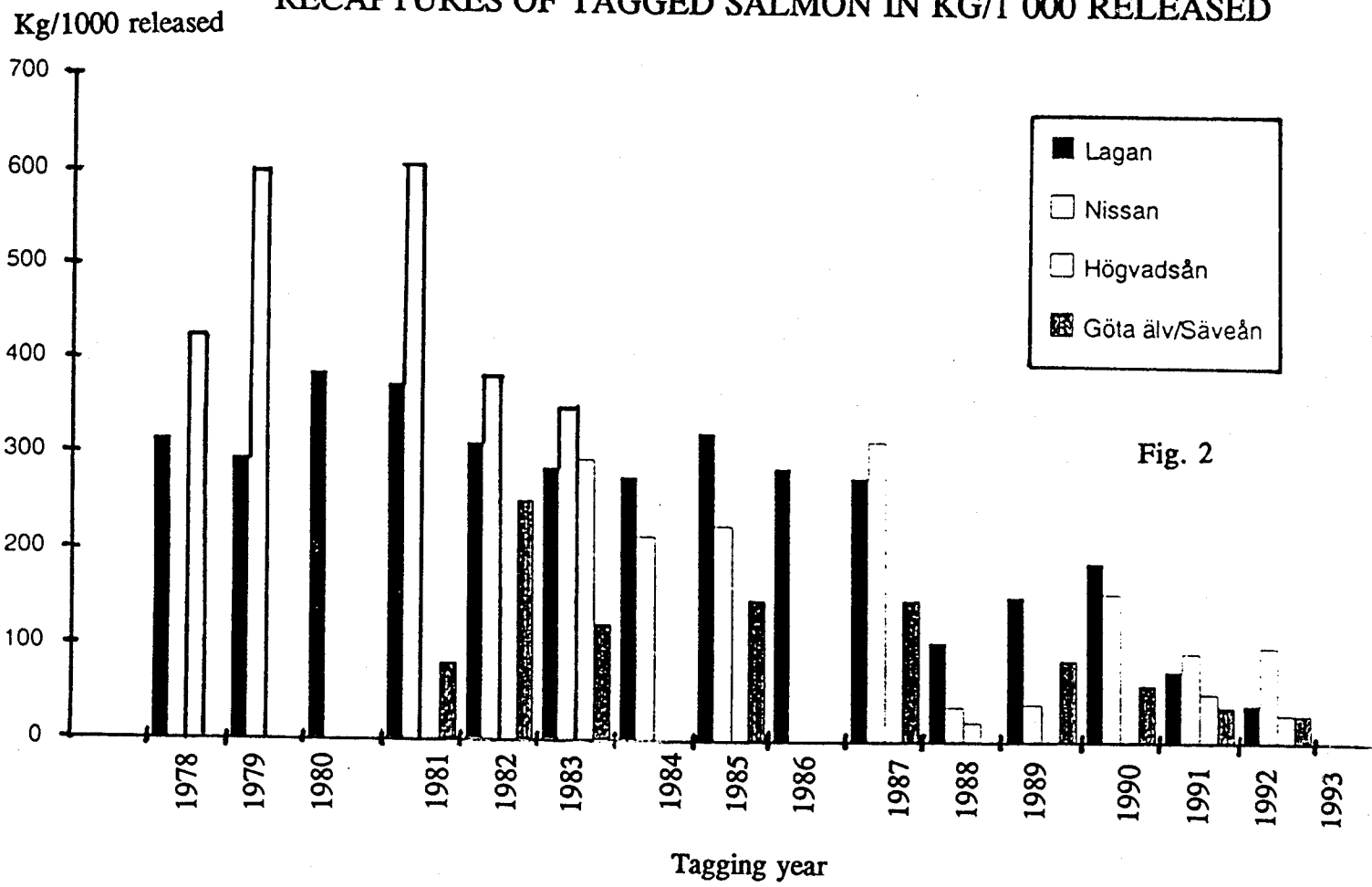

RECAPTURES OF TAGGED SALMON IN KG/1 000 RELEASED
Kg/1000 released
700
600
500
400
300
200
100
0
Lagan
Nissan
Högvadsån
Göta älv/Säveån
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
1992
1993
Tagging year

Fig. 2

ANNEX 4

NORTH-EAST ATLANTIC COMMISSION

NEA(94)4

INTRODUCTIONS AND TRANSFERS

NEA(94)4

INTRODUCTIONS AND TRANSFERS

1. At its Tenth Annual Meeting the Commission considered reviews of the Impacts of Introductions and Transfers, CNL(93)31, and the Spread of Gyrodactylus, CNL(93)33. Serious concern was expressed about the impacts of the parasite *Gyrodactylus salaris* on wild salmon populations and the Commission therefore decided in principle to convene a Working Group to look at the possibility of developing agreements concerning introductions and transfers for the North-East Atlantic area. The Commission asked the Secretary to prepare initial papers for the Working Group, drawing on the experience of the North American Commission's activities.

2. Because of the meetings of the Working Group on the Impacts of Aquaculture it was not possible, and may not have been desirable, for the Working Group to be convened. However, it is proposed that this Working Group be convened in October or November this year so that a progress report can be made to the Commission at its Twelfth Annual Meeting. The following draft Terms of Reference are proposed:

   "That a Working Group, to be known as the North-East Atlantic Commission's Working Group on Salmonid Introductions and Transfers be established to:

   (a) advise the Commission on matters related to the introduction or transfer of salmonid species which may potentially affect Atlantic salmon stocks in the North-East Atlantic area, in particular to assess the need to develop agreements to apply within the Commission area and the elements that such agreements, if necessary, should contain;

   (b) to establish an inventory of all introductions and transfers of salmonids within the Commission area".

   These Terms of Reference are based on those of the North American Commission's Working Group.

3. The Commission is asked to review these draft Terms of Reference and agree them, or modify them, as it shall decide. The Commission might also like to consider a date and venue for the meeting and to nominate a Chairman and Rapporteur for the Group.

ANNEX 5

NORTH-EAST ATLANTIC COMMISSION

NEA(94)12

TERMS OF REFERENCE FOR THE NORTH-EAST ATLANTIC COMMISSION WORKING GROUP ON INTRODUCTIONS AND TRANSFERS

That a Working Group be established to advise the North-East Atlantic Commission on the adequacy of existing controls and, if necessary, make recommendations for strengthened controls and other measures, and whether there is a need for a Standing Committee, on the introduction and transfer of salmonid populations in the territories of the Parties to this Commission, with particular respect to:

1. disease control, including control of parasites

2. genetic integrity of stocks

3. ecological effects.

So far as item 1 is concerned the Working Group should also consider the adequacy of controls on other potential vectors.

NORTH-EAST ATLANTIC COMMISSION

NEA(94)14

REGULATORY MEASURE FOR FISHING OF SALMON IN THE FAROE ISLANDS FOR THE CALENDAR YEAR 1995

The North-East Atlantic Commission of the North Atlantic Salmon Conservation Organization

having regard to Article 8, subparagraph (b), recognising the need for regulatory measures in the Faroese fishery for the year 1995 decides that:

The Faroese catch shall be controlled in accordance with an effort limitation programme, set out in Appendix 1, for a period of one year.

The total nominal catch for the duration of the period shall not exceed 550 tonnes.

This prolongation by one year of the quota of 550 tonnes was not opposed subject to the condition that the situation be thoroughly examined, on the basis of all available information, at the Twelfth Annual Meeting.

Appendix 1

The following regulatory measures for the fishing of salmon in the fisheries zone of the Faroe Islands for the year 1995 shall apply:

(1) Areas with salmon below the length of 60cm will be closed for salmon fishery at short notice, following the general rules for closing areas with undersized fish already in force in the Faroese fisheries zone;
(2) The number of boats licensed for salmon shall not exceed 13;
(3) The salmon fishing season will be limited to 150 days between 1 January and 1 April and 1 November and 31 December;
(4) Subject to the maximum annual catch the total allowable number of fishing days for the salmon fishery in the Faroe Islands zone shall be set at 1200.

ANNEX 7

CNL(94)58

DECISION OF THE COUNCIL TO REQUEST SCIENTIFIC ADVICE FROM ICES

1. With respect to Atlantic salmon in each Commission area, where relevant:

   a) describe the events of the 1994 fisheries with respect to catches (including unreported catches), gear, effort, composition and origin of the catch (including fish farm escapees and sea-ranched fish) and rates of exploitation;
   b) describe the status of the stocks (including the contribution to these stocks of fish farm escapees and sea-ranched fish) occurring in the Commission area, and where possible evaluate spawning escapement against targets;
   c) specify data deficiencies and research needs.

2. Evaluate the effects of the following management measures on the stocks and fisheries occurring in the respective Commission areas:

   a) quota management and closures implemented after 1991 in the Canadian commercial salmon fisheries;
   b) the suspension of commercial fishing activity at Faroes;
   c) the suspension of commercial fishing activity at West Greenland.

3. With respect to the fishery in the West Greenland Commission area:

   a) provide catch options with an assessment of risks relative to the management objective of achieving target spawning escapement;
   b) review the target spawning level in US rivers in the light of the present condition of the rivers and the stocks.

4. With respect to fisheries and stocks in the North-East Atlantic Commission area:

   a) provide estimates of spawning targets for optimal production;
   b) develop methods which could be used in providing advice on catch quotas in relation to stock abundance and, if possible, provide catch options.

5. Report on significant research developments which might assist NASCO with the management of salmon stocks, with special reference to:

   a) the impacts of fish farm escapees and sea-ranched fish on the wild stocks;
   b) criteria for identifying recruitment overfishing of Atlantic salmon;
   c) predictive models of annual migration and distribution of Atlantic salmon stock complexes;
   d) biological (such as maturation, predation, forage base) and environmental (such as oceanographic, productivity) variables which provide interpretation of trends in salmon abundance.

6. With respect to Atlantic salmon in the NASCO area, provide a compilation of microtag, finclip and external tag releases by ICES Member Countries in 1994.

NORTH-EAST ATLANTIC COMMISSION

NEA(94)7

NASCO TAG RETURN INCENTIVE SCHEME
1994 PRIZES

The draw for the 10 winners in the North-East Atlantic Commission was made by the Auditor at NASCO Headquarters on 26 May 1994. At the Eleventh Annual Meeting of the commission in Oslo, the Acting Chairman of the Commission, Mr Pekka Niskanen, announced the winners:

First prize - $1500 - Michael Withers, Sandways Farm, Bourton, Gillingham, Dorset, SP8 5BQ, UK

Second prize - $1000 - Anders Damborg, Kastanjevej 4, Holbaek, DK-8950, Ørsted, Denmark

Third prize - $500 - Olof Andersson, Strandvägen 16, 463 32 Lilla Edet, Sweden

Fourth prizes - $100:

John M Mortimer, 113 Smithy End, Cumbernauld, Glasgow G67 2SJ, UK

Gustav Björkman, Rekekroken 8934, 232 92 Höganäs, Sweden

J Bailey, Romsey Trout Farm, Holman Drive, Romsey, Hants. SO51 8ES, UK

A Thorley, Bark House Farm, Whitegate, Winsford, Cheshire CW7 2PP, UK

Roger H Blantern, Spring Hill Farm, Alkington, Whitchurch, Shropshire SY13 3NG, UK

Per Justesen, 740 Hvannasund, Faroe Islands

Stig Nilsson, Södra Vägen 22, 302 42 Halmstad, Sweden

The Commission offers its congratulations to the winners.

ANNEX 9

LIST OF NORTH-EAST ATLANTIC COMMISSION PAPERS

Paper No.	Title
NEA(94)1	Provisional Agenda
NEA(94)2	Draft Agenda
NEA(94)3	Election of Officers
NEA(94)4	Introductions and Transfers
NEA(94)5	Alarming Trends in Salmon Populations in Swedish West-Coast Rivers
NEA(94)6	Draft Report of the Eleventh Annual Meeting
NEA(94)7	NASCO Tag Return Incentive Scheme, 1994 Prizes
NEA(94)8	Proposed Terms of Reference for the North-East Atlantic Commission Working Group on Introductions and Transfers
NEA(94)9	Proposal from the Chair for a Regulatory Measure for Fishing of Salmon in the Faroe Islands for the Calendar Year 1995
NEA(94)10	Figures Used by the Chairman of ACFM in his Presentation to the North-East Atlantic Commission
NEA(94)11	Agenda
NEA(94)12	Terms of Reference for the North-East Atlantic Commission Working Group on Introductions and Transfers
NEA(94)13	Report of the Eleventh Annual Meeting
NEA(94)14	Regulatory Measure for Fishing of Salmon in the Faroe Islands for the Calendar Year 1995
CNL(94)13	Report of the ICES Advisory Committee on Fishery Management

NOTE: This list contains all papers submitted to the Commission prior to and at the meeting. Some, but not all, of these papers are included in this report as annexes.

REPORT OF THE

ELEVENTH ANNUAL MEETING

OF THE

WEST GREENLAND COMMISSION

6-10 JUNE 1994
OSLO, NORWAY

CHAIRMAN:	MR DAVID EGAN (USA)
VICE-CHAIRMAN:	MR HENRIK SCHMIEGELOW (EUROPEAN UNION)
RAPPORTEUR:	MR DAVID DUNKLEY (EUROPEAN UNION)
SECRETARY:	DR MALCOLM WINDSOR

WGC(94)11

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WGC(94)11

REPORT OF THE ELEVENTH ANNUAL MEETING OF THE WEST GREENLAND COMMISSION OF THE NORTH ATLANTIC SALMON CONSERVATION ORGANIZATION 6-10 JUNE 1994, GRAND HOTEL, OSLO, NORWAY

1. OPENING OF THE MEETING

1.1 The Eleventh Annual Meeting of the West Greenland Commission was opened by the Chairman, Mr David Egan (USA) who welcomed the delegates to Oslo.

1.2 A list of participants is given in Annex 1.

2. ADOPTION OF THE AGENDA

2.1 The Commission adopted its agenda, WGC(94)10, (Annex 2).

3. NOMINATION OF A RAPPORTEUR

3.1 The Commission nominated Mr David Dunkley (EU) as its Rapporteur for the meeting.

4. ELECTION OF OFFICERS

4.1 The Commission re-elected Mr David Egan (USA) as its Chairman.

4.2 The Commission elected Mr Ernesto Penas (EU) as its Vice-Chairman.

5. NON-GOVERNMENT OBSERVERS AT COMMISSION MEETINGS

5.1 At its Tenth Annual Meeting the Commission endorsed a recommendation from the Council to permit attendance of Non-Government Organizations at its meetings, commencing in 1994. The Chairman welcomed the representatives of these Organizations to the Eleventh Annual Meeting of the Commission.

5.2 The representative of Denmark (in respect of the Faroe Islands and Greenland) drew the Commission's attention to the agreement that attendance of these Organizations was to be for a trial period of two years. He also reminded the Commission that any articles dealing with NASCO meetings published by the Organizations should be copied to the Secretariat and would be reviewed by the delegation of Denmark (in respect of the Faroe Islands and Greenland) to determine if, in their opinion, the reports are accurate.

6. REVIEW OF THE 1993 FISHERY AND ACFM REPORT FROM ICES ON SALMON STOCKS IN THE COMMISSION AREA

6.1 The representative of Denmark (in respect of the Faroe Islands and Greenland) indicated that in 1993 all commercial fishing for salmon in Greenland territorial waters was suspended following an agreement between the Organization of Hunters and

Fishermen in Greenland and the North Atlantic Salmon Fund. The agreement allowed for a small subsistence harvest of 12 tonnes each year. Salmon caught in the subsistence fishery could not be sold to factories, marketing associations or for export.

6.2 The Chairman of the ACFM, Mr Eskild Kirkegaard, presented the Scientific Advice from ICES relevant to the West Greenland Commission, CNL(94)13, prepared in response to a request from the Commission at its Tenth Annual Meeting. The ACFM report from ICES, which contains the scientific advice relevant to all three Commissions, is included on page 197 of this document.

6.3 The Chairman of ACFM reported that the absence of the commercial fishery in Greenland meant that no new biological data were available to ICES from Greenland. Thus, the provision of catch advice to NASCO was necessarily based on historical data. Data on the status of stocks indicated that pre-fishery abundance continued to decline and that the value for 1992 was the lowest on record. The catch advice provided in 1993 had been developed from the use of a thermal habitat model which was based on data showing a relationship between sea temperature and salmon abundance. The biological mechanism underlying this relationship was not understood and, thus, the model was under constant scrutiny. A second model which included data on wind speed was investigated this year. However, the forecasts of returns to homewaters derived from this model were not in good agreement with observed returns of grilse to homewaters. Accordingly, the thermal habitat model was used again this year. Estimated pre-fishery abundance for 1994 was slightly higher than that estimated for 1993. The risk-neutral estimate of pre-fishery abundance for 1994 was approximately 280,000 fish. Catch advice was based on a target spawning level for North America of 193,741 2SW salmon. There had been some revision of target spawner levels in some Canadian rivers.

6.4 The representative of Denmark (in respect of the Faroe Islands and Greenland) referred to the use of the word "goal" in the section of the ACFM report dealing with catch advice. He asked if it were appropriate for ICES to state management objectives. The Chairman of ACFM agreed that it was not appropriate for ICES to set management objectives. ICES had been asked by NASCO to provide advice on catch levels which would ensure that adequate numbers of spawners returned to homewaters. The word "adequate" was not defined. The aim of the catch advice given was to optimise spawner numbers.

6.5 The representative of Denmark (in respect of the Faroe Islands and Greenland) referred to the spawning target level for North America of 193,741 2SW salmon and asked whether this number was derived by ICES or from other sources. The Chairman of ACFM replied that this number was developed from North American target spawner level assessments.

6.6 The representative of Canada referred to section 3.3 of the ACFM report where it stated that the risk neutral pre-fishery abundance estimate may not be adequate to meet the spawning target in every river and that in such a case, a lower value should be chosen. A more precise statement was requested. The Chairman of ACFM said that it was not possible to be more precise. A number of factors other than fishing affected the numbers of fish escaping to spawn. The representative of Denmark (in respect of the Faroe Islands and Greenland) said that it was impossible in a mixed

fishery to meet the maximum requirement in the poorest river without reducing the mixed fishery to zero.

7. REGULATORY MEASURES

7.1 The Chairman pointed out that a mechanism for determining the size of the quota for West Greenland for the years 1993 to 1997 had been agreed at the Tenth Annual Meeting of the Commission.

7.2 The representative of Denmark (in respect of the Faroe Islands and Greenland) commented that the agreement had come about as a result of a long process of negotiation and compromise and the success achieved resulted from the efforts of negotiators, the Chairman and the Secretariat. Everybody involved should be congratulated. However, he was disappointed that the success had not received wider recognition. He felt that the private buy-out arrangements had received more publicity than the successful agreement reached on regulatory measures. The Chairman thanked the representative of Denmark (in respect of the Faroe Islands and Greenland) for his kind remarks about the success of the negotiations.

7.3 The representative of Denmark (in respect of the Faroe Islands and Greenland) stated that the target spawning level for North America of nearly 194,000 2SW salmon included 31,000 for rivers in the USA. He felt that the number proposed for the USA was disproportionately high given the status of stocks in that country. He suggested that these figures should be accepted for this year but that he did not wish to see an ongoing commitment to meeting a target spawning level for the USA of 31,000 fish. He felt that ICES should be asked to consider the question of target spawning levels again to determine a more realistic value for the USA and how this would compare with estimates for Canada.

7.4 The representative of the USA said that he was agreeable to have ICES look again at target spawning levels. However, he wished to make clear the size of the restocking programme in the USA, where very large numbers of juvenile salmon of all stages were being stocked. In the case of stocking with smolts, about one million are released annually. In addition, large numbers of fry and parr are released. Even allowing for the lower post-smolt survival than would be expected from wild stocks, given the removal of interceptory fisheries, it was not unreasonable to expect substantial returns from these releases, of the order of the specified target spawning levels.

7.5 The representative of Denmark (in respect of the Faroe Islands and Greenland) stated that he wished the ACFM report to be modified to remove references to management objectives from ICES. He stated that Denmark (in respect of the Faroe Islands and Greenland) did not feel committed to the target spawner level estimated for the USA other than for this year and would like ICES to examine the derivation of this figure. He intended next year to propose that ICES be asked to examine the Canadian target spawner levels as well as the USA levels.

7.6 The Chairman tabled a proposal, that the Commission should agree to establish a catch quota for the West Greenland salmon fishery in 1994 of 159 tonnes. The proposal

was agreed unanimously, WGC(94)12, (Annex 3). The method for deriving the catch quota was described in WGC(94)13, (Annex 4).

8. RECOMMENDATIONS TO THE COUNCIL ON SCIENTIFIC RESEARCH

8.1 At its Ninth Annual Meeting the Commission had appointed Mr Ted Potter (EU) and Mr Jens Moeller Jensen (Denmark in respect of the Faroe Islands and Greenland) to represent the Commission on the Standing Scientific Committee.

8.2 The Commission reviewed document SSC(94)4, and agreed to recommend it to the Council as part of the annual request to ICES for scientific advice. The request to ICES for scientific advice agreed by the Council, CNL(94)58, is contained in Annex 6.

8.3 The representative of the USA pointed out that the ACFM report identified certain data deficiencies, specifically the lack of a sampling programme in Greenland. He said that the Commission should take heed of the comments of ACFM regarding the need for an adequate sampling programme in case future decisions were based on old data.

8.4 The Commission agreed to support further scientific research at West Greenland, including an experimental fishery if this was necessary, to provide up-to-date information on the parameters necessary to assess the stocks in the area.

9. REPORT ON THE NASCO TAG RETURN INCENTIVE SCHEME AND ANNOUNCEMENT OF AWARDS

9.1 The Chairman announced that the draw for the prizes in the Tag Return Incentive Scheme was made by the Auditor at NASCO Headquarters on 26 May 1994. The winner of the first prize was Johannes Alauffesen of Sisimiut, Greenland. A list of all prize winners was presented to the Commission, WGC(94)5, (Annex 6). The Commission offered its congratulations to all of the winners.

10. OTHER BUSINESS

10.1 There was no other business.

11. DATE AND PLACE OF THE NEXT MEETING

11.1 The Commission agreed to hold its next annual meeting during the Twelfth Annual Meeting of the Council, 12-16 June 1995 in Glasgow.

12. CONSIDERATION OF THE DRAFT REPORT OF THE MEETING

12.1 The Commission agreed the draft report of the meeting, WGC(94)4.

ANNEX 1

NORTH ATLANTIC SALMON CONSERVATION ORGANIZATION
ELEVENTH ANNUAL MEETING
OF THE WEST GREENLAND COMMISSION
6-10 JUNE 1994, OSLO, NORWAY

LIST OF PARTICIPANTS

* Denotes Head of Delegation

MEMBERS OF THE COMMISSION

CANADA

*MR JEAN E HACHE	Representative Department of Fisheries and Oceans, Ottawa, Ontario
DR WILFRED CARTER	Representative Atlantic Salmon Federation, St Andrews, New Brunswick
MR JEAN-PAUL DUGUAY	Representative Gaspé, Quebec
MR GEORGE ARSENAULT	Department of Environment and Wildlife, Government of Quebec, Quebec City
MR DAVID CLARK	Atlantic Salmon Federation, St Andrews, New Brunswick
MR RICHARD HEGAN	Department of Fisheries and Oceans, Ottawa, Ontario
MR DAVID MEERBURG	Vice-President of NASCO Department of Fisheries and Oceans, Ottawa, Ontario
MR REX PORTER	Department of Fisheries and Oceans, St Johns, Newfoundland

DENMARK (IN RESPECT OF THE FAROE ISLANDS AND GREENLAND)

*MR EINAR LEMCHE	Representative Greenland Home Rule Government, Copenhagen
MR ARNI OLAFSSON	Representative Faroese Home Government, Torshavn
MR OLE SAMSING	Representative Ministry of Foreign Affairs, Copenhagen

MS ANNA MARIA HOLBECH	Faroese Home Government, Torshavn
MR FLEMMING ENEQUIST	The Organization of Hunters & Fishermen in Greenland, Nuuk
MR JAN ARGE JACOBSEN	Fishery Laboratory, Torshavn
MR JENS MOELLER JENSEN	Greenland Fisheries Research Institute, Copenhagen
MR JASPUR KRUSE	Felagid Laksaskip, Faroe Islands
MR HENRIK NIELSEN	Greenland Home Rule, Nuuk
MR SOFUS POULSEN	Faroese Commercial Attaché, Aberdeen
MR ANTHON SIEGSTAD	The Organization of Hunters & Fishermen in Greenland, Nuuk

EUROPEAN UNION

*MR OLE TOUGAARD	Representative Commission of the European Communities, Brussels
MR ERNESTO PENAS	Representative Commission of the European Communities, Brussels
MRS MARIA ZOGRAFOU	Ambassador, Embassy of Greece, Oslo
MR MICHAEL WALDRON	Secretariat General of the Council of the EU, Brussels
MR JOHN BROWNE	Department of the Marine, Dublin
MR DAVID DICKSON	Scottish Office Agriculture and Fisheries Department, Edinburgh
MS CATERINA N DIMAKIS	Embassy of Greece, Oslo
MR DAVID DUNKLEY	Scottish Office Agriculture and Fisheries Department, Montrose
DR PADDY GARGAN	Central Fisheries Board, Dublin
MR JOHN KEOHANE	Department of the Marine, Dublin
MR IVOR LLEWELYN	Ministry of Agriculture, Fisheries and Food, London
VISCOUNT CHRIS MILLS	National Rivers Authority, NW Region, Preston
MR PHILIPPE PERONNE	Ministry of Agriculture and Fisheries, Paris

MR TED POTTER	Ministry of Agriculture, Fisheries and Food, Lowestoft
MR WILLIAM SCRIVEN	Ministry of Agriculture, Fisheries and Food, London
MR JOSE SERRANO	Secretaria General de Pesca Maritima, Madrid
MR BOB WILLIAMSON	Scottish Office Agriculture and Fisheries Department, Edinburgh

USA

*MR ALLEN PETERSON	Representative National Marine Fisheries Service, Woods Hole, Massachusetts
MR DAVID EGAN	Representative Connecticut River Atlantic Salmon Commission, Guilford, Connecticut
MR CLINTON TOWNSEND	Representative Maine Council of the Atlantic Salmon Federation, Canaan, Maine
DR VAUGHN ANTHONY	National Marine Fisheries Service, Woods Hole, Massachusetts
DR KEVIN FRIEDLAND	National Marine Fisheries Service, Woods Hole, Massachusetts
DR JAMIE GEIGER	US Fish and Wildlife Service, Hadley, Massachusetts
MR ROBERT A JONES	Connecticut River Salmon Association, S. Windsor, Connecticut
DR RAY B OWEN, JR.	Maine Atlantic Sea Run Salmon Commission, Augusta, Maine
MR JOHN C PHILLIPS	Department of Fisheries, Wildlife and Law Enforcement, Boston, Massachusetts
MR GILBERT C RADONSKI	Sport Fishing Institute, Warrenton, Virginia
MR ANDREW V STOUT	New England Atlantic Salmon Association, Newburyport, Massachusetts
DR DEAN SWANSON	National Marine Fisheries Service, Silver Springs, Maryland
MR STETSON TINKHAM	Department of State, Office of Fisheries Affairs, Washington DC

OBSERVERS - PARTIES

FINLAND

MR EERO NIEMELA	Representative Finnish Game and Fisheries Research Institute, Helsinki

ICELAND

MR ARNI ISAKSSON	Representative Institute of Freshwater Fisheries, Reykjavik

NORWAY

MR ARNE EGGEREIDE	Directorate for Nature Management, Trondheim
MR TERJE KARTERUD	Directorate for Nature Management, Trondheim
MR YNGVE SVARTE	Directorate for Nature Management, Trondheim

SWEDEN

*DR INGEMAR OLSSON	Representative National Board of Fisheries, Göteborg
MRS LENA ELLWERTH-STEIN	Representative Ministry of Agriculture, Stockholm

NON-GOVERNMENT OBSERVERS

DR FREDERIC MAZEAUD	AIDSA
LT COL G D B KEELAN	Association of Scottish District Salmon Fishery Boards
CAPTAIN JEREMY READ	Atlantic Salmon Trust
MR JIM MAXWELL	Federation of Irish Salmon and Sea-Trout Anglers
MR THOMAS A F BARNES	Salmon and Trout Association
MR WILLIAM SHEARER	Salmon Net Fishing Association of Scotland
MR WILLIAM BROWN MR ALASTAIR HUME	Scottish Anglers National Association

ICES

PROFESSOR CHRIS HOPKINS	International Council for the Exploration of the Sea, Copenhagen
DR ROGER BAILEY	International Council for the Exploration of the Sea, Copenhagen
MR ESKILD KIRKEGAARD	Danish Institute for Fisheries and Marine Research, Charlottenlund

SECRETARIAT

DR MALCOLM WINDSOR	Secretary
DR PETER HUTCHINSON	Assistant Secretary

ANNEX 2

WGC(94)10
ELEVENTH ANNUAL MEETING OF THE WEST GREENLAND COMMISSION
6-10 JUNE 1994, OSLO, NORWAY

AGENDA

1. Opening of the Meeting
2. Adoption of the Agenda
3. Nomination of a Rapporteur
4. Election of Officers
5. Non-Government Observers at Commission Meetings
6. Review of the 1993 Fishery and ACFM Report from ICES on Salmon Stocks in the Commission Area
7. Regulatory Measures
8. Recommendations to the Council on Scientific Research
9. Report on NASCO Tag Return Incentive Scheme and Announcement of Awards
10. Other Business
11. Date and Place of Next Meeting
12. Consideration of the Draft Report of the Meeting

ANNEX 3

WEST GREENLAND COMMISSION

WGC(94)12

CATCH QUOTA FOR THE WEST GREENLAND FISHERY IN 1994

Having regard to the measure adopted by the Parties at its Tenth Annual Meeting, WGC(93)9 (Attachment 1) and having regard to the West Greenland Quota Calculation, WGC(94)7, the Commission agrees to establish a catch quota for the West Greenland salmon fishery in 1994 of 159 tonnes.

Attachment 1

WGC(93)9

PROPOSAL FROM THE CHAIR FOR EMERGENCY REGULATORY MEASURES IN THE WEST GREENLAND COMMISSION AREA

The Parties sought an agreement on the West Greenland quota which reconciled the following principal considerations:

- An agreement should take effect in 1993;
- Quotas should be determined annually based on the best available scientific advice from ICES;
- A quota would adjust up or down relative to the best available scientific advice;
- A quota agreement should recognize a transition period to implement the significant adjustment required to accommodate new ICES advice given in 1993;
- A quota agreement should commit the Parties for a significant period and not be subject to change in its fundamental parameters unless agreed by the Parties.

The Parties recalled:

- Article 3.2 of the Convention that "the objective of the Organization shall be to contribute through consultation and cooperation to the conservation, restoration, enhancement and rational management of salmon stocks subject to this Convention, taking into account the best scientific evidence available to it."
- Article 9(g) to take into account "the interest of communities which are particularly dependent on salmon fisheries."

Accordingly, the Parties, in order to address the decline in abundance of wild stocks of Atlantic salmon and to provide adequate spawning stocks of 2SW fish to support sustainable populations, agree to establish an annual quota for each of the years 1993 to 1997 by application of the following mechanism:

The quota shall be based on scientific advice from the following sources, and applied in the following manner without prejudice to new advice from ICES:

- The ICES advice on the pre-fishery abundance of potential 2SW salmon of North American origin (and European origin if available).

- The ICES advice on the target spawning escapement reserve of potential 2SW salmon necessary to achieve target spawning escapement, or a different proportion of this reserve as agreed to by the Parties.

- Any surplus above the target spawning escapement reserve, or the proportion agreed to, may be available for harvest by the Parties.

- Allocation of the surplus shall be based on the average for the period 1986-1990 of the harvest share of potential 2SW salmon of North American origin caught at West Greenland (40%), or a different share if agreed upon by the Parties.

- Any other parameters used by the Parties shall be as advised by ICES.

The Parties, recognizing the difficulty of establishing a new catch quota for the 1993 West Greenland fishery at the levels recommended by ICES, hereby agree to a 1993 catch quota of 213 tonnes which is expected to achieve 72% of the ICES target spawning escapement reserve. This quota is expected to provide for an increase in the spawning escapement of approximately 50 percent over the average of the past 10 years.

For 1994 the Parties seek to achieve a minimum of 85% of the ICES target spawning escapement reserve level as advised by ICES at that time, and thereafter, the Parties will seek to achieve 100% of the ICES target spawning escapement reserve level. Any increase in the pre-fishery abundance advised by ICES for 1994 above that advised in 1993 will be applied first to increasing the percentage of the target spawning escapement reserve to be achieved in 1994.

ANNEX 4

WEST GREENLAND COMMISSION

WGC(94)13

EXPLANATORY NOTE ON THE 1994 WEST GREENLAND QUOTA CALCULATION

WGC(94)13

EXPLANATORY NOTE ON THE 1994 WEST GREENLAND QUOTA CALCULATION

INTRODUCTION

1. At its Tenth Annual Meeting in 1993, the West Greenland Commission formulated a mechanism for establishing quotas for the West Greenland fishery for each of the years 1993-1997. The mechanism for establishing the quota is based on the following factors:

   Factor A — The ICES advice on the pre-fishery abundance of potential 2SW salmon of North American origin (and European origin if available).

   Factor B — The ICES advice on the target spawning escapement reserve of potential 2SW salmon necessary to achieve target spawning escapement or a different proportion of this reserve as agreed to by the Parties.

   Factor C — Any surplus above the target spawning escapement reserve, or the proportion of this reserve agreed to, may be available for harvest by the Parties.

   Factor D — Allocation of the surplus shall be based on the average for the period 1986-1990 of the harvest share of potential 2SW salmon of North American origin caught at West Greenland (40%), or a different share if agreed upon by the Parties.

   Factor E — Any other parameters used by the Parties shall be as advised by ICES.

   The agreement further states that for 1994 the Parties seek to achieve a minimum of 85% of the target spawning escapement reserve level as advised by ICES. Any increase in the pre-fishery abundance advised by ICES for 1994 above that advised for 1993 will be applied first to increasing the percentage of the target spawning escapement reserve to be achieved in 1994.

THE PRINCIPLE

2. The catch quota for West Greenland is calculated by subtracting the number of North American origin potential 2SW salmon required to achieve the target spawning escapement (or the agreed percentage of this target) from the pre-fishery abundance to give a maximum allowable harvest. Under the agreement 40%, or a different share if agreed by the Parties, of this allowable harvest is allocated to Greenland. Subject to future knowledge with regard to salmon of European origin, presently all the calculations are based on North American origin fish but, having calculated the allowable harvest of North American origin fish the number of European fish which may be harvested is estimated from the historical (1978-1992) proportions of North American origin fish in the fishery. The quota in tonnes is then calculated by multiplying the number of North American and European origin fish by their average weights. These calculations are based on the 1SW salmon alone and do not take

account of the small proportion of older fish in the catch at West Greenland; the quota must, therefore, be multiplied by an age correction factor (1.121).

THE 1994 CALCULATION

FACTOR A: PRE-FISHERY ABUNDANCE

In providing catch options for the West Greenland fishery ICES developed a range of pre-fishery abundance forecasts covering different levels of probability that the true abundance will be lower than indicated. A risk-neutral estimate is that forecast at which there is a 50% chance that the true abundance is lower than required to achieve the spawning target.

The risk-neutral forecasts of pre-fishery abundance of potential 2SW salmon of North American origin for 1993 and 1994 as advised by ICES are:

1994	280,250 salmon
1993	258,000 salmon
Increase in 1994	22,250 salmon

FACTOR B: TARGET SPAWNING ESCAPEMENT RESERVE

The North American spawning target of 2SW salmon used by ICES in providing catch options in 1994 is

193,741 salmon

This number must be increased to take account of mortality of fish between the time of the West Greenland fishery and their return to home waters (ICES use a mortality of 1% a month over 11 months), i.e. an increase of

22,529 salmon

giving a revised total of 216,270 salmon

Under the 1993 Regulatory Measure the Parties seek to achieve 85% of the target spawning escapement reserve for 1994

i.e. 216,270 x 0.85 = 183,830 salmon

Further, the Parties agreed that any increase in pre-fishery abundance in 1994 compared to 1993 would be applied to increase the percentage of the target spawning escape reserve to be achieved.

As shown above, there was an estimated increase in abundance of 22,250 potential 2SW North American origin salmon in 1994 and this must be added to the target spawning escapement reserve

i.e. 183,830 + 22,250 = **206,080 salmon**

(which is 95% of the target)

FACTOR C: SURPLUS NORTH AMERICAN ORIGIN SALMON AVAILABLE FOR HARVEST

The surplus of North American origin salmon above the target spawning escapement reserve (i.e. the Maximum Allowable Harvest (MAH)) is calculated as follows:

Maximum Allowable Harvest = Pre-fishery Abundance - Target Spawning Escapement Reserve

Maximum Allowable Harvest = 280,250 - 206,080

The surplus available for harvest is therefore **74,170 salmon**

FACTOR D: ALLOCATION OF THE SURPLUS UNDER THE REGULATORY MEASURE

Allocation of the surplus of North American origin salmon is on the basis of 40% to West Greenland (or a different share if agreed upon by the Parties). In 1994 there was no change in the shares agreed. The allocation to the Greenland fishery is:

74,170 x 0.4 = **29,668 salmon**

FACTOR E: OTHER PARAMETERS

Both European and North American fish are harvested in the fishery at West Greenland. The estimated number of European salmon that will be caught under a quota will depend on the harvest of North American fish and the proportion of North American fish in the West Greenland fishery. The estimate of the proportion of the stock at West Greenland which are North American as advised by ICES is

54%

The number of European fish which would be harvested is calculated from the Maximum Allowable Harvest of North American origin salmon as follows:

(29,668/0.54) - 29,668 = 25,273 European salmon

The mean weight of North American origin 1SW salmon advised by ICES is 2.525 kg

The mean weight of European origin 1SW salmon advised by ICES is 2.660 kg

It is necessary to apply an age correction factor because not all of the fish at West Greenland are 1SW salmon. A factor of 1.121, based on the total weight of salmon caught divided by the weight of 1SW salmon, has been advised by ICES.

CALCULATION OF THE 1994 QUOTA

To convert the allowable harvest in numbers into a catch quota in metric tonnes the mean weights must be included. The catch quota (in tonnes) is calculated as follows:

[(Number x Average Weight for North American Fish) + (Number x Average Weight for European Fish)] x Age Correction Factor/1000

i.e. [(29,668 x 2.525) + (25,273 x 2.660)] x 1.121/1000

i.e. (74,912 + 67,226) x 1.121/1000

i.e. 159 tonnes

ANNEX 5

CNL(94)58

DECISION OF THE COUNCIL TO REQUEST SCIENTIFIC ADVICE FROM ICES

1. With respect to Atlantic salmon in each Commission area, where relevant:

   a) describe the events of the 1994 fisheries with respect to catches (including unreported catches), gear, effort, composition and origin of the catch (including fish farm escapees and sea-ranched fish) and rates of exploitation;
   b) describe the status of the stocks (including the contribution to these stocks of fish farm escapees and sea-ranched fish) occurring in the Commission area, and where possible evaluate spawning escapement against targets;
   c) specify data deficiencies and research needs.

2. Evaluate the effects of the following management measures on the stocks and fisheries occurring in the respective Commission areas:

   a) quota management and closures implemented after 1991 in the Canadian commercial salmon fisheries;
   b) the suspension of commercial fishing activity at Faroes;
   c) the suspension of commercial fishing activity at West Greenland.

3. With respect to the fishery in the West Greenland Commission area:

   a) provide catch options with an assessment of risks relative to the management objective of achieving target spawning escapement;
   b) review the target spawning level in US rivers in the light of the present condition of the rivers and the stocks.

4. With respect to fisheries and stocks in the North-East Atlantic Commission area:

   a) provide estimates of spawning targets for optimal production;
   b) develop methods which could be used in providing advice on catch quotas in relation to stock abundance and, if possible, provide catch options.

5. Report on significant research developments which might assist NASCO with the management of salmon stocks, with special reference to:

   a) the impacts of fish farm escapees and sea-ranched fish on the wild stocks;
   b) criteria for identifying recruitment overfishing of Atlantic salmon;
   c) predictive models of annual migration and distribution of Atlantic salmon stock complexes;
   d) biological (such as maturation, predation, forage base) and environmental (such as oceanographic, productivity) variables which provide interpretation of trends in salmon abundance.

6. With respect to Atlantic salmon in the NASCO area, provide a compilation of microtag, finclip and external tag releases by ICES Member Countries in 1994.

WEST GREENLAND COMMISSION

WGC(94)5

NASCO TAG RETURN INCENTIVE SCHEME

1994 PRIZES

The draw for the 10 winners in the West Greenland Commission was made by the Auditor at NASCO Headquarters on 26 May 1994. At the Eleventh Annual Meeting of the Commission in Oslo, the Chairman of the Commission, Mr David Egan, announced the winners:

First prize - $1500 - Johannes Alauffesen, CPR 240239-1939, Sisimiut, Glahnip Aqq, Greenland 3911

Second prize - $1000 - Terkild Willumsen, CPR No 290148-2805, Maanitsoq, Greenland 3912

Third prize - $500 - Svend Sorensen, Cpr No 90755-2535, Arsuk, Greenland 3932

Fourth prizes - $100:

Abia Janussen, Narssaq, Greenland 3921

Iver Poulsen, Cpr No. 130940-2215, Napassoq, Greenland 3912

Kristian Sandgreen, Cpr No. 110349-2951, Gl. Kirkevej 181, Qasigiannguit, Greenland 3951

Lars Egede, Cpr No. 260244-0493, Narssaq, Greenland 3921

James Mathaeussen, Cpr No. 220533-2025, Kangamiut, Greenland 3912

Leif Olaufsen, Cpr No. 260645-2929, Krogstrupvej 13, 9600 Aars, Denmark

The Commission offers its congratulations to the winners.

ANNEX 8

LIST OF WEST GREENLAND COMMISSION PAPERS

Paper No.	Title
WGC(94)1	Provisional Agenda
WGC(94)2	Draft Agenda
WGC(94)3	Election of Officers
WGC(94)4	Draft Report of the Eleventh Annual Meeting
WGC(94)5	NASCO Tag Return Incentive Scheme, 1994 Prizes
WGC(94)6	1994 West Greenland Quota Calculation (First Draft)
WGC(94)7	1994 West Greenland Quota Calculation (Second Draft)
WGC(94)8	Proposal from the Chair for a Regulatory Measure for a Catch Quota for the West Greenland Fishery in 1994
WGC(94)9	Figures Used by the Chairman of ACFM in his Presentation to the West Greenland Commission
WGC(94)10	Agenda
WGC(94)11	Report of the Eleventh Annual Meeting
WGC(94)12	Catch quota for the West Greenland Fishery in 1994
WGC(94)13	Explanatory Note on the 1994 West Greenland Quota Calculation
CNL(94)13	Report of the ICES Advisory Committee on Fishery Management

NOTE: This list contains all papers submitted to the Commission prior to and at the meeting. Some, but not all, of these papers are included in this report as annexes.

REPORT OF THE

ICES ADVISORY COMMITTEE

ON FISHERY MANAGEMENT

CNL(94)13

REPORT OF THE

ICES ADVISORY COMMITTEE

ON FISHERY MANAGEMENT

CNL(94)13

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REPORT TO THE NORTH ATLANTIC SALMON CONSERVATION ORGANISATION COUNCIL

Sources of information: Reports of the Working Group on North Atlantic Salmon, April 1994 (ICES, Doc. C.M. 1994/ Assess:16) and the Study Group on Interactions of Wild, Ranched (Enhanced) and Reared Salmon, April 1994 (ICES, Doc C.M. 1994/M:3)

The following report is laid out in the format of the questions from NASCO to ICES (Appendix 1).

1. EVENTS OF THE 1993 FISHERIES AND THE STATUS OF STOCKS BY COMMISSION AREAS

1.1 Overview of catches in the North Atlantic

1.1.1 Nominal catches of salmon in the North Atlantic

Nominal catches of salmon by country in the North Atlantic for 1960-93 are shown in Table 1.1.1 and catches by NASCO Commission Areas for 1988-93 are summarised below (in tonnes).

Area	1988	1989	1990	1991	1992	1993
NEAC	5507	4412	3748	2936	3361	3195
NAC	1314	1143	915	713	525	369
WGC	897	338	275	476	232	-
Total	7718	5893	4938	4125	4118	3564

Figures for 1993 are provisional, but it appears likely that the final data will still show a decrease from 1992. This is the sixth year in which the total catch has decreased from the previous year. Management plans in several countries have reduced fishing effort and this accounts for some of the decline in catches. However, a greater decline in the catch of wild fish may be masked by the inclusion of fish farm escapees and ranched fish in the statistics.

1.1.2 Unreported Catches

The total unreported catch within NASCO Commission Areas in 1993 was estimated to be 1644 t, a decrease of 26% compared with the 1988-92 five-year mean of 2212 t. Estimates for 1988-1993 by Commission area are given below (in tonnes):

Area	1988	1989	1990	1991	1992	1993
NEAC	3087	2103	1779	1555	1825	1471
NAC	161	174	111	127	137	161
WGC	N/A	N/A	N/A	N/A	N/A	12
International waters	-	-	180-359	25-100	25-100	25-100

Many of the national estimates are based upon the level of declared catches, and thus the total unreported catch tends to vary in line with the nominal catch figures.

1.2 Fisheries and Stocks in the North-East Atlantic Commission (NEAC) Area

1.2.1 Fishery at Faroes

Gear and effort: In accordance with the agreement between the Faroese Salmon Fishermen's Association and the North Atlantic Salmon Fund, commercial fishing for salmon in Faroese territorial waters was suspended for the years 1994 to 1996.

A research fishery for salmon took place in the Faroes area in the 1992/93 season and the gear used was the same as in previous seasons. One research vessel fished a total of 39 sets on 3 trips during the season. There has been a progressive decline in the number of vessels operating in the fishery since 1981 (Figure 1.2.1).

Catch: The total catch in the research fishery in the 1992/93 season was 22 t, and the preliminary catch for the calendar year 1993 was 21 t excluding fish that were tagged and released (Table 1.1.1, Figure 1.2.1). The proportion of fish less than 60 cm (that would normally have been discarded) was 9.4%, which is within the range observed since the 1982/83 season.

CPUE (Catch per unit effort): The average CPUE was the highest recorded since the 1981/82 season (Figure 1.2.2). However, it is difficult to compare this with other years as only one boat was fishing in the last two seasons. The high incidence of farmed fish in the fishery will also have affected the CPUE.

Composition of catch: Marked differences were observed in the river and sea age composition and size distribution of catches between the autumn and spring in the 1992/93 season. This suggests that different stocks were being exploited at these times, with stocks from more southerly areas probably being taken in the autumn. The incidence of reared fish is discussed in Section 4.

Origin of the catch: External tags (ext.) and CWTs were recovered from countries regularly represented in the tag recovery programmes in the past, namely: Norway (58 ext.), Sweden (7 ext.), Ireland (12 CWT) and UK (England and Wales) (2 CWT).

A total of 3667 salmon have been tagged and released in the open sea to the north of the Faroe Islands in the 1992/93 and 1993/94 seasons. After one fishing season (i.e.

1993), 51 recaptures have been reported by commercial fishermen and anglers in homewater fisheries as shown below:

Country	No. Recaptures	%
Norway	31	61
Sweden	3	6
Scotland	8	16
England	1	2
Ireland	3	6
Iceland	1	2
Spain	1	2
Denmark	2	4
Canada	1	2
No. released	1992/93: 3050 1993/94: 617	

The pattern of recaptures confirms earlier information that the majority of the salmon in the Faroes area originate from Norway. It appears that the recapture rate for farmed fish may be considerably lower than for wild fish.

Exploitation rates: Exploitation rates in the Faroes fishery on 1SW fish from monitored stocks in Norway and Sweden and on both 1SW and 2SW fish from monitored stocks in UK and Ireland were very low in the 3 seasons prior to the suspension of commercial fishing and have been less than 1% in the 2 seasons since. Exploitation rates on 2SW fish from Norwegian and Swedish monitored stocks (shown below) have been below 10% since the suspension of commercial fishing.

Country	River	Mean exploitation rate (%)	
		1987/88-1990/91	1991/92-1992/93
Norway	Drammen	25	1
	Imsa (Wild)	7	5
	Imsa (Hatchery)	21	3
Sweden	Lagan	15	8

Biological data: Preliminary results from the stomach analysis of salmon caught in the fishery show that the most important items in the diet were hyperiid amphipods of the genus *Parathemisto* and Euphausiids. The fishes were mainly lantern fishes and *Maurolicus* sp.

1.2.2 Homewater Fisheries in the NEAC Area

Gear and effort: Restrictions on rod fishing methods were introduced in two districts in UK (Scotland) in 1993. Decreases in effort in net fisheries were reported in Ireland,

Sweden and UK (England and Wales) and UK (N. Ireland). Increases in rod fishing effort were reported in Finland and France.

Catch: In general, catches in the North-East Atlantic Area in 1993 were lower than in 1992, although increases were recorded in a few countries (Iceland, Sweden and UK (England and Wales)) (Table 1.1.1). Catches in Iceland continue to reflect the increasing importance of ranched fish. In a number of areas grilse were reported to have appeared in fisheries later than usual, and there were observations of substantial numbers of fish entering rivers after the end of the fishing seasons in some countries. (Unreported catches in the NEAC Area are discussed in Section 1.1).

CPUE: CPUE data were available for a limited number of fisheries/countries. CPUE in rod fisheries in France and Finland were higher in 1992 and 1993 than in previous years and a similar pattern has been evident for the River Bush (UK, N. Ireland). Finnish catch rates have benefited from the closure of the Norwegian coastal fisheries while the Bush has been supplemented by ranching. CPUE data were also available for regional net fisheries in UK (England and Wales) and showed an improvement in catch rates in 1993 after a steady decline from 1988-92. Long-term CPUE data for net fisheries in UK (Scotland) suggest that catch rates increased from 1950-70 but have declined since.

Composition of catch: Finland, Russia and Sweden reported decreases in the proportions of grilse in their catches. Elsewhere, however, there was a perception that the grilse component of catches was increasing.

Origin of catch: Table 1.2.1 indicates the estimated origin (in %) of the 1992 catch in each country. Percentages can only be estimated where countries have suitable monitoring programmes. Where catches are known to occur but percentages could not be estimated they are indicated by a '+'. The results, although very approximate, confirm that there are exchanges between fisheries in most adjacent countries, particularly Ireland and the countries of the UK. The table also shows estimates of the proportions of the catches in 1992 that were of ranched and farmed origin (see also Section 4).

Exploitation rates: Exploitation rates for monitored stocks in homewater fisheries in the NEAC area in 1993 were generally within the ranges observed between 1988 and 1992 and less than the means for that period (Table 1.2.2). The main exceptions were the Itchen (UK, England & Wales) and Ponoy (Russia), where net exploitation rates were greatly reduced in 1993, and the Imsa and Lagan, where exploitation rates on 1SW hatchery fish were the highest for at least five years.

1.2.3 Status of stocks in the NEAC Area

Short-term: 1993

Comparison of recruitment and escapement indices for 1993 from monitored rivers in the NEAC area gave variable results. In Russia, 1993 seemed to be an average year in terms of adult returns. In Scandinavia and western Europe, smolt output seemed to be relatively poor (in all but one case output was below the long-term average), while adult counts were fairly high, some rivers being close to or at the maximum level on

record. There were, however, some notable exceptions, with counts on 3 rivers being near the minimum recorded. In addition, it must be noted that the good returns appeared to be mainly attributable to the 1SW fraction of the stocks. If survival at sea does not increase significantly, the low levels of smolt production observed in 1993 will have a negative impact on grilse returns in 1994 and on returns of 2SW salmon in 1995.

Indices of marine survival for wild 1SW fish, before exploitation in coastal waters, were higher in 1993 than in 1992 in 3 out of 4 cases, while falling within the range of values observed in the past. Information on salmon of hatchery origin confirmed the general improvement of sea survival of 1SW fish. When compared with previous years' data, return rates of 2SW salmon showed variable results depending on the river and on the origin of the fish (wild or reared); average return rates remained low.

Long-term trends

Smolt counts in Scandinavian and West European stocks do not seem to have followed any common trend over the past 5 and 10 years. However, except in Russia, adult returns have tended to improve in rivers for which counts are available. Sea survival of 1SW fish has decreased over the last decade, but this was probably outweighed by a reduction in exploitation rates in coastal waters. No common trend can be detected for survival at sea of 2SW salmon.

Optimum spawning levels

The use of optimum salmon spawning stock levels in the north-east Atlantic would be a valuable tool in assessing the status of stocks and ensuring that quotas can be set at a level which will allow sufficient spawning escapement to maximise smolt production. There is also a need to develop regional estimates of spawning stocks in the north-east Atlantic for use in stock assessments.

1.2.4 Data deficiencies and research needs for the NEAC Area

ACFM identified three areas where there was a particular need for work in the NEAC Area in the next year:

- effort should be made to improve the methods used to estimate unreported catches;
- provisional optimal spawning levels should be developed for appropriate monitored rivers, (at least one river per country) and historical and current attainment with respect to these spawning targets should be assessed;
- work should be carried out to develop models for use in the provision of catch advice in relation to stock abundance for European stocks.

1.3 Fisheries in the North American Commission (NAC) Area

1.3.1 Fisheries in NAC Area

Canada

Gear and effort: The moratorium on the commercial fishery in Newfoundland continued in 1993. Quotas were reduced in commercial fisheries in parts of Labrador and Quebec. Quotas and daily catch limits were also reduced in rod fisheries and some rivers were closed to rod exploitation for all or part of the season. Further details of the 1993 management restrictions are given in Appendix 2. There were no changes in gear used in Canada.

Catch: The total salmon landings for Canada in 1993 were 367 t, which was the lowest recorded since 1960 (Table 1.1.1). The landings of small and large salmon were 36% and 44% of the previous 5 year averages respectively. The decline in catches from 1593 t in 1987 has been influenced by the closure of fisheries in SFAs 3-14A in 1992 and the general decline in population size. Figure 1.3.1 shows the 1993 rod catches in each SFA as a percentage of the quota. Recreational catches of both small and large fish have generally decreased or remained stable. Unreported catches are discussed in Section 1.2.

Composition and origin of catch: Only salmon of Canadian and USA origin were recorded in Canadian catches in 1993. CWTs were recovered from 1SW salmon from USA (7) and Canada (2) in Labrador (31% of the catch was scanned). Only one Carlin tag from a Maine-origin salmon was reported from Canada in 1993. Catches of farmed fish are discussed in Section 4.

USA

Gear and effort: There were no changes in gear used in 1993. In 1993 the season limit in boundary waters with Canada was made consistent with all other Maine waters (i.e. 1 fish/angler/season).

Catch: The total harvest of 152 salmon in the Maine sport fishery in 1993 was 21% lower than in 1992 and 58% lower than the 1988-92 average. The decrease was attributed to reduced runs and restrictive management measures.

Composition and origin of catch: All salmon caught were of local origin and no salmon of farmed origin are known to have been taken.

Exploitation rates: The average exploitation on combined age classes in the Penobscot River in 1993 was 7.4%, which was approximately equal to that in 1992.

France (Islands of St. Pierre and Miquelon)

The catch of salmon for the Islands of St. Pierre and Miquelon in 1993 was 1.8 t, which was similar to previous years.

1.3.2 Status of stocks in the NAC Area

Stock abundance and stock status were quite variable within the NAC Area. Populations of small and large salmon (mostly measured as returns to rivers) were lower than in 1992 for most stocks in New Brunswick, Nova Scotia, Québec Zones Q1-8, Q10 and Q11, Labrador (SFA 1,2) and Maine. Increased population sizes were observed in Newfoundland SFA 3-5, 14A, Labrador SFA 14B and Québec Q9. Population sizes were similar to 1992 in Newfoundland SFA 6-13 and in the Miramichi R (large salmon only).

Although the population sizes have increased in many northern Newfoundland rivers in 1992 and 1993, they are still lower than observed in years prior to the moratorium. Generally, the population sizes of large and small salmon in rivers in Canada and USA were lower than expected given that 1993 is the second year of the closure of the Newfoundland commercial fisheries. There is evidence that the marine survival rates have been unusually low for the past several years which may have off-set the reduction in fishing mortality.

Estimates of egg deposition were provided for 20 rivers in Canada and 3 rivers in Maine for which targets are available (Figure 1.3.2). Of the Canadian rivers 55% (12) had less than 75% of their target spawning levels and 35% of the rivers exceeded their target levels. The other 10% of the rivers were between 75 and 100% of the target. All of the Maine rivers had less than 20% of their target spawning levels. USA salmon production remains hatchery dependent. Data from the Penobscot reveal a progressive decline in marine survival for MSW fish (Figure 1.3.3). The salmon stocks in SFAs 1, 2, 19-23 and Maine appear to be at very low levels and ACFM recommends that fishing mortalities on these stocks should be kept as low as possible.

1.3.3 Data deficiencies and research needs for the NAC Area

ACFM identified the need for:

- spawning targets for North American stocks to be further refined as additional information on sea age composition of spawners becomes available and as further understanding of life history strategies is gained.

1.4 Fishery in the West Greenland Commission (WGC) Area

1.4.1 Fishery at West Greenland

In accordance with the agreement between the Organisation of Hunters and Fishermen in Greenland and the North Atlantic Salmon Fund, all fishing for salmon in Greenland territorial waters was suspended for the two years 1993 and 1994. The agreement allowed for a small subsistence harvest of 12 t each year. Salmon caught in the subsistence fishery could not be sold to factories, marketing associations or for export.

No information is available on the 1993 harvest either for the actual catch or the catch composition.

1.4.2 Status of Stocks in the WGC Area

The salmon caught in the West Greenland Area are non-maturing 1SW salmon or older fish, all of which would return to homewaters in Europe or North America as MSW fish if they survived. The most abundant European stocks in West Greenland are thought to originate from the UK and Ireland. The MSW component of most of these stocks has declined in recent years. Similar declines in abundance have been noted in many North American stocks that contribute to the West Greenland fishery. Thus the overall status of the stocks and stock components contributing to the West Greenland fishery remains poor. (See Sections 1.2.3, 1.3.3 and 3.4 for information on stocks contributing to the fishery).

1.4.3 Data Deficiencies and Research Needs for the WGC Area

Until 1992, a sampling programme was conducted in the West Greenland commercial fishery in order to provide data on the stocks in the area. With the suspension of commercial fishing sampling became impossible.

ACFM therefore identified the need for:

- a research programme including experimental fishing should be undertaken at West Greenland to provide up-to-date information on the parameters necessary to assess the stocks in the area.

2. EVALUATION OF EFFECTS OF NEW MANAGEMENT MEASURES ON STOCKS AND FISHERIES

2.1 Quota management measures and closures implemented after 1991 in the Canadian commercial salmon fisheries

Effects on Canadian Stocks and Fisheries

ACFM evaluated the effects of the management measures taken in coastal waters of insular Newfoundland by estimating the total returns of salmon to the area and estimating the increased numbers of salmon that returned as a result of the management measures. These estimates are summarised below:

Year	Angling catch	Total returns	Increase in returns	
			Small salmon	Large salmon
		(,000)	(,000)	(,000)
1992	36,926	123-246	62-123	12-24
1993	42,623	142-284	71-142	5-11

The management changes resulted in an increase in the proportion of large salmon from 6% (1987-91) to 9% (1992-93) as evident from counts of salmon at fish counting facilities.

In Labrador, the small reductions in effort in 1992 are unlikely to have significantly reduced the exploitation rate of salmon in the commercial fisheries. Since the quotas were not attained in either 1992 or 1993, this quota measure did not put any restrictions on the fishery and did not affect returns to rivers. However, the combined licensed effort reduction in 1992 and 1993 was 60% of the 1991 licensed effort, which should have reduced the commercial exploitation on Labrador salmon stocks and may have resulted in a doubling of the returns of small and large salmon to rivers in SFA 2 and 14B.

In zones Q7 and Q8, the commercial exploitation rate in 1990-1992 was calculated to be 3-4% for small salmon and 26-33% for large salmon. The reductions in quota of 98% in 1993 may have resulted in 96 to 187 small salmon and 967 to 1711 large salmon not being caught assuming that the same exploitation rates as in 1990-92 would have applied in 1993 with no management change.

Although the Newfoundland and Labrador commercial salmon fisheries used to harvest small and large salmon with origins in Nova Scotia, New Brunswick, and Québec, the increase in returns to these provinces cannot be quantified.

The moratoria on the commercial cod fishery in Canada in 1992 and 1993 would have reduced the by-catch of salmon.

Effects on USA stocks

ACFM estimated the effects of the 1992 salmon fishery moratorium in Canada upon Maine stocks by estimating the average harvest during the base period 1984-1989 in the SFAs affected. On this basis it was estimated that the harvest of Maine-origin salmon in Canada was reduced by 67%. Given the documented presence of Merrimack and Connecticut river-origin salmon in Labrador, similar reductions in the harvest of these stocks would have been expected.

2.2 Effects of the Suspension of Commercial Fishing Activity at Faroes

Assuming that monitored stocks have been relatively stable over the past four years, the suspension of commercial fishing at Faroes should have reduced exploitation in the Faroes fishery to about 10% of the levels in the previous three seasons. In practice, there was a significant reduction in the exploitation rate on 2SW fish from R. Imsa and R. Lagan from a mean of 18% in the 1988/89 to 1990/91 seasons to 5% in the 1991/92 and 1992/93 seasons (see Section 1.2.1). In most years, exploitation rates on both 1SW and 2SW fish from UK and Ireland have been very low and the effects of the buy-out are therefore difficult to detect.

The estimated reduction in returns to all homewaters that might have been expected in 1993 if the full quota in Faroese waters (550 t) had been taken in the 1991/92 and 1992/93 seasons were as follows:

Age/Origin	Estimated reduction in returns if quota had been taken
Wild 1SW	9,000
Wild 2SW	48,000
Wild 2SW+	38,000

In addition, the fishery would have taken an extra 94,000 fish of farmed origin in these two seasons. It is not possible to project the return rates to homewaters for these fish.

The expected increases in total returns to all homewaters and in stock in Scandinavia, Finland and Russia in 1993 resulting from the reduction in Faroese catches in the 1991/92 and 1992/93 seasons compared with the period 1988/89 to 1990/91 were as follows:

Age/ Origin	Increase in total returns	Estimated increase in stocks in Scandinavia, Finland and Russia	
		Number	%
Wild 1SW	2,000	1,200-1,600	<1%
Wild MSW	47,000	28,200-37,600	11-21%

In addition, about 37,000 fewer fish of farmed origin are estimated to have been taken in each season. It is not known how many of these would have returned to homewaters.

The above increases will have been hidden within the annual variation of catches in these countries.

Catches for Ireland, Scotland (large salmon) and Russia (2SW salmon) in 1992 and 1993 were not significantly greater than those in 1987-1991.

3. ADVICE WITH RESPECT TO THE FISHERY IN THE WEST GREENLAND COMMISSION AREA

3.1 Continue development of the model used in providing advice on catch quotas in relation to stock abundance

Models of North American stocks

ACFM has previously provided catch advice based upon a prediction of the pre-fishery abundance using thermal habitat as the independent variable. The time series of thermal habitat data and revised pre-fishery abundance estimates (see Section 3.3) were used to examine further relationships that could be employed to predict pre-fishery abundance in 1994. A number of relationships between habitat and pre-fishery

abundance estimates were tested but those with March values of habitat proved the best and were similar to the results provided in 1993.

Although the relationship with thermal habitat is considered to be statistically sound, efforts were made to improve the predictive models. Relationships between pre-fishery abundance of non-maturing 1SW salmon and a combination of wind and thermal habitat variables were therefore examined. The best of the new relationships tested was based upon wind speed in an area to the south west of Greenland in December (year 1) combined with thermal habitat in March (in year 2).

The forecasts of pre-fishery abundance by these models were not in good agreement, and ACFM therefore considered information on the maturing 1SW component of the stock in 1993 as an independent means of evaluating the two approaches. The pre-fishery abundance for all North American non-maturing 1SW fish was shown to be correlated to the grilse returns in some SFAs in Canada. This relationship could therefore be used to estimate the pre-fishery abundance of non-maturing 1SW fish in 1993 from the grilse returns in the same year. This estimate of pre-fishery abundance was in good agreement with the forecast from the thermal habitat model but not from the model based on wind and thermal habitat model. ACFM therefore considers the thermal habitat model used in 1993 to be more supportable.

Models of European stocks

ACFM reviewed work in progress towards the development of European models for the provision of catch advice. A number of studies of European stocks have revealed similar correlations between stock abundance and environmental conditions to those currently used for North American stocks. ACFM therefore recommends that work should carried out to develop models for use in the provision of catch advice in relation to stock abundance for European stocks.

3.2 Estimate the pre-fishery abundance of non-maturing 1SW salmon at the time of the fishery

ACFM updated the databases used in the North American run-reconstruction model to derive revised estimates of pre-fishery abundance for 1974-92. Although the exact error bounds for the estimates of pre-fishery abundance are unknown, minimum and maximum values of catch and return data have been estimated and give minimum and maximum estimates of the pre-fishery abundance (Figure 3.2.1). The new estimates are slightly lower than reported in 1993, but the differences are minor and become smaller in more recent years. The new pre-fishery abundance estimate (mid-point of range) for 1992 was the lowest in the 19 year time series with a range between 120 and 224 thousand salmon; the upper value of this range was less than the lower bound for 1991. These results suggest a continuing downward trend in pre-fishery abundance for North American MSW stocks.

The thermal habitat model presented in 1993 was used to forecast the pre-fishery abundance of non-maturing 1SW salmon for 1993 and 1994:

Year	Pre-fishery abundance forecast
1993	243,043
1994	280,028

3.3 Provide catch options with an assessment of risks relative to the management objective of achieving various levels of target spawning escapement

The goal in Atlantic salmon management is to ensure that there are adequate numbers of spawners in each river. In mixed stock fisheries this may be difficult owing to varying migration patterns and exploitation rates experienced by individual stocks. Nonetheless, a composite spawning target of 193,741 2SW salmon has been defined for North America by summing the spawning targets of Salmon Fishing Areas and Zones in Canada and river basins within the USA.

To achieve this spawning target, a reserve of fish must be set aside prior to fishery allocation in order to allow for natural mortality in the intervening months between the fishery and spawning migration. Thus, 216,270 (i.e. 193,741/exp*(-.01*11)) fish must be reserved before the fishery to ensure achievement of the target after allowing for natural mortality.

This reserve is subtracted from the appropriate forecast of the pre-fishery abundance to give the harvestable surplus of North American non-maturing 1SW fish. This surplus may be taken at West Greenland as 1SW fish or in Canada as 1SW fish in the same year or 2SW fish in the following year. In the latter case, natural mortality will reduce the numbers of fish that may be harvested.

The proportion of the allowable harvest of North American fish to be allocated to West Greenland ($F_{(NA)}$) must be set by managers. This then allows the number of North American fish which may be caught at West Greenland to be calculated. This can then be converted to a total catch quota in tonnes by converting the numbers to weights and adding the catch of European fish and of fish older than 1SW that are expected to be taken at the same time. The formulae for this process are given in Appendix 3.

Estimates of the parameters used in the assessment (PropNA, WT1SWNA, WT1SWE and ACF) (see Appendix 3) were obtained by simple exponential smoothing of the observed 1978-92 values, as no new data were available for 1993. These estimates are given below:

Parameter	Forecast for 1993
PropNA	0.540
WT1SWNA	2.525
WT1SWE	2.660
ACF	1.121

The probability density function of this forecast was estimated and is shown as a cumulative function below:

Cumulative Density Function (%)	Forecast
25	182,500
30	203,750
35	225,000
40	242,000
45	263,250
50	280,250
55	297,250
60	318,500
65	335,500
70	356,750
75	378,000

The probability density function of the pre-fishery abundance forecast (Section 3.2) gives the probability of the true stock abundance being lower than the value selected. For example there is a 35% chance that the pre-fishery abundance will not exceed 225,000 fish. The probability level also provides a measure of the chance of reaching escapement targets assuming fishery allocations are taken without error. The probability levels associated with certain reference points can be classified into broad categories termed "risk neutral", "risk averse", and "risk prone". The mid-point estimate of the forecast represents a reference point at which there is a 50% chance that the true abundance is lower than required to achieve the spawning target. This level is termed the "risk neutral" forecast. Likewise, the forecast value at the 25th percentile, or the value with a 25% chance that the abundance is lower, is the "risk averse" forecast. The forecast value at the 75th percentile, or the value with a 75% chance that the abundance is lower, is the "risk prone" forecast. ACFM considers that it is important to proceed cautiously by using the mid to lower part of the range of predicted abundance levels for management decisions.

In Table 3.3.1, the West Greenland quota is computed for a range of pre-fishery abundance values between interquartile limits of the probability density function and for different values of $F_{(NA)}$. For the mid-point estimate level (i.e. 50% level), the quota options range from 0 to 344 t.

ACFM notes that the risk neutral approach only ensures that there is a 50% chance that the spawning escapement in North America will exceed the target level for all rivers combined. Even if this overall target is achieved, it is likely that some stocks will fail to meet their individual target spawner requirements while others will exceed target levels (Figure 1.3.2). This may result from random variation between years or from systematic differences in the patterns of exploitation on fish from different rivers or regions. In the latter case, adoption of a risk neutral approach may result in some stocks failing to meet target levels over an extended period. This would be likely to result in the long-term decline in those stocks. If the objective is to meet the

spawning target in every river, then the 50% level will not be adequate and some lower value should be chosen.

The assessment models used for the provision of catch advice are based almost entirely upon data for North American stocks. While it is believed that European stocks are generally less vulnerable to the West Greenland fishery than North American stocks, there has been evidence of a more rapid decline in these stocks, in the West Greenland area at least, than the North American stock. ACFM therefore emphasised the importance of developing similar assessment methods for the stocks in the North-East Atlantic area.

3.4 Describe which stocks make the greatest numerical contributions of salmon to the fishery

Within North America and Europe, there are large numbers of salmon rivers which produce MSW salmon that may contribute to the West Greenland fishery. However, it is not possible to determine the absolute or relative contribution of each stock to the fishery in the absence of stock identification information for West Greenland nor accurate return information for all stocks. This information could not be obtained without a very extensive research programme.

In recent years, estimates based on the smolt age composition of catches suggest that approximately 10% of the catch of North American fish at West Greenland comes from United States rivers and hatcheries and one Canadian hatchery (Mactaquac); about 75% come from Southern stocks (SFA5-23, Q1-7, and Q10); and about 15% come from Northern stocks (Q8-9, Q11, SFA1-4).

Crude examination of river age distributions of European salmon in the West Greenland fishery suggests that wild stocks in northern Norway, Finland and Russia are relatively poorly represented in comparison with stocks from UK, Ireland and southern Europe.

3.5 Evaluate the relationship between spawning escapement and subsequent pre-fishery abundance

Published studies on monitored stocks in the North Atlantic have demonstrated stock and recruitment relationships for Atlantic salmon. These relationships indicate that, below optimal spawning stock levels, reducing the number of spawners would be expected to decrease the production of smolts. However, increasing the number of spawners above these levels will not improve smolt production.

The relationships established between pre-fishery abundance and various environmental parameters suggest that environmental conditions influence the survival of salmon during the first year in the sea (i.e. smolt production to pre-fishery abundance). These relationships have been established assuming that natural mortality after the first year in the sea is relatively low and stable. It is apparent that the environmental influences may mask the relationship between spawning escapement and pre-fishery abundance. This will make it difficult to demonstrate these effects, although they are most likely to become apparent at low stock levels.

4. IMPACTS OF FISH FARM ESCAPEES AND SEA-RANCHED FISH

4.1 Evaluate the Abundance of Fish Farm Escapees and Sea-Ranched Fish in Fisheries and Rivers

4.1.1 Faroes Fishery

Scale samples collected at Faroes have been examined to estimate the proportion of the catch that was of farmed origin:

Season	% farmed
1982/83	1
1985/86	4
1989/90	44
1990/91	42
1991/92	37
1992/93	27

It appears that the occurrence of escapees in the Faroes fishery has paralleled trends in production of farmed salmon, being low in the early 1980's and peaking during the early 1990's.

4.1.2 West Greenland Fishery

The proportion of escaped farmed Atlantic salmon at the feeding grounds at West Greenland was estimated to be 1.1% in 1991 and 1.4% in 1992.

4.1.3 Homewater fisheries and rivers in the NEAC Area

Ranched fish have comprised between 70 and 75% of the catch in Iceland for the past three years and in Sweden between 35 and 50% of the catch has been made up of released fish that are not expected to contribute to natural spawning stocks.

The proportion of farm escapees in homewater fisheries is greatest in areas where there are large numbers of salmon farms (e.g. Norway and west coast of UK (Scotland)). In Norway, the occurrence of farmed salmon in catches in coastal fisheries in 1993 (47%) was comparable to that in previous seasons, while a 20% contribution to catches in fjord fisheries was comparable to that in 1992 but higher than the 1989-1991 average (13%). Data from 1993 from UK (Scotland) were similar to previous years, with highest proportions of farmed fish being reported in catches in the north and west coastal fisheries (20-37%) and much lower proportions being seen in the larger east coast fisheries and in the south-west (0-3%). These data reflect the geographical location and extent of salmon farming in those countries.

Farmed salmon are believed to occur in most other countries in the north-east Atlantic, but contributions to fisheries are thought to be low (Table 1.2.1). There have been no records of farmed fish in catches in France, Russia and UK (England and Wales). In Ireland less than 2% of catches were estimated to be of farm origin although this may be an underestimate.

Data on the contribution of farmed salmon to spawning stocks in the NEAC Area were available from Norway, UK (Scotland) and UK (N. Ireland). In Norway, sampling of rod catches and broodstock in numerous rivers indicated that in 1993 about 4% of rod catches and 21% of broodstock comprised farmed salmon. Both figures are lower than previously observed. In UK (N. Ireland) 0.5% of fish entering the River Bush were of farm origin. No new data are available on the incidence of fish farm escapees or their progeny in freshwater in UK (Scotland), but it is likely that these fish contribute to spawning populations in some rivers on the west coast in particular.

4.1.4 Homewater fisheries and rivers in NAC Area

Salmon returning to the Mactaquac hatchery on the Saint John River (SFA 23) were monitored in 1990, subsequent to a purported loss of 16,000-20,000 fish from sea-cages. There were 221 fish identified as being of sea-cage origin, based on scale patterns and fin conditions, out of a total of 3,919 large fish counted at the fishway, approximately 6% of the return.

The incidence of farm fish in the Magaguadavic River, Canada (SFA 23) since 1992 is shown below:

Year	1SW	% farm origin	MSW	% farm origin
1992	238	35	201	31
1193	208	46	177	29

4.2 Evaluate the genetic, disease and parasite, ecological and environmental impacts of fish farm escapees and ranched fish on wild stocks

4.2.1 Genetic impacts

Enhanced, ranched and farmed salmon have the potential to interact genetically with wild fish altering the natural balance of genetic population structure through the following mechanisms:

- relaxation of competition/selection;
- inadvertent or passive selection;
- selective breeding;
- genetic drift;
- transfer of non-local stocks.

These factors will be further affected by the number of fish released or escaping into the wild, the stage at which they enter the wild and their relative fitness. The factors would normally be expected to reduce fitness, and it has generally been observed that cultured fish are reproductively inferior. Although this will tend to reduce the impact on wild stocks, short-term adverse effects may still result from single interactions. Repeated interactions in succeeding generations will complicate the assessment of the effects.

Genetically modified salmon may become available for use in aquaculture in the future. The full implications for wild salmon stocks will need to be assessed. The use of triploid stocks in salmon rearing would reduce possibilities for genetic interaction with wild fish.

4.2.2 Disease and parasite impacts

Most of the disease organisms present in farmed salmon are also present among wild fish. However, the aquaculture industry has been responsible for introducing diseases and parasites into some areas with serious detrimental effect on wild stocks. Examples include the introduction of *Gyrodactylus salaris* and furunculosis into Norway. Although wild fish are thought to be more likely to act as a reservoir of diseases for farmed fish than vice versa, the high frequency of diseases on farms and the concentrations of pathogens have the potential to cause outbreaks of diseases in wild fish populations.

Insufficient information is available to assess the risks of disease/parasite interactions.

4.2.3 Ecological and environmental impacts

Reared fish may cause the following ecological and environmental impacts on wild stocks:

- predator attraction and increased predation rates where reared or ranched fish are present among wild fish;
- inadvertent harvesting of wild fish among ranched salmon where groups occur together near the harvesting site;
- local degradation of natural freshwater habitat caused by effluent from freshwater rearing units.

These mechanisms have not been widely explored. Some effects may extend to other species and may be to the detriment of the genetic population structure in both species.

4.3 Evaluate the impacts of current hatchery practices on wild stocks

With the information available ACFM were not in a position to assess the impacts of current hatchery practices on wild stocks.

5. EVALUATE GRILSIFICATION MECHANISMS AND ASSESS THE IMPACT THAT GRILSIFICATION MAY HAVE ON STOCK ABUNDANCE AND FUTURE SPAWNING REQUIREMENTS

ACFM considered the differing trends that may be observed in the proportion of stocks that mature as 1SW fish. No trend was evident in the proportion of grilse in returns from the River Figgjio (Norway) (1965-91). In the North Esk (UK, Scotland) the proportion of grilse in catches has increased from about 25% in 1952 to about

60% in 1992, while in the Bush (UK, N. Ireland) the proportion of grilse has decreased during the period 1974-91.

In Iceland short-term changes in grilse/salmon ratios could be explained by changes in marine conditions. Climatic changes also appeared to be responsible for long-term changes in the sea-age composition of Icelandic stocks examined, although stocks from different areas were differently affected.

The annual variation in early maturation for a hatchery-dependent stock (Penobscot River, USA) was investigated by comparing scale circuli patterns. In a cohort, the fish with the fastest growth rates tended to return as grilse. It was also found that the maturation fraction was significantly and positively correlated with late summer growth, suggesting that growth during this season is central to the determination of the proportion of a smolt class that matures as grilse.

6. EVALUATE EVIDENCE FOR RECRUITMENT OVERFISHING OCCURRING ON ATLANTIC SALMON POPULATIONS

The level of recruitment to the fishery each year is dependent on the environmental and ecological conditions experienced by the young fish between the time they are spawned and when they become available to the fishery. Since these conditions are variable, recruitment is also variable and does not appear to be simply proportional to the size of the parent stock. There must, nevertheless, be a level of spawning stock below which recruitment will be affected as a result of low egg production. The likelihood that the stock will fall below this level depends on both natural and fishing mortality. Stocks that have been reduced below this level by fishing are said to be suffering from 'recruitment overfishing'.

Whereas time-series of stock and recruitment data are available for some salmon stocks the levels of fishing mortality are not generally known. Without these values it is not possible to assess the impacts of fishing mortality on the spawning stocks.

ACFM therefore considered evidence from a number of salmon stocks for cohorts of spawners failing to replace themselves in succeeding generations as a result of fishing. While this may occur at any level of spawning escapement, it is only likely to be a matter of concern when this replacement failure occurs with some regularity. Overfishing of this form may be considered by examining spawner to spawner relationships on both a regional basis and for individual rivers. Spawner to spawner relationships were derived in two ways, by estimating the number of spawners of a given sea-age either producing or produced by the spawner cohort of the same sea-age in each year. The results are summarised in Table 6.1.

Only the 2SW stocks in the Gulf Region (Canada) have tended to be above replacement level. This result suggests that these stocks should have an ability to increase rapidly should environmental conditions become favourable. Stocks in most other areas appear to be replacing themselves, even when they are below target levels. However, 2SW stocks in Labrador have been below replacement level throughout the period suggesting that they are being seriously overfished.

Several distinct patterns were readily apparent for the individual stocks. In most instances spawner to spawner relationships for grilse were stable with about a 50:50 split between points above and below the replacement line. This pattern held even in stocks where MSW spawners were consistently below target levels. For example, grilse spawners exceeded replacement in 10 of 23 years for the North Esk (UK (Scotland)) (Figure 6.1) whereas 3SW spawners were below replacement in 18 of 22 years. In contrast, spawner recruits for the Nordura River stock (Iceland), which is fished only in the river, were evenly distributed around the replacement line for both grilse and MSW salmon (Figure 6.2). This was also the pattern seen for many North American stocks such as the River de la Trinite (Figure 6.3).

7. EVALUATE THE PROSPECTS OF DEVELOPING PREDICTIVE MODELS OF ANNUAL MIGRATION AND DISTRIBUTION OF ATLANTIC SALMON STOCK COMPLEXES

ACFM considered an Atlantic salmon migration model intended to explore the relative role that different factors play in migration. The model simulates the movement of individual fish through sea surface temperature and surface current fields of the North Atlantic.

The initial results from the model were encouraging with the simulated distribution of fish originating in North America being in general agreement with known data from marine surveys and fisheries (Figure 7.1).

The model as it is presently formulated can be used to evaluate the role of temperature and currents in defining the transoceanic migration of Atlantic salmon. However, it can only deal with the directed movement of salmon related to other cues, such as geomagnetic or celestial cues, by empirically matching the model output with validation data. The geomagnetic field of the earth, in terms of its properties such as field strength and declination, are known to produce gradients across the North Atlantic. If these properties of the field can be detected by Atlantic salmon, much of the directed movement of the migration could be explained. The model could be modified to allow salmon to orient to geomagnetic field; however, this orientation would have to be parameterized in an arbitrary fashion.

8. EVALUATE THE RESULTS OF THE RESEARCH PROGRAMME AT FAROES

Information derived from the research fishing programme at Faroes is presented in Section 1.2.1.

9. PROVIDE A COMPILATION OF MICROTAG, FINCLIP AND EXTERNAL TAG RELEASES BY MEMBER COUNTRIES IN 1993

Records of tags releases and finclip data were compiled as a separate report. In excess of 1.64 million CWTs and 0.21 million external tags were applied to Atlantic salmon in 1993. In addition, 1.77 million salmon were finclipped, 1.73 million with adipose finclips only.

Table 1.1.1 Nominal catch of Atlantic salmon by country (in tonnes round fresh weight), 1960-1993 (1993 provisional figures).

Year	Canada (5)	Den.	Faroes	Finland	France	East Grld.	West Grld. (7)	Iceland	Ireland (1, 3)	Norway (4, 9)	Russia	St. P. & M.	Sweden (West)	UK E. & W.	UK Scotland	UK N.I.(1,2)	USA	Other (6)	Total Rep. Catch	Unreported catches NASCO Areas	Unreported catches Internat. waters (9)	'Total Catch
1960	1636	-	-	-	-	-	60	100	743	1659	1100	-	40	283	1443	139	1	-	7204	-		-
1961	1583	-	-	-	-	-	127	127	707	1533	780	-	27	232	1185	132	1	-	6444	-		-
1962	1719	-	-	-	-	-	244	125	1459	1935	710	-	45	318	1738	358	1	-	8650	-		-
1963	1861	-	-	-	-	-	466	145	1458	1786	480	-	23	325	1725	306	1	-	8576	-		-
1964	2089	-	-	-	-	-	1539	135	1617	2147	590	-	36	307	1907	377	1	-	10725	-		-
1965	2116	-	-	-	-	-	861	133	1457	2000	590	-	40	320	1593	281	1	-	9392	-		-
1966	2369	-	-	-	-	-	1370	106	1238	1791	570	-	36	367	1595	287	1	-	9750	-		-
1967	2883	-	-	-	-	-	1601	146	1463	1980	883	-	25	420	2117	449	1	-	11946	-		-
1968	2111	-	5	-	-	-	1127	162	1413	1514	627	-	20	282	1578	312	1	403	9755	-		-
1969	2202	-	7	-	-	-	2210	133	1730	1383	360	-	22	377	1955	287	1	893	11540	-		-
1970	2323	-	12	-	-	-	2146	195	1787	1171	446	-	20	527	1392	297	1	922	11241	-		-
1971	1992	-	-	-	-	-	2689	204	1639	1207	417	-	16	426	1421	234	1	471	10719	-		-
1972	1759	-	9	32	34	-	2113	250	1804	1568	462	-	16	442	1727	210	1	466	10915	-		-
1973	2434	-	28	50	12	-	2341	256	1930	1726	772	-	23	450	2006	182	2.7	533	12746	-		-
1974	2539	-	20	76	13	-	1917	225	2128	1633	709	-	32	383	1708	184	0.9	373	11941	-		-
1975	2485	-	26	76	25	-	2030	266	2216	1537	611	-	26	447	1621	164	1.7	475	12209	-		-
1976	2506	-	40	66	9	<1	1175	225	1581	1530	772	2.5	20	208	1019	113	0.8	269	9536	-		-
1977	2545	-	40	59	19	6	1420	230	1372	1488	497	-	10	345	1160	110	2.4	192	9495	-		-
1978	1545	-	37	37	20	8	984	291	1230	1050	476	-	10	349	1323	148	4.1	138	7850	-		-
1979	1287	-	119	26	10	<1	1395	225	1097	1831	455	-	12	261	1076	99	2.5	193	8089	-		-
1980	2680	-	536	34	30	<1	1194	249	947	1830	664	-	17	360	1134	122	5.5	277	10060	-		-
1981	2437	-	1025	44	20	<1	1264	163	685	1656	463	-	26	493	1233	101	6	313	9929	-		-
1982	1798	-	865	54	20	<1	1077	147	993	1348	354	-	25	286	1092	132	6.4	437	8634	-		-
1983	1424	-	678	58	16	<1	310	198	1656	1550	507	3	28	429	1221	187	1.3	466	8732	-		-
1984	1112	-	628	46	25	<1	297	159	829	1623	593	3	40	345	1013	78	2.2	101	6894	-		-
1985	1133	-	566	49	22	7	884	217	1595	1561	659	3	45	361	913	98	2.1	-	8095	-		-
1986	1559	-	530	37	28	19	960	310	1730	1598	606	2.5	54	430	1271	109	1.9	-	9247	-		9247
1987	1784	-	576	49	27	<1	966	222	1239	1385	564	2	47	302	922	56	1.2	-	8142	2788		10930
1988	1311	-	243	36	32	4	893	396	1874	1076	419	2	40	395	882	114	0.9	-	7718	3248		10966
1989	1139	-	364	52	14	<1	337	278	1079	905	359	2	29	298	895	142	1.7	-	5893	2277		8170
1990	911	13	315	60	15	<1	274	426	586	930	315	2	33	338	624	94	2.4	-	4938	1890	180-350	6828
1991	711	3.3	95	70	13	4	472	505	404	876	215	1	38	200	462	55	0.8	-	4125	1682	25-100	5807
1992	522	10	23	77	20	5	237	635	630	867	166	1.3	49	186	600	89	0.7	-	4116	1962	25-100	6080
1993	367	9	21	70	16	-	-	656	551	895	140	1.8	56	274	424	83	0.6	-	3564	1644	25-100	5208
5YM	919	-	208	59	19	3	443	448	915	931	295	2	38	283	893	99	1	-	5358	2212	-	7570
10YM	1161	-	402	53	21	4	581	335	1162	1237	441	2	40	328	880	102	2	-	6790	-	-	-

5YM - 1988-1992 Mean
10YM - 1983-1992 Mean

1. Catch on River Foyle allocated 50% Ireland and 50% N. Ireland
2. Not including angling catch (mainly 1SW)
3. Includes only those catches sold through dealers.
4. Before 1986, sea trout and sea charr included (5% of total).
5. Includes estimates of some local sales, and, prior to 1984, by-catch.
6. Includes catches in Norwegian Sea by vessel from Denmark, Sweden, Germany, Norway and Finland.
7. Includes catches made in the West Greenland area by Norway, Faroes, Sweden and Denmark for the years 1965-1975.
8. 1993 data are estimated from the average of the previous four years.
9. Estimates refer to season ending in given year.

Table 1.2.1 Percentage of catches in homewater fisheries in the north-east Atlantic originating from different countries and from reared sources in 1992.

Origin of stock		Catch by country									
		Russia	Finland	Norway	Sweden	UK(E&W)	UK(Scot)	UK(NIre)	Ireland	France	Iceland
Wild	Russia	100%	-	+	-	-	-	-	-	-	-
	Finland	-	99%	+	-	-	-	-	-	-	-
	Norway	-	+	75%	6%	-	-	-	+	-	-
	Sweden	-	-	1%	46%	-	-	-	-	-	-
	UK(E&W)	-	-	-	-	62%	+	+	10%	-	-
	UK(Scotland)	-	-	-	-	38%	95%	3%	5%	-	-
	UK(N.Ireland)	-	-	-	-	+	+	92%	5%	-	-
	Ireland	-	-	-	-	+	+	+	80%	-	-
	France	-	-	-	-	+	+	+	+	100%	-
	Iceland	-	-	-	-	-	-	-	-	-	28%
Reared	**Escapees**	-	<1%	23%	2%	-	5%	1%	-	-	-
	Ranched	-	-	1%	46% a	-	-	3%	<1%	-	72%

'a' = fish released for mitigation purposes and not expected to contribute to spawning.
'+' = catches known to occur but contribution not estimated
'-' = catches rare or not known to occur.

Table 1.2.2 Exploitation rates in homewater fisheries in the NEAC area for 1988-92 (mean) and 1993.

Country	River	Wild/ Hatchery	Sea age	Method	Exploitation rate (%)	
					1988-92	1993
Iceland	Ellidaar	W	1	rod	43	41
Ireland	Burrishoole	H	all	total	69	59
Norway	Imsa	W	1	total	51	48
			2	total	69	80
Russia	Ponoy	W	all	total	47	10
		W/H	all	total	77	79
		W	all	total	49	39
Sweden	Lagan	H	1	total	79	94
			2	total	89	82
UK (England & Wales)	Dee	W	all	rod	12	12
	Itchen	W	all	net	17	0
			all	rod	42	42
	Test	W	all	rod	31	33
UK (Northern Ireland)	Bush	W	1	net	67	41
			2	net	42	12
UK (Scotland)	N. Esk	W	1	river net	27	25
			2	river net	28	19

Table 3.3.1 Quota options (in tonnes) for 1994 at West Greenland based on regression forecasts of fishery abundance. The probability levels refer to the pre-fishery abundance levels derived from the probability density function.

Probability level	Proportion of allowable harvest allocated to West Greenland (Fna)										
	0	**0.1**	**0.2**	**0.3**	**0.4**	**0.5**	**0.6**	**0.7**	**0.8**	**0.9**	**1**
25	0	0	0	0	0	0	0	0	0	0	0
30	0	0	0	0	0	0	0	0	0	0	0
35	0	5	9	14	19	23	28	33	38	42	47
40	0	14	28	41	55	69	83	97	111	124	138
45	0	25	50	76	101	126	151	177	202	227	252
50	**0**	**34**	**69**	**103**	**137**	**172**	**206**	**241**	**275**	**309**	**344**
55	0	43	87	130	174	217	261	304	348	391	435
60	0	55	110	165	220	275	329	384	439	494	549
65	0	64	128	192	256	320	384	448	512	576	640
70	0	75	151	226	302	377	453	528	604	679	754
75	0	87	174	261	347	434	521	608	695	782	869

Spawning Target = 193,741
Proportion of target = 1.00
Prop NA = 0.540
WT1SWNA = 2.525
WT1SWE = 2.660
ACF = 1.121
M = 0.01

Table 6.1 Summary of spawner-recruit (resultant spawners) analyses for individual and composite stocks in North America and Europe. Analyses types refer to tracking of offspring from a spawning year class (forward) or estimation of the number of spawners contributing to the spawners in year i (backward). Probabilities are exact binomial probabilities under the null hypothesis: p = 0.5.

Region	River	Analysis type	Years	Sea-age	Replacement line			Prob. P≤ No. above
					Number above rep.line	Number below rep.line	Number below in last 5 yrs	
NORTH AMERICA								
Labrador	Composite	Back	1983-93	2SW	0	11	5	0
Newfoundland	Composite	Back	1982-93	2SW	6	6	4	0.613
Quebec	Composite	Back	1982-93	2SW	6	6	1	0.619
Gulf	Composite	Back	1981-93	2SW	9	4	1	0.954
Scotia-Fundy	Composite	Back	1980-93	2SW	7	7	4	0.605
Quebec	R. de la Trinité	Forward	1980-88	1SW	3	6	3	0.254
Quebec	R. de la Trinité	Forward	1980-87	2SW	4	4	3	0.637
Newfoundland	Gander R.	Forward	1974-87	1SW	7	7	3	0.605
Newfoundland	Conne R.	Forward	1974-87	1SW	5	9	5	0.212
Newfoundland	Middle Brook	Forward	1974-87	1SW	5	9	3	0.212
Newfoundland	Biscay Bay R.	Forward	1974-87	1SW	6	8	5	0.395
Newfoundland	Humber R.	Back	1979-93	1SW	7	8	2	0.500
EUROPE								
Iceland	R. Nordura	Forward	1962-88	1SW	15	12	2	0.779
Iceland	R. Nordura	Forward	1962-87	MSW	14	12	2	0.721
Scotland	R. North Esk	Forward	1963-85	1SW	10	13	0	0.339
Scotland	R. North Esk	Forward	1963-85	2SW	6	17	4	0.017
Scotland	R. North Esk	Forward	1963-84	3SW	4	18	5	0.002
France	R. Scorff	Back	1970-93	MSW	8	16	5	0.076
Finland	R. Teno	Forward	1979-85	1SW	7	0	0	1.000
Finland	R. Teno	Forward	1979-84	2SW	5	1	1	0.984
Finland	R. Teno	Forward	1979-83	3SW	2	3	3	0.500
Finland	R. Teno	Forward	1979-82	4SW	1	3	3	0.313
Russia	R. Tuloma	Forward	1982-84	1SW	4	1	1	0.969
Russia	R. Tuloma	Forward	1982-84	MSW	0	3	3	0.125

Figure 1.2.1 Nominal catch of salmon and number of fishing vessels at Faores for the fishing seasons 1981/1982 to 1992/1993.

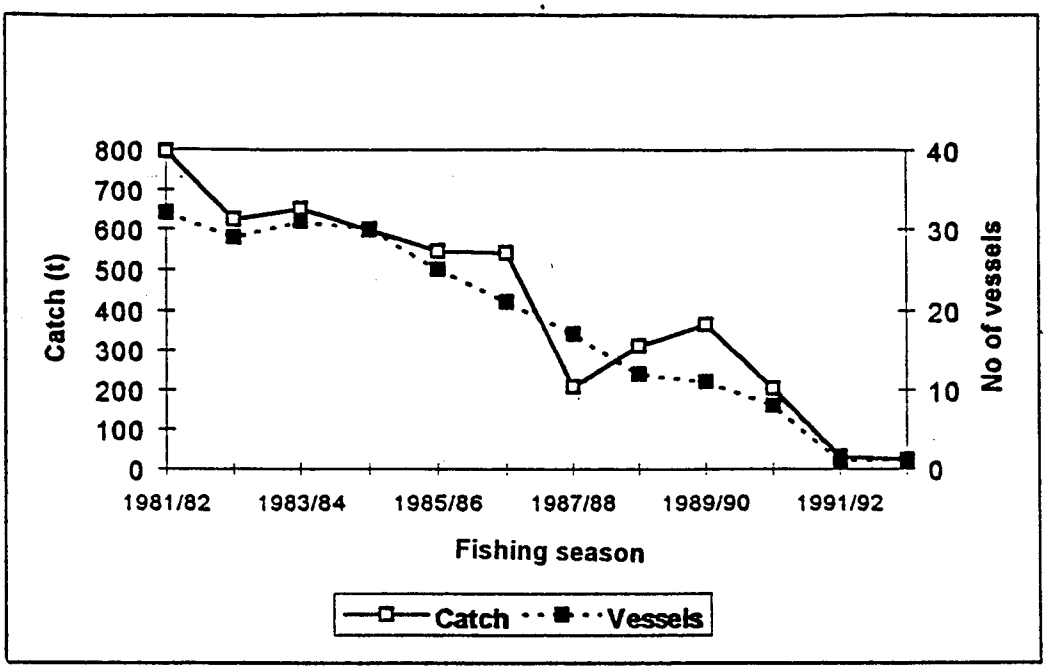


Figure 1.2.2 Catch per unit of effort (1000 hooks) inside the Faores EEZ for the fishing seasons 1981/1982 to 1992/1993.

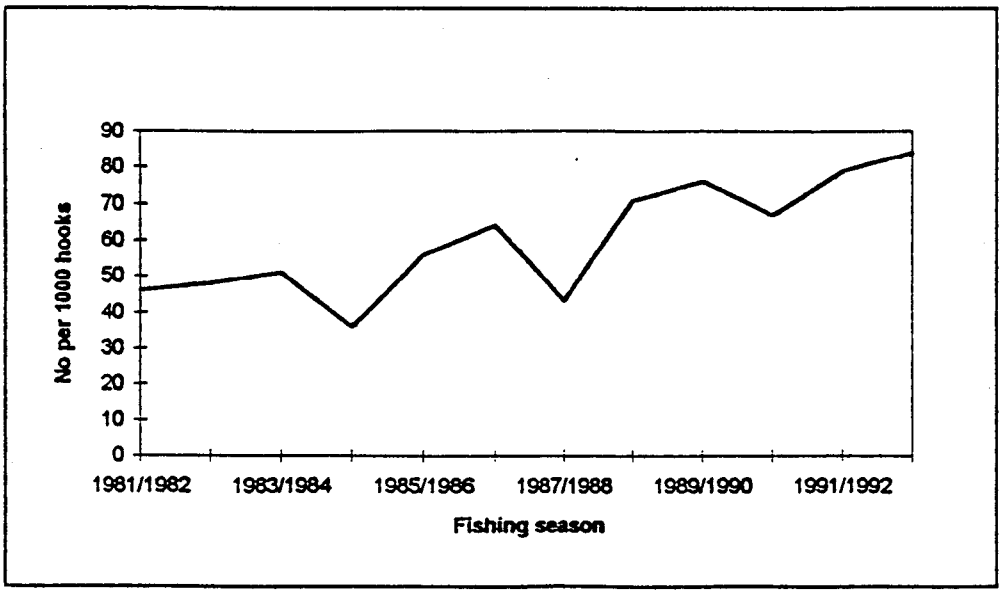


Figure 1.3.1 Retained catch expressed as a percentage of quotas for the recreational fishery in Newfoundland-Labrador by SFA. Quotas (numbers) shown in parenthesis for each SFA.

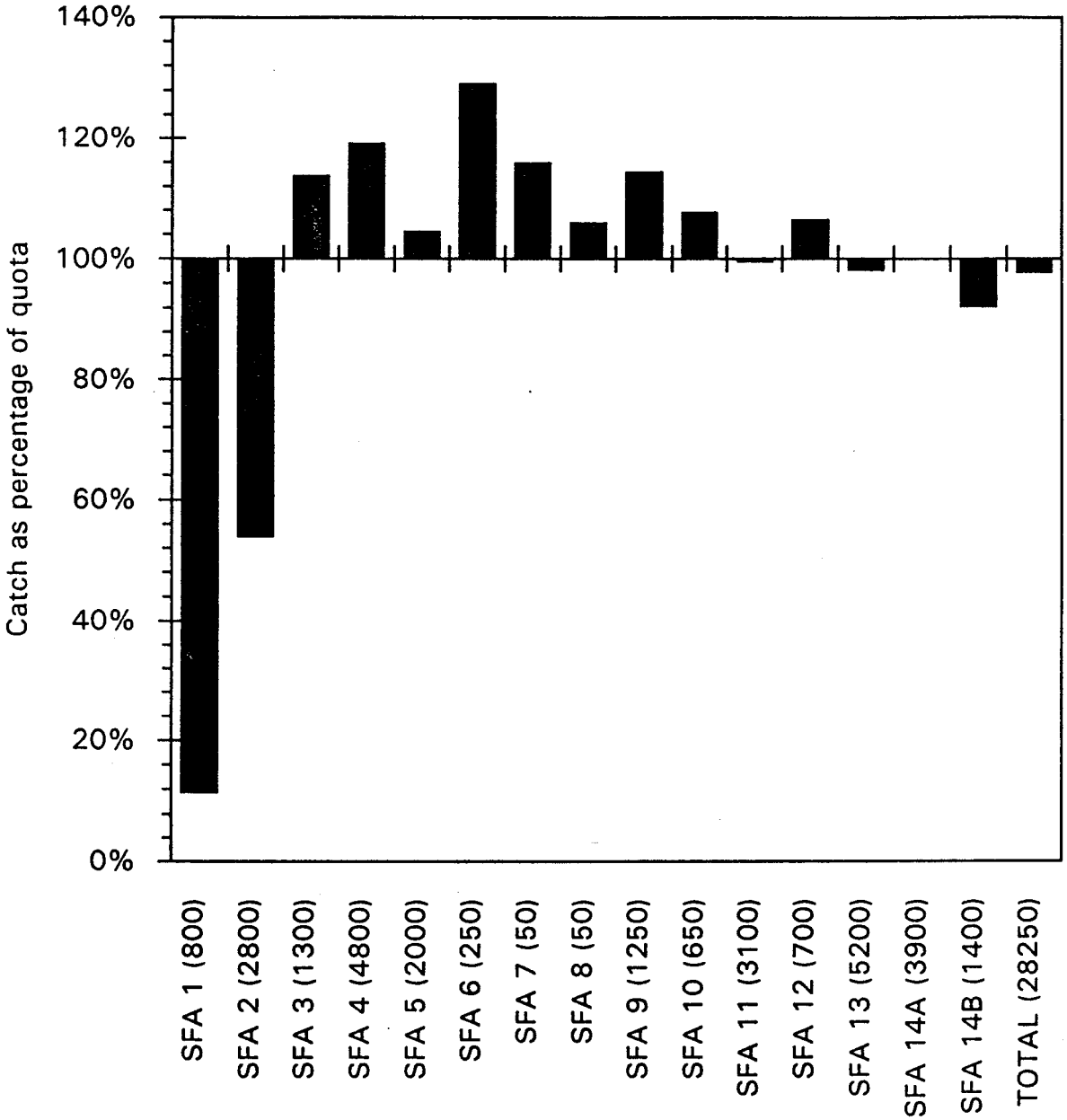


Figure 1.3.2 Percentage of target egg deposition attained in 23 rivers in Canada and USA in 1993.

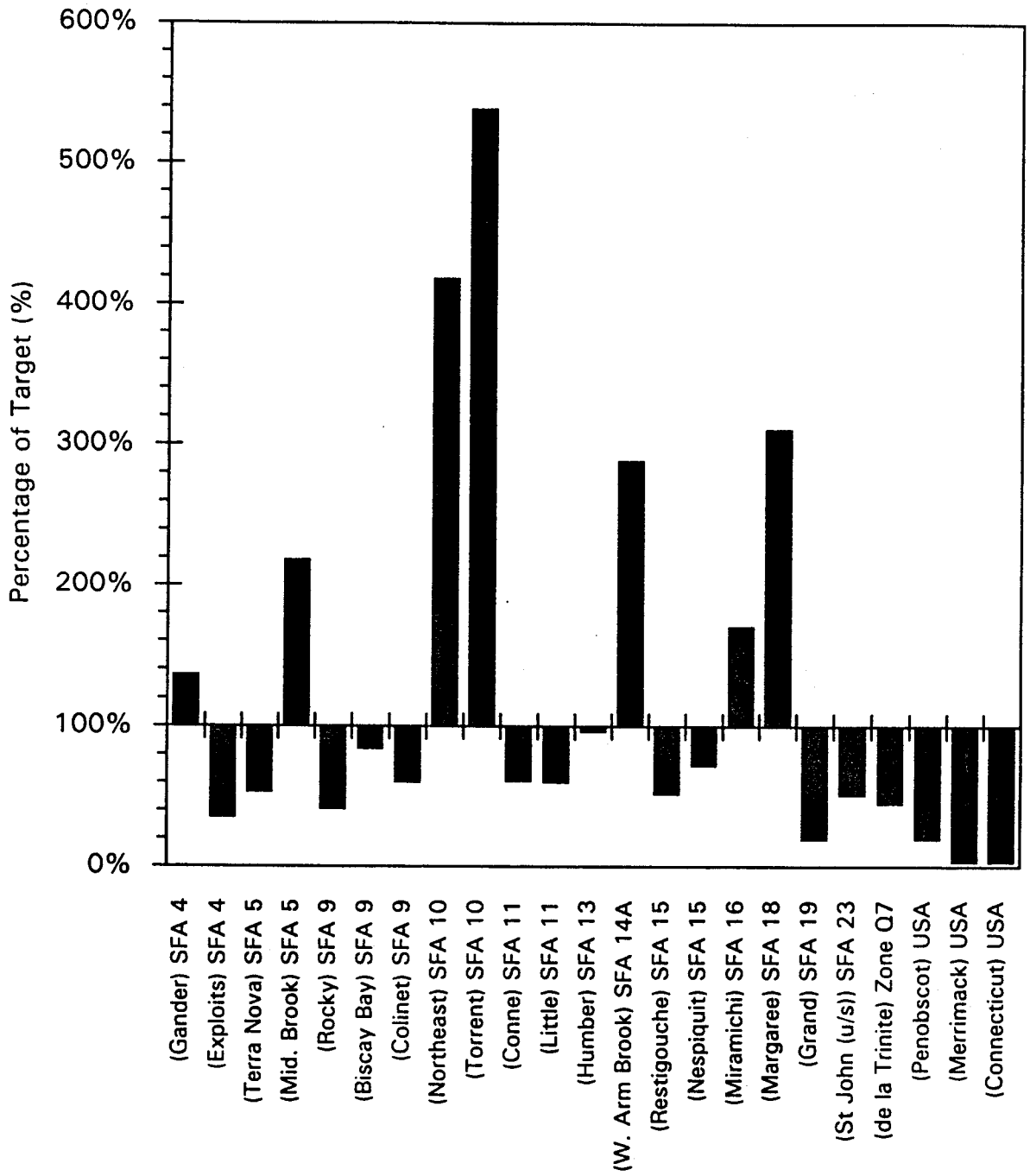


Figure 1.3.3 Return rates of hatchery smolts to homewaters as 1SW and MSW salmon for the Penobscot River (USA) (3 yr running mean)

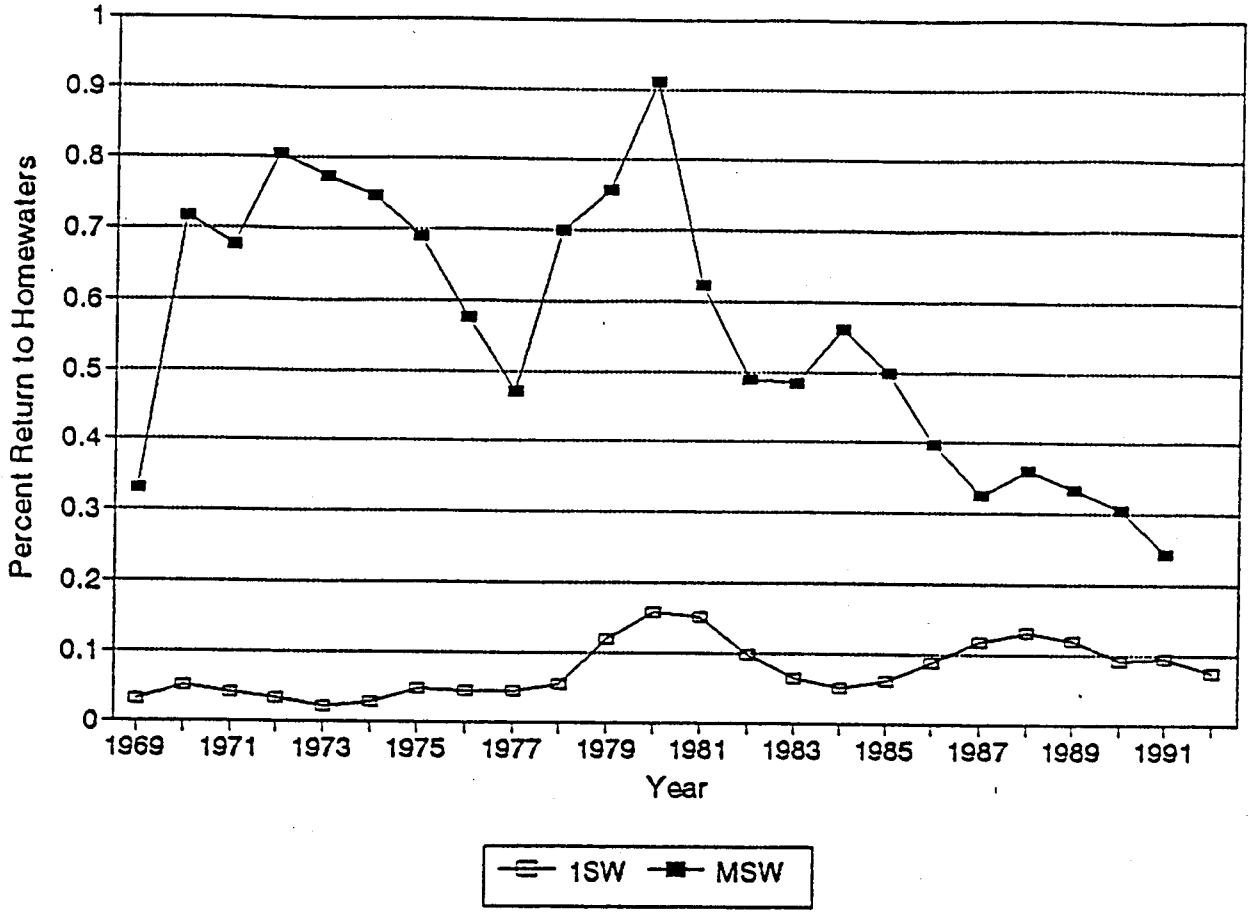


Figure 3.2.1 Estimated pre-fishery abundance of non-maturing 1SW salmon from North America (1974-92) (solid line) with maximum and minimum estimates (dashed lines).

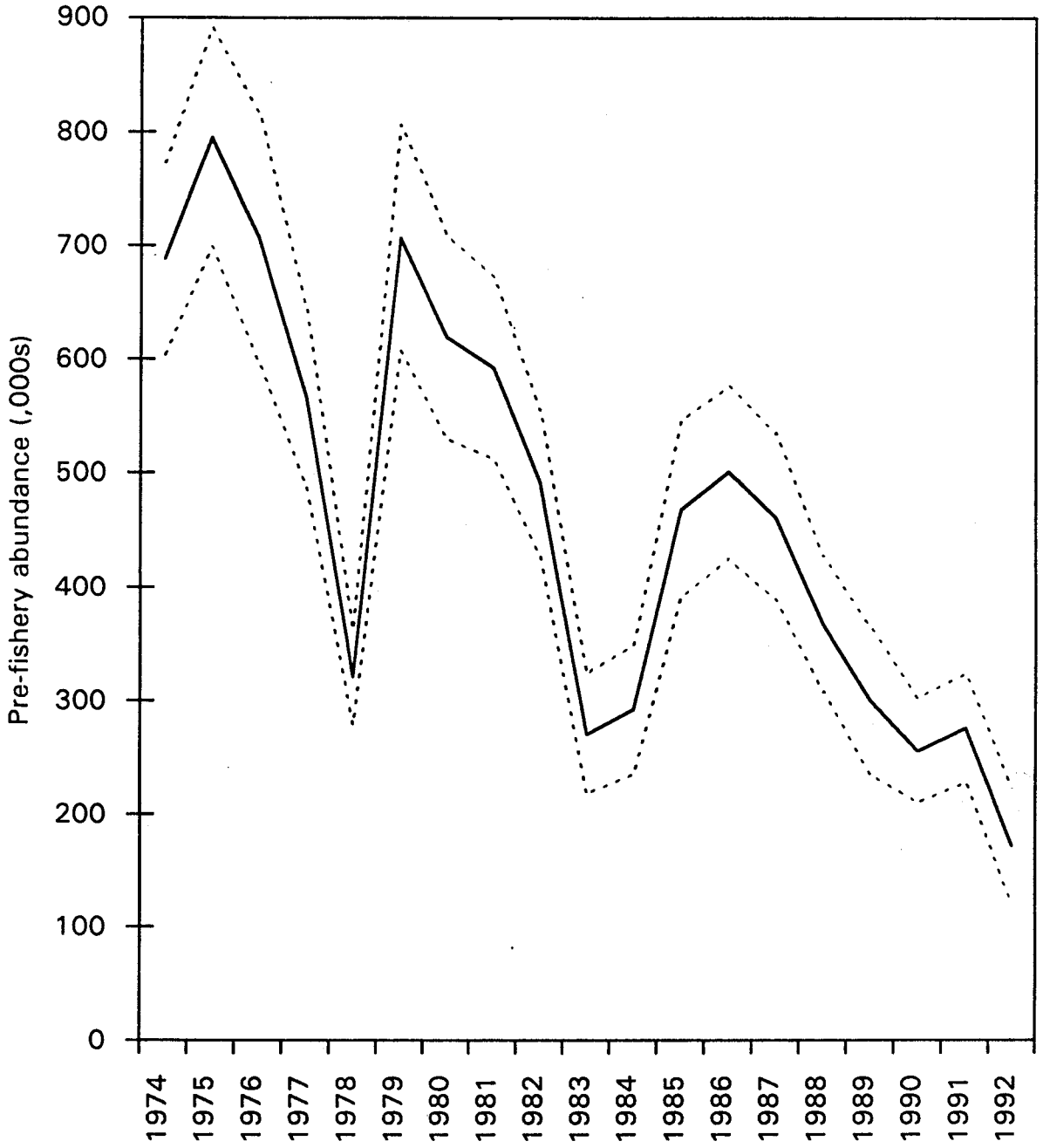
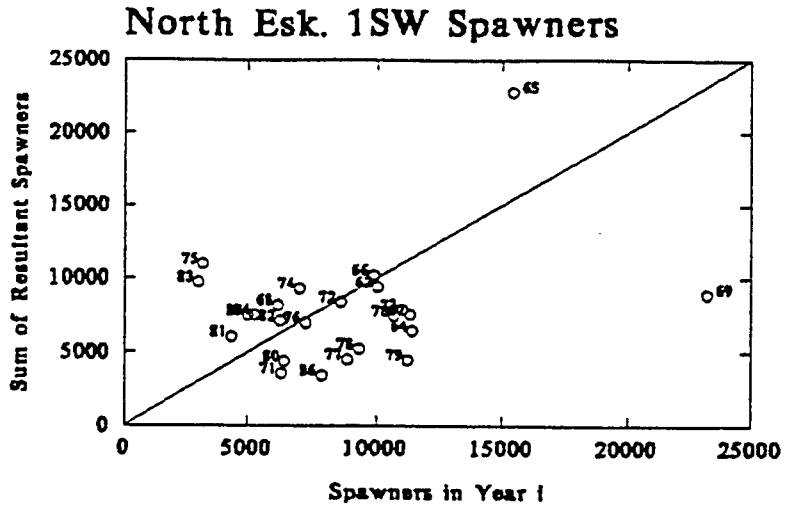
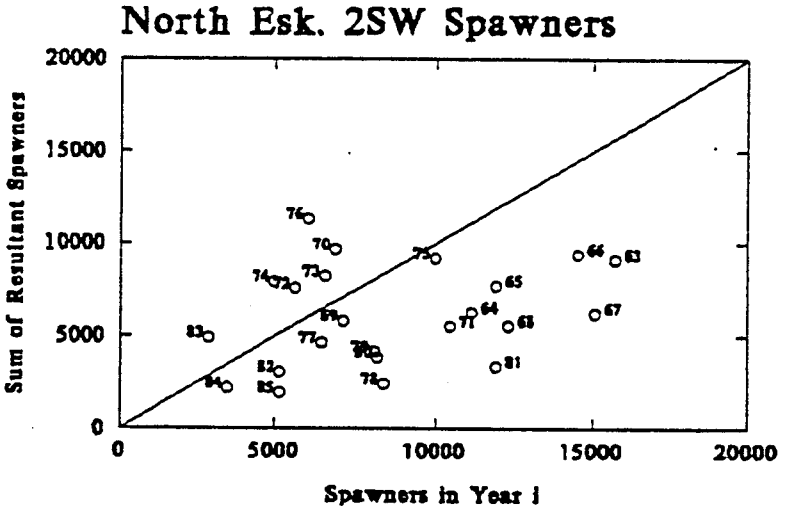


Figure 6.1 Comparison of spawners in year i (x-axis) with cumulative spawners produced (y-axis) for 1SW, 2SW and 3SW salmon in North Esk, Scotland. Years represent the year of the spawner. Diagonal line represents replacement of the spawners.





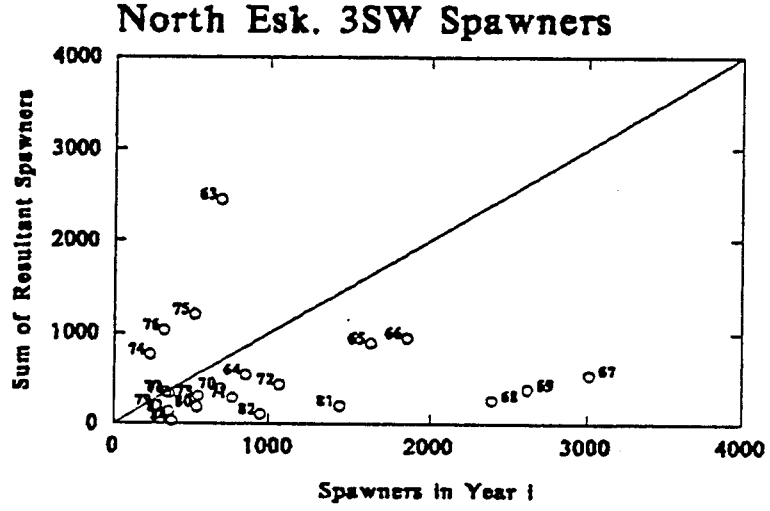
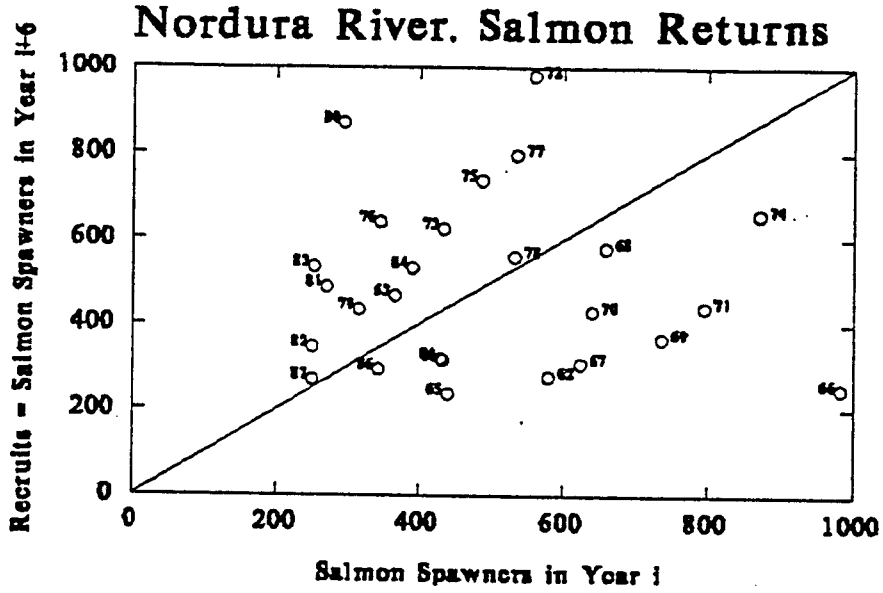


Figure 6.2 Comparison of spawners in year i (x-axis) with cumulative spawners produced in year i+5 for 1SW salmon and year i+6 for 2SW (y-axes) in the Nordura River, western Iceland. Years represent the year of the spawner. Diagonal line represents replacement of the spawners.



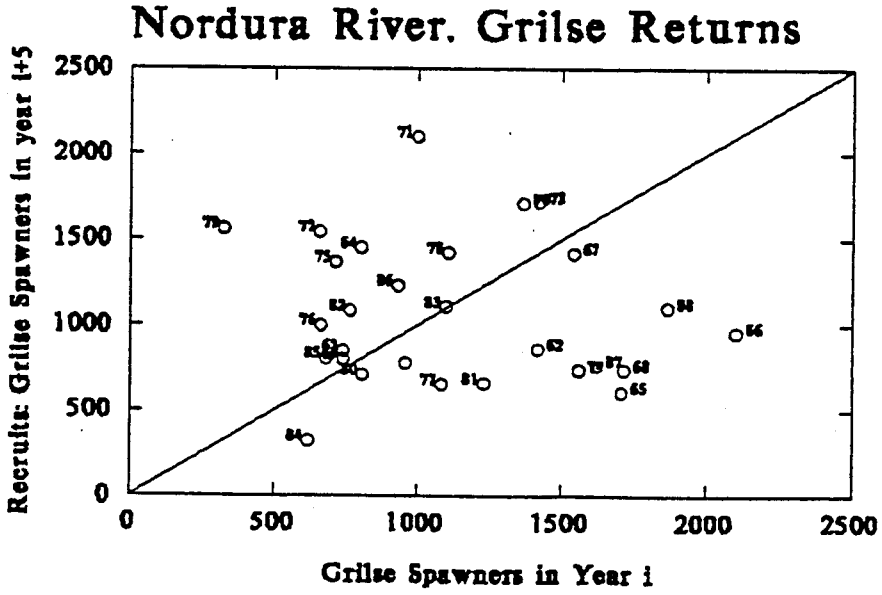
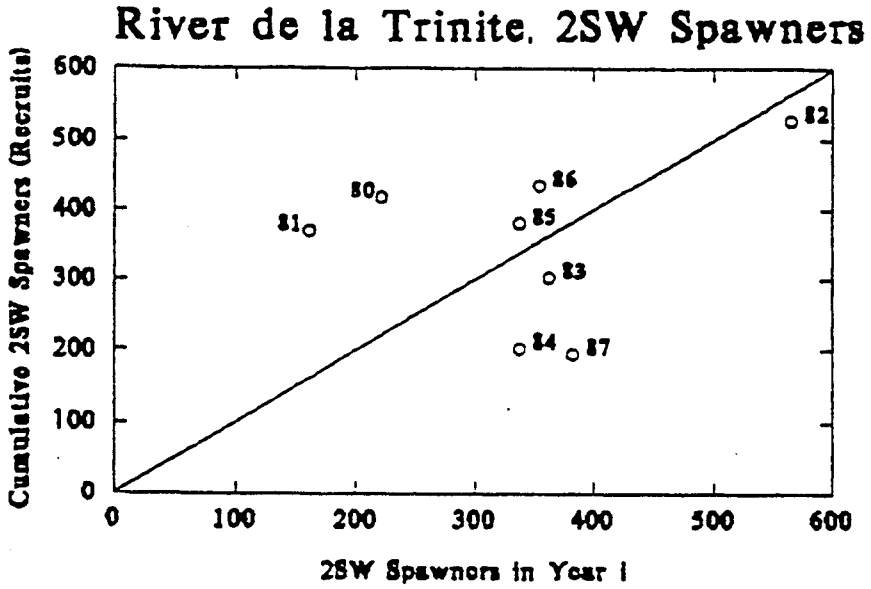


Figure 6.3 Comparison of spawners in year i (x-axis) with cumulative spawners produced (y-axis) for 1SW and 2SW salmon in the River de la Trinite. Years represent the year of the spawner. Diagonal line represents replacement of the spawners.



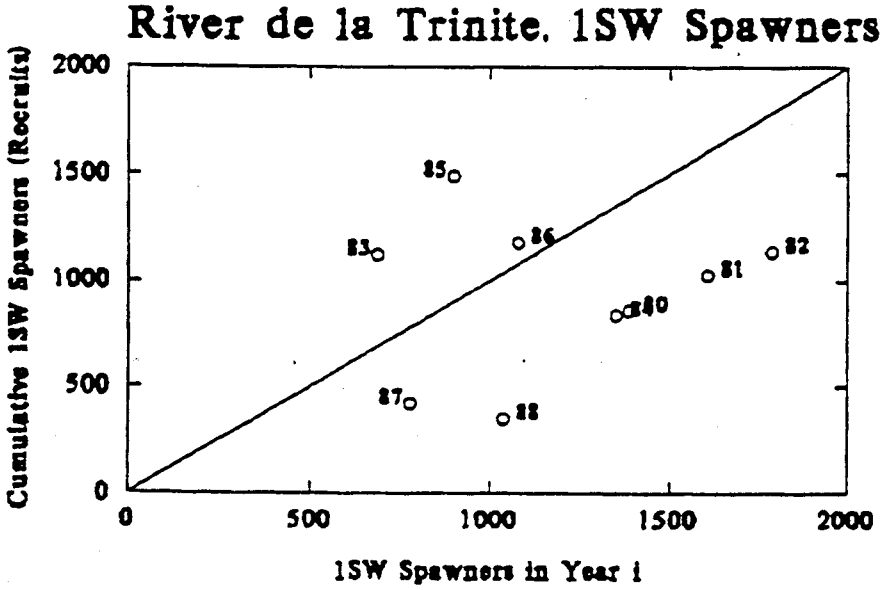
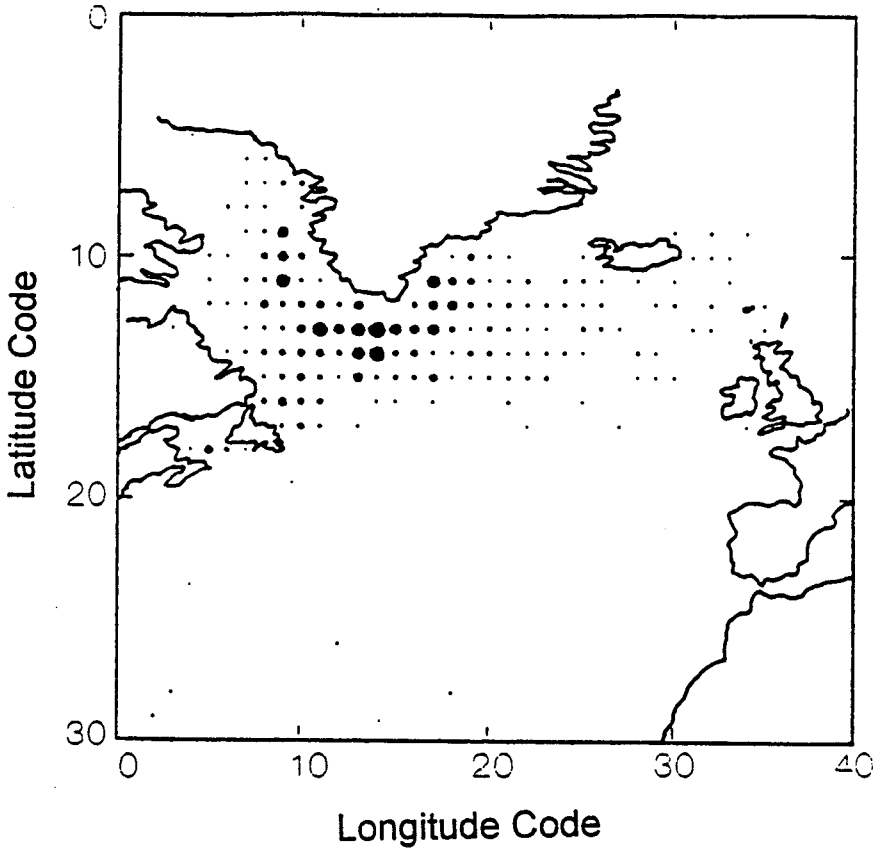


Figure 7.1 Distribution of southern North American stocks during 1SW summer from migration model. Dot size increases with larger numbers of fish.



APPENDIX 1

DECISION OF THE COUNCIL OF NASCO TO REQUEST SCIENTIFIC ADVICE FROM ICES

1. With respect to Atlantic salmon in each Commission area, where relevant:

   a) describe the events of the 1993 fisheries with respect to catches (including unreported catches) gear, effort, composition and origin of the catch and rates of exploitation;

   b) describe the status of the stocks occurring in the Commission area and, where possible, evaluate escapement against targets;

   c) specify data deficiencies and research needs.

2. Evaluate the following management measures on the stocks and fisheries occurring in the respective Commission areas:

   a) quota management measures and closures implemented after 1991 in the Canadian commercial salmon fisheries;

   b) the suspension of commercial fishing activity at Faroes;

3. With respect to the fishery in the West Greenland Commission area:

   a) continue development of the model used in providing advice on catch quotas in relation to stock abundance;

   b) estimate the pre-fishery abundance of non-maturing 1SW salmon at the time of the fishery;

   c) provide catch options with an assessment of risks relative to the management objective of achieving various levels of target spawning escapement;

   d) describe which stocks make the greatest numerical contributions of salmon to the fishery;

   e) evaluate the relationship between spawning escapement and subsequent prefishery abundance.

4. Evaluate the abundance of fish farm escapees and sea-ranched fish in fisheries and rivers and the genetic, disease and parasite, ecological and environmental impacts of these fish on the wild stocks and any impacts from current hatchery practices.

5. Evaluate grilsification mechanisms and assess the impact that grilsification may have on stock abundance and future spawning requirements.

6. Evaluate evidence for recruitment overfishing occurring on Atlantic salmon populations.

7. Evaluate the prospects of developing predictive models of annual migration and distribution of Atlantic salmon stock complexes.

8. Evaluate the results of the research programme at Faroes.

9. With respect to Atlantic salmon in the NASCO area, provide a compilation of microtag of microtag, finclip and external tag releases by ICES Member Countries in 1993.

APPENDIX 2

NEW MANAGEMENT MEASURES FOR CANADIAN COMMERCIAL FISHERIES IN 1993

1) The 5-year moratorium which was placed on the commercial fishery in insular Newfoundland in 1992 continued. Fishing was permitted in Labrador, Salmon Fishing Areas (SFA) 1, 2 and 14B. Quotas in SFAs 2 and 14B were reduced from those of 1992 by 90 t in SFA 2 and 5 t in SFA 14B. Quotas for the Newfoundland and Labrador commercial fishery for 1993 and previous years are shown below:

Year	SFA 1*	SFA 2 North	SFA 2 South	SFA 2 Total	SFA 14B
1990	80			200	50+10**
1991	80	65	135	200	15
1992	80	60	120	180	13
1993	80	27	63	90	8

* allowance catch; an estimate of expected catch and not a limitation on allowable harvest.

** The 1990 quota of 50 t was for all of SFA 14; there was also a supplementary quota of 10 t for SFA 14B.

A voluntary commercial salmon/charr license buy-back program was implemented for fishermen in SFA 1. Fishermen were allowed to apply for the buy-back until October 31, 1993, but the value of catch taken during 1993 was to be subtracted from their compensation.

2) In Québec the commercial fishery in areas Q7 and most of Q8 was closed in 1993. The quota in Q8 was reduced to 150 salmon for the remaining 4 fishermen. In area Q9, the number of fishermen and quota were slightly reduced; 90 fishermen had a combined quota of 15,175 salmon.

The following were new management measures for recreational fisheries in 1993:

1) While the seasonal bag limit for the recreational fishery of Newfoundland-Labrador, Nova Scotia, and New Brunswick remained at 8 fish (SFAs 1-16, and 18-23) and in Prince Edward Island at 7 fish (SFA 17), the daily limit was reduced from 2 to 1 fish in Newfoundland and Labrador. Most rivers of the inner Bay of Fundy (SFA 22 and parts of SFA 23) were not opened to recreational fishing for conservation reasons. As a result of low returns to many rivers in Atlantic Canada in 1993, some rivers were closed to exploitation for either the whole or part of the season. As in previous years, large salmon could be retained as part of seasonal and daily limits only in Labrador (SFAs 1, 2, and 14B) and in Québec (Q1-Q11).

2) Quotas continued in the recreational fishery of Newfoundland and Labrador and these were generally increased from 1992. These quotas were subdivided into early and late seasons and as the quota for each time period within each SFA was reached, the retention of salmon in the recreational fishery was not permitted for all rivers of that SFA; only hook-and-release fishing was allowed thereafter. Some rivers of SFAs 11, 13 and 14 were managed by individual river quotas.

APPENDIX 3

COMPUTATION OF CATCH ADVICE FOR WEST GREENLAND

The North American Spawning Target (SpT) for 2SW salmon has been set at 193,741 fish.

This number must be divided by the survival rate for the fish from the time of the West Greenland fishery to their return of the fish to home waters (11 months) to give the Spawning Target Reserve (SpR). Thus:

Eq. 1. $SpR = SpT * (\exp(11*M)$ (where M = 0.01)

The Maximum Allowable Harvest (MAH) may be defined as the number of non-maturing 1SW fish that are available for harvest. This number is calculated by subtracting the Spawning Target Reserve from the pre-fishery abundance (PFA).

Eq. 2. $MAH = PFA - SpR$

To provide catch advice for West Greenland it is then necessary to decide on the proportion of the MAH to be allocated to Greenland (f_{NA}). The allowable harvest of North American non-maturing 1SW salmon at West Greenland (NA1SW) may then be defined as

Eq. 3. $NA1SW = f_{NA} * MAH$

The estimated number of European salmon that will be caught at West Greenland (E1SW) will depend upon the harvest of North American fish and the proportion of the fish in the West Greenland fishery that originate from North America [PropNA]. Because there are no samples for 1993, simple exponential smoothing of the observed 1978-1992 values of PropNA is used to generate a forecast for 1994. Thus

Eq. 4. $E1SW = (NA1SW / PropNA) - NA1SW$

To convert the numbers of North American and European 1SW salmon into total catch at West Greenland in metric tonnes it is necessary to incorporate the mean weights of salmon for North America [WT1SWNA] and Europe [WT1SWE] and an adjustment for the age composition of the catch [ACF]. The quota (in tonnes) at Greenland is then estimated as

Eq. 5. $Quota = (NA1SW * WT1SWNA + E1SW * WT1SWE) * ACF/1000$

where

WT1SWNA	=	mean weight (kg) of North American salmon at Greenland, the 1994 value was forecasted as described below
WT1SWE	=	mean weight (kg) of European salmon at Greenland, the 1994 value was forecasted as described below
ACF	=	age correction factor for multi-sea winter salmon at Greenland based on the total weight of salmon caught divided by the weight of 1SW salmon.

Mean weights by continent [WT1SWNA, WT1SWE] and the age correction factor [ACF] for 1994 were forecasted from the 1978-1992 observations. The exponentially smoothed values were based on estimation of an optimal smoothing coefficient and are given in Section 3.3.