REPORT OF THE

TWELFTH ANNUAL MEETINGS

OF THE

NORTH AMERICAN COMMISSION

12-16 JUNE 1995
GLASGOW, SCOTLAND

NORTH-EAST ATLANTIC COMMISSION

12-16 JUNE 1995
GLASGOW, SCOTLAND

WEST GREENLAND COMMISSION

12-16 JUNE 1995
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CHAIRMAN:	MR JEAN-PAUL DUGUAY (CANADA)
VICE-CHAIRMAN:	DR RAY B OWEN, JR. (USA)
RAPPORTEUR:	MS KIMBERLY BLANKENBEKER (USA)
SECRETARY:	DR MALCOLM WINDSOR

NAC(95)10

REPORT OF THE TWELFTH ANNUAL MEETING OF THE NORTH AMERICAN COMMISSION OF THE NORTH ATLANTIC SALMON CONSERVATION ORGANIZATION 12-16 JUNE 1995, HILTON HOTEL, GLASGOW, SCOTLAND

1. OPENING OF THE MEETING

1.1 The Twelfth Annual Meeting of the North American Commission was opened by the Chairman, Mr Jean-Paul Duguay (Canada) who welcomed delegates to Glasgow.

1.2 A list of participants at the Twelfth Annual Meeting of the Council and the Commissions is included on page 165 of this document.

2. ADOPTION OF THE AGENDA

2.1 The Commission adopted its agenda, NAC(95)7 (Annex 1).

3. ELECTION OF OFFICERS

3.1 The Commission elected Dr Ray B Owen, Jr. (USA) as Vice-Chairman.

4. NOMINATION OF A RAPPORTEUR

4.1 The Commission nominated Ms Kimberly Blankenbeker (USA) as its Rapporteur for the meeting.

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 as observers at its meetings for a trial period of two years covering the 1994 and 1995 meetings. The Chairman referred to the deliberations in the Council on the conditions governing attendance of NGOs at the 1996 and subsequent meetings and agreed that the present arrangement continue until further notice. The Commission agreed that accredited media would be allowed to attend its meetings and asked that the Secretary develop appropriate criteria which would be agreed by correspondence and issued before the Thirteenth Annual Meeting.

6. REVIEW OF THE 1994 FISHERY AND 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(95)15, prepared in response to a request from the Commission at its Eleventh Annual Meeting. The ACFM report from ICES which contains the scientific advice relevant to all Commission in included on page 171 of this document.

6.2 The representative from the United States requested that the Chairman of the ACFM explain the significance of the phrase "enumeration of smolts" that appears in its recommendation for NAC data needs. The Chairman of ACFM explained that some portions of the NAC do not have thorough smolt information available but that it is needed to improve the determination of spawning targets.

6.3 The representative from Canada referred to the recommendations from ACFM that all mixed stock fisheries in the NAC area be closed in 1996, and he asked the Chairman of ACFM if ACFM expected something to happen during 1995 that might change the advice for 1996. The Chairman of ACFM explained that the reason the scientific advice applied to the WGC area in 1995 and the NAC area in 1996 was because the West Greenland fishery exploits principally 1SW fish which would return to North American homewaters as 2SW fish the following year. He indicated that the actual pre-fishery abundance of stocks for 1995 would not be known until April next year.

6.4 The US representative asked the Chairman of the ACFM why two charts regarding salmon exploitation seemed to disagree. He pointed out that one chart (Table 5.1.5.3 of the Working Group Report) showed the rate of exploitation of Maine stocks to be 30% for 1993 and the other (Figure 6.1.3.1 of the Working Group Report) showed the exploitation rate to be 5%. The Chairman of ACFM explained that whereas the exploitation rate in Figure 6.1.3.1 relates to the exploitation rate of non-maturing 1SW salmon in the total North American stock complex, and is estimated from the pre-fishery abundance and reported catches, the other estimate in Table 5.1.5.3 relates to the exploitation rate on non-maturing 1SW fish of Maine origin, which is estimated on the basis of external tag recoveries. While not being in a position fully to explain this difference he listed a number of possible factors:

a) the possibility that the Maine origin stock complex may have a different availability to the fishery compared with the total stock complex;

b) the estimate for the Maine stock complex is also based on a very small number of tag recoveries;

c) if not all catches are reported then the estimate for the total stock complex may be biased downwards.

6.5 The representative of Canada made available to the Commission a Report on the Status of Atlantic Salmon Stocks in Eastern Canada in 1994. The representative of the United States made available to the Chairman a copy of the Annual Report of the US Atlantic Salmon Assessment Committee. Copies of these reports have been lodged with the Secretariat and are available on request.

7. REVIEW AND DISCUSSION OF THE 1995 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

7.1 The representative of Canada tabled a document, NAC(95)3 (Annex 2), outlining the Salmon Management measures for Newfoundland and Labrador for 1995.

7.2 The representative from the United States noted that it is illegal to retain any Atlantic salmon in the United States.

8. ST PIERRE ET MIQUELON SALMON FISHERIES

8.1 The Secretary introduced a paper, NAC(95)5 (Annex 3), providing catch statistics for the salmon fisheries on St Pierre et Miquelon. The catch in 1994 was 3.423 tonnes (1656 salmon), the highest in the period of record dating back to 1987. Last year the Commission had recognised a discrepancy between the statistics provided by the Ministère de l'Agriculture et de la Pêche in Paris and those provided by ICES and requested that the Secretary seek clarification on the reasons for the difference. The Secretary reported that he had raised this issue with the French authorities and as there was again a small discrepancy in the catches for 1994, he would pursue this matter further. The Secretary noted that the St Pierre et Miquelon fishery was a mixed stock fishery and further noted that ACFM had recommended closure of these fisheries in the North American Commission area in 1996.

8.2 The representative of the USA raised the question of membership of France (in respect of St Pierre et Miquelon) in other international fisheries fora and suggested the possibility of encouraging France to do the same within NASCO. The representative of Canada referred to a new agreement between Canada and France concerning St Pierre et Miquelon. Under this 10-year agreement, specific reference is made to the responsibility of both France and Canada to comply with salmon conservation measures adopted by NASCO. In addition, it was agreed that there would be no increase in the catch of salmon originating in other countries' rivers without the consent of the other country. The representative of the USA asked if the Commission should pursue the question of the participation of France (in respect of St Pierre et Miquelon) in NASCO since the Canada/France agreement seemed to limit increases in catch but the data presented by the Secretary indicated that St Pierre et Miquelon did increase its catch in 1994. The representative of Canada then stated that Canada and France were to meet in the near future to discuss the implementation of the agreement.

A copy of the agreement was made available to the Commission through the Secretariat.

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

9.1 At its Eleventh Annual Meeting the Commission agreed on amendments to the Protocols for the Introduction and Transfer of Salmonids. A revised Protocol document incorporating the amendments had been circulated for acceptance by correspondence, and it was agreed that the members would then take steps to implement the provisions of the revised Protocols in their respective domestic laws, regulations or policies.

9.2 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 1994/1995, NAC(95)8 (Annex 4). He noted that reports on the Introduction and Transfer of salmonids were provided by the State of Maine and Canada. These

reports were evaluated against the NAC Protocols. Canada had four shipments of rainbow trout from west of the continental divide into the NAC area and one shipment of Atlantic salmon from Maine to Newfoundland which was contrary to the NAC Protocols. However, the shipments of rainbow trout were from a facility with a long history of disease-free status thus meet the intent of the Protocols. Finally, he commented that no progress had been made with regard to updating the status of scientific knowledge on the effects of using non-local strains of salmon in marine and freshwater cage rearing or with regard to providing a review of fish health aspects of the NAC Protocols.

9.3 The US Fish and Wildlife Service and the National Marine Fisheries Service are currently proposing listing as threatened under the Endangered Species Act populations of salmon in seven downeast rivers of Maine. Formal enactment of the Protocols by the United States has been delayed as they are being actively discussed in the context of the US proposed rule to list Atlantic salmon. The use of the Protocols is, however, being encouraged by the Services.

9.4 The NAC Protocols have provisions for amendments every two years. This amendment of the Protocols will be considered in 1996. Lastly, the NAC requested advice on three questions, which have been included in NAC(95)9 (Annex 5).

10. IMPACT OF ACID RAIN ON ATLANTIC SALMON

10.1 There was no new information on this subject.

10.2 The Secretary requested clarification as to whether this Agenda item needed to be retained. It was agreed that the item would not be included for future meetings unless specifically added by a Party.

11. RECOMMENDATIONS TO THE COUNCIL ON THE REQUEST TO ICES FOR SCIENTIFIC ADVICE

11.1 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.

11.2 The Commission reviewed document SSC(95)4 and agreed to recommend it to the Council as part of the annual request to ICES for scientific advice. The request to ICES agreed by the Council, CNL(95)49, is contained in Annex 6.

12. ANNOUNCEMENT OF THE TAG RETURN INCENTIVE SCHEME PRIZE

12.1 The Chairman announced that the draw for prizes in the Tag Return Incentive Scheme was made by the Auditors at NASCO Headquarters on 1 June 1995. The winner of the Commission's prize was Mr James Furlong, Upper Blackville, New Brunswick. The Commission offered its congratulations to the winner.

13. OTHER BUSINESS

13.1 There was no other business.

14. DATE AND PLACE OF THE NEXT MEETING

14.1 The Commission agreed to hold its next meeting during the Thirteenth Annual Meeting of the Council, 10-14 June 1996, in Sweden.

15. CONSIDERATION OF THE DRAFT REPORT OF THE MEETING

15.1 The Commission agreed the draft report of the meeting, NAC(95)4.

ANNEX 1

NAC(95)7
TWELFTH ANNUAL MEETING OF THE NORTH AMERICAN COMMISSION
12-16 JUNE 1995, HILTON HOTEL, GLASGOW, SCOTLAND

AGENDA

1. Opening of the Meeting
2. Adoption of the Agenda
3. Election of Officers
4. Nomination of a Rapporteur
5. Non-Government Observers at Commission Meetings
6. Review of the 1994 Fishery and ACFM Report from ICES on Salmon Stocks in the Commission Area
7. Review and Discussion of the 1995 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. St Pierre et Miquelon Salmon Fisheries
9. Report of the NAC Scientific Working Group on Salmonid Introductions and Transfers
10. Impact of Acid Rain on Atlantic Salmon
11. Recommendations to the Council on the Request to ICES for Scientific Advice
12. Announcement of the Tag Return Incentive Scheme Prize
13. Other Business
14. Date and Place of the Next Meeting
15. Consideration of the Draft Report of the Meeting

ANNEX 2

NORTH AMERICAN COMMISSION

NAC(95)3

NEWS RELEASE OUTLINING 1995 SALMON MANAGEMENT PLAN
Tabled by Canada

News Release
Communiqué
January 10, 1995

MINISTER TOBIN ANNOUNCES 1995 SALMON MANAGEMENT PLAN FOR NEWFOUNDLAND AND LABRADOR

St John's ... Brian Tobin, Minister of Fisheries and Oceans, today announced new conservation measures under the 1995 Salmon Management Plan for Newfoundland and Labrador. These measures, developed after consultations with representatives of the provincial government, recreational fishing industry and conservation groups, are aimed at rebuilding depleted stocks of large salmon in Labrador.

Under the plan, the commercial salmon fishery in Labrador will open July 3, 1995, and quotas will be reduced by 20 per cent, from 92 tonnes in 1994 to 73.5 tonnes, in an effort to stem the continuing decline in the numbers of large salmon on Labrador rivers.

In the recreational fishery, anglers in Labrador may retain only one large salmon for the season. This represents a reduction from the 1994 season when two large salmon could be retained.

"These new conservation measures for Labrador are expected to reduce the exploitation of large salmon by about 30 per cent," said Mr Tobin. "In most areas of Newfoundland and Labrador, the salmon angling season has been shortened by about one week to allow additional escapement for spawning in Newfoundland and Labrador rivers."

Atlantic salmon stocks in Labrador have shown a continuous decline over the past 15 years. The total salmon population there today is only about one-quarter of what it was in the mid-'70s.

"Scientific analyses indicate that the spawning stock of large salmon in Labrador has not replaced itself in any year since 1983," added Mr Tobin.

A five-year moratorium on commercial salmon fishing on the Island portion of Newfoundland was introduced in 1992. Other conservation measures included a voluntary commercial licence retirement program and new fisheries management initiatives for the recreational fishery in support of conservation and habitat renewal. The population has continued to decline, however, because of the low numbers of salmon that spawned six and seven years ago, before more rigorous conservation measures were implemented.

"Every effort must be made now, while the population is low, to increase the number of spawners, especially among large salmon," said Mr Tobin.

Stakeholders such as anglers, outfitters and commercial fishermen are being called upon again this year to make a sacrifice to conserve salmon stocks.

"The reductions will be particularly difficult for commercial salmon fishermen," said Mr Tobin, "but they are necessary to ensure the survival of the Atlantic salmon."

Salmon in Labrador take about six to eight years to complete their life cycle. It will be the end of the decade before benefits of the conservation measures that were implemented in 1992 and 1993 are seen.

For further information:

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Staff Officer - Recreational Fisheries
Fisheries and Oceans
St John's, Newfoundland
(709) 772-2643

Bill Hickey
Communications Director
Fisheries and Oceans
St John's, Newfoundland
(709) 772-0410

THE 1995 ATLANTIC SALMON MANAGEMENT PLAN FOR NEWFOUNDLAND AND LABRADOR

The 1995 Atlantic Salmon Management Plan for Newfoundland and Labrador comprises the following specific details:

COMMERCIAL FISHERY

The commercial salmon fishery is prosecuted only in Labrador in Zones 1, 2 and 14b.

Season Dates

The commercial fishery will open July 3, 1995, nearly a month later than the 1994 opening date of June 6. The fishery in each zone will close October 15 or when the quota has been caught. The delay in opening is expected to allow a greater number of large, multi-sea-winter salmon to escape the fishery and get into the rivers to spawn.

Quotas

Commercial quotas have been reduced by approximately 20 per cent for all three management zones.

	1994	**1995**
Zone 1	24 tonnes	19.0 tonnes
Zone 2	60 tonnes	48.0 tonnes
Zone 14b	8 tonnes	6.5 tonnes
	92 tonnes	73.5 tonnes

RECREATIONAL FISHERY

Season Dates

	Open	**Close**
Newfoundland:		
Zones 3-11, and 14a	June 24	Sept 04
Zones 12 and 13	June 03	Sept 04
Labrador:		
Zone 14b	June 24	Sept 17
Zones 1 and 2	June 24	Sept 17

Bag Limits/Tags

Newfoundland:	Daily	2 fish (small salmon only)
	Season	6 fish (small salmon only)

Anglers will be issued six tags with their licence. Three (of one colour) are for use from season opening to July 31; three (of a different colour) are for use from Aug 1 to Sept 4.

Labrador:	Daily	2 fish
	Season	6 fish (one large, five small)

Angers will be issued six tags with their licence. Five (of one colour) are for use on small salmon only; the sixth (of a different colour) may be used on a large or small salmon. All may be used at any time during the season.

Anglers are reminded that a small salmon is one measuring from 30cm (12 inches) to 63cm (24.8 inches) from the tip of the nose to the fork of the tail. A large salmon is one measuring 63cm or more in length. Salmon measuring less than 30cm may not be taken and, if accidentally caught, must be returned immediately to the water.

River Quotas

The following individual river quotas in Zones 13 and 14a will remain in effect for 1995:

Zone 13:	Barachois River	175
	Fischells Brook	200
	Flat Bay Brook	250
	Fox Island River	50
	Harry's River	350
	Serpentine River	150
	Adies Lake (on Upper Humber River)	100
Zone 14a	Watsons Brook	50
	Pincent's Brook, Pistolet Bay	10
	Lomond River	350

Consideration is being given to setting a quota for Main River, Sop's Arm (Zone 3) and several others; a decision will be made after further consultations. Conne River (Zone 11) will only be opened to angling if the required number of spawners, surplus to conservation requirements and the native food fishery, have returned to the river.

Catch and Release

Catch-and-release fishing will be allowed on rivers closed during the season to retention, unless water conditions present the risk of high mortality.

To lessen crowding on rivers, a regulation may be proposed for the 1996 season requiring anglers to cease fishing once the daily bag limit has been retained.

Anglers are reminded that certain rivers will remain closed for the season, and other will have their own individual opening and/or closing dates. These and other details will be contained in the Angler's Guide, to be published in May, 1995.

January 1995

ANNEX 3

NAC(95)5

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 1994. 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
1994	1656	3.423

3. The provisional catch for 1994 is the highest recorded in the time series since 1987, both in terms of number caught and weight. 15.1% more salmon were caught in 1994 than in 1993. The breakdown of the catch was 1292 salmon (2633 kg) in the commercial fisheries and 364 salmon (790 kg) in the recreational fisheries. These catches are occurring at a time when there is great concern about stock levels in North America. Tag returns from previous years indicate that salmon of Canadian and USA origin have been caught in the fisheries of St Pierre et Miquelon.

4. Last year the Commission recognised a discrepancy between the statistics provided by the Ministère de l'Agriculture et de la Pêche and those provided by ICES and requested that the Secretary seek clarification. I have raised this with the French authorities but they have not, as yet, responded. This year there is again a discrepancy between the ICES figure (2.7 tonnes by commercial fishermen and 1-2 tonnes by recreational fishermen) and those provided by the French authorities (3.4 tonnes) and I will again pursue this with the Ministère de l'Agriculture et de la Pêche.

ANNEX 4

NORTH AMERICAN COMMISSION

NAC(95)8

REPORT OF ACTIVITIES 1994/1995
NAC SCIENTIFIC WORKING GROUP ON SALMONID INTRODUCTIONS AND TRANSFERS

NAC(95)8

REPORT OF ACTIVITIES 1994/1995 NAC SCIENTIFIC WORKING GROUP ON SALMONID INTRODUCTIONS AND TRANSFERS

Members:

Rex Porter (Canada Co-chair)	Jamie Geiger (USA Co-chair)
Tim Carey (Canada)	Chris Mantzaris (USA)
Dick Cutting (Canada)	Don Kimball (USA)

The Scientific Working Group was asked by the NAC at its June 1994 Annual Meeting for advice on three issues (Attachment I). The Scientific Working Group did not meet this past year due to other assignments of the Working Group members and to the absence of the USA co-chair for health reasons.

Task #1 Provide an inventory of Introductions and Transfers of Salmonids in the Commission Area

Reports of the 1994 salmonid introductions and transfers were received from the Canadian provinces and from the State of Maine. The reports from Canada were added to the inventory which was started in 1986 (Attachment II). However the reports from the State of Maine were only recently received and have not yet been added to the inventory. As in recent years, most of the introductions and transfers activities were for commercial aquaculture purposes, with some fish movements for research and for support of recreational fishing. The reports indicated movements of five species of salmonids, namely: Rainbow trout, Atlantic salmon, brook trout, Arctic charr and lake trout.

The reports were reviewed in relation to their adherence to the NAC Protocols. There were 4 shipments of rainbow trout to eastern Canada from west of the Continental Divide in 1994. The donor source for these shipments was a fish culture facility in Washington State with a long history of disease-free status. Thus, the importations meet the intent of the NAC Protocols. One shipment (300,000 eggs) of Saint John River strain Atlantic salmon eggs moved from Maine to Bay d'Espoir Newfoundland, which is Zone II. If these fish are released or reared in marine cages, it would be 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. There were no reports of shipments of salmonids into the Sate of Maine from Europe or from west of the Continental Divide.

Task #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.

Task #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.

No progress was made on either of these two requests for advice due to other work commitments of the Working Group members and prolonged illness of the USA co-chair. The Working Group apologizes for any inconvenience this has caused the North American Commission.

Currently, the National Marine Fisheries Service and the U.S. Fish and Wildlife Service (collectively "the Services") are evaluating a proposed rule to list Atlantic salmon as 'threatened' in seven downeast rivers, in Maine, under the Endangered Species Act of 1973, as amended. In a comprehensive review the Services found, among several factors, that finfish aquaculture has the potential to adversely impact wild U.S. Atlantic salmon populations in the above referenced rivers. The NAC Protocols have not been enacted as law in the USA and currently provide only guidance for fishery resource managers and the aquaculture industry. The amended Protocols as well as other biological , ecological and economical factors are presently being actively discussed by private, state, and federal sectors involved in the proposed rule to list Atlantic salmon as 'threatened'.

Items for consideration by NAC

1. The Working Group feels that the advice requested by the NAC at its 1994 Annual Meeting is important for future reviews of the Protocols. We recommend that the Working Group provide a response for next NAC annual meeting.

2. The Protocols for the Introduction and Transfer of Salmonids are scheduled for review at the NAC annual meeting in 1996. The Scientific Working Group requests direction on how the Commission would like to see the review undertaken.

ATTACHMENT I

NORTH AMERICAN COMMISSION

NAC(94)09

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.

SUMMARY OF SALMONID INTRODUCTIONS AND TRANSFERS IN EASTERN NORTH AMERICA 1986-1994

PREPARED FOR THE:
NORTH AMERICAN COMMISSION (NASCO) SCIENTIFIC WORKING GROUP
ON INTRODUCTIONS AND TRANSFERS OF SALMONIDS
April 7, 1995

ATTACHMENT II

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, 1986-1994 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, 1986-1994 MAINE

FILE LOCATION	ORIGINAL SOURCE (STOCK/STRAIN)	YEAR	NUMBER	STAGE	TRANSFERS SPONSOR/FACILITY (PURPOSE)	YEAR	NUMBER	STAGE	FINAL DISPOSITION 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 LOCATION	(STOCK/STRAIN)	TRANSFERS YEAR	NUMBER	STAGE	SPONSOR/FACILITY (PURPOSE)	FINAL DISPOSITION 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	ARROSTOOK 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)
1006							1992	158000	EGGS	ASI/RANGELY HATCHERY

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										
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, 1986-1994 MASSACHUSETTS

FILE	ORIGINAL SOURCE				TRANSFERS				FINAL DISPOSITION	
	LOCATION	(STOCK/STRAIN)	YEAR	NUMBER	STAGE	SPONSOR/FACILITY (PURPOSE)	YEAR	NUMBER	STAGE	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, 1986-1994 MASSACHUSETTS

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, 1986-1994 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/GRANDE 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					

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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											
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						
4001 QUE,	PISCICULTURE ALLEGHANYS	1994	35000	EGGS	NB, GREENACRES H/GRANDE DIGUE	(AQUACULTURE)					
4002 QUE,	PISCICULTURE ALLEGHANYS	1994	10000	EGGS	NB, TAMARACK FISH FARM/GAGETOWN	(AQUACULTURE)					
4003 QUE,	PISCICULTURE ALLEGHANYS	1994	60000	EGGS	NB, ALVIN CRAFT/HATFIELD POINT	(AQUACULTURE)					
4004 ONT,	RAINBOW SPRINGS H, THAMESFORD	1994	500	FISH	NB, DEWINK IND/CARAQUET	(BIOASSAY)					
4005 QUE,	PISCICULTURE ALLEGHANYS	1994	50000	EGGS	NB, WOLVERTON MOUNTAIN FF/CENTREVILLE	(AQUACULTURE)					
4006 QUE,	PISCICULTURE ALLEGHANYS	1994	300	FISH	NB, WOLVERTON MOUNTAIN FF/CENTREVILLE	(AQUACULTURE)					
4007 ONT,	RAINBOW SPRINGS H, THAMESFORD	1994	500	FISH	NB, DEWINK IND/CARAQUET	(BIOASSAY)					
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						
4008 ME,	KENNEBEC AQUACULTURE	1994	35000	SMOLT	NB, AQUAVENTURES LTD/BACK BAY	(AQUACULTURE)					
4009 ME,	KENNEBEC AQUACULTURE	1994	21000	SMOLT	NB, SEAVIEW SALMON/BACK BAY	(AQUACULTURE)					
4010 ME,	KENNEBEC AQUACULTURE	1994	25000	SMOLT	NB, ELDRIDGE FISHERIES/CONNORS BROS/BEAVER HARBOUR	(AQUACULTURE)					
4011 ME,	KENNEBEC AQUACULTURE	1994	25000	SMOLT	NB, JAIL ISLAND SALMON/ST GEORGE	(AQUACULTURE)					
4012 ME,	ATLANTIC AQUAFARMS INC	1994	7000	SMOLT	NB, HARBOUR DeLOUTRE PRODUCTS/CAMPOBELLO	(AQUACULTURE)					
4013 ME,	DeBLOIS HATCHERY/EASTPORT	1994	150000	SMOLT	NB, CONNORS BROS/FAIRHAVEN, DEER ISLAND	(AQUACULTURE)					
4014 NS,	MERLIN FISH FARM	1994	36000	SMOLT	NB, L&J SALMON LTD/ST GEORGE	(AQUACULTURE)					
4015 NS,	MERLIN FISH FARM	1994	36000	SMOLT	NB, FUNDY SALMON LTD/GT GEORGE	(AQUACULTURE)					
4016 ME	KENNEBEC AQUACULTURE	1994	420000	SMOLT	NB, GRAY AQUA FARMS LTD/HAMPTON	(AQUACULTURE)					
4017 ME,	ATLANTIC AQUAFARMS	1994	4000	SMOLT	NB, HARBOUR DeLOUTRE PRODUCTS/CAMPOBELLO	(AQUACULTURE)					
4018 NS,	MERLIN FISH FARM	1994	150000	SMOLT	NB, ATLANTIC SILVER CO-OP H/ST GEORGE	(AQUACULTURE)					
4019 ME,	DeBLOIS HATCHERY/CHERRYFIELD	1994	70000	FISH	NB, LAKE UTOPIA HATCHERY/LAKE UTOPIA	(AQUACULTURE)					
4020 ME,	KENNEBEC AQUACULTURE	1994	80	SMOLT	NB, NB DEPT OF FISHERIES & AQUACULTURE/ST GEORGE	(STRESS TESTING)					
4021 ME,	KENNEBEC AQUACULTURE	1994	25200	SMOLT	NB, NORDIC ENTERPRISES/LIMEKILN BAY	(AQUACULTURE)					
4022 ME,	KENNEBEC AQUACULTURE	1994	16800	SMOLT	NB, AQUAVENTURES LTD/BACK BAY	(AQUACULTURE)					
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	

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FILE	ORIGINAL SOURCE	TRANSFERS							FINAL DISPOSITION	
	LOCATION (STOCK/STRAIN)	YEAR	NUMBER	STAGE	SPONSOR/FACILITY (PURPOSE)	YEAR	NUMBER	STAGE	LOCATION	(PURPOSE)
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					
4023	QUE, PISCICULUTRE ALLEGHANYS	1994	1000	FRY	NB, UNIVERSITY OF NEW BRUNSWICK (RESEARCH)					
4024	MAN, ROCKWOOD AQUACULTURE RESEARCH	1994	2000	EGGS	NB, ROBYN O'KEEFE, UNB (RESEARCH)					
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					
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					

SUMMARY OF SALMONID INTRODUCTIONS AND TRANSFERS, 1986-1994 NEW BRUNSWICK

FILE	ORIGINAL SOURCE	TRANSFERS							FINAL DISPOSITION	
LOCATION	(STOCK/STRAIN)	YEAR	NUMBER	STAGE	SPONSOR/FACILITY	(PURPOSE)	YEAR	NUMBER	STAGE	LOCATION (PURPOSE)
SALVELINUS FONTINALIS [BROOK TROUT] CONTINUED										
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					
4025 QUE,	PISCICULTURE ALLEGHANYS	1994	25000	FRY	NB, ALVIN CRAFT/HATFIELD POINT (AQUACULTURE)					
4026 PEI,	BROOK VALLEY MARINE,SOURIS	1994	150000	FISH	NB, JEAN MARIE MARTEN/NEW DENMARK (AQUACULTURE)					
4027 PEI,	BROOK VALLEY MARINE,SOURIS	1994	10000	FISH	NB, KENNETH STEVENS/FLORENCEVILLE (AQUACULTURE)					
4028 QUE,	PISCICULTURE ALLEGHANYS	1994	2000	FISH	NB, ROBYN O'KEEFE/UNB (RESEARCH)					
4029 PEI,	BROOK VALLEY MARINE,SOURIS	1994	1000	FISH	NB, HENERY GOGUEN/COCAGNE (AQUACULTURE)					
4030 QUE,	PISCICULTURE ALLEGHANYS	1994	80000	FISH	NB, DOUGLAS DAIGLE/RICHIBUCTO (AQUACULTURE)					
SALVELINUS FONTINALIS X SALVELINUS ALPINUS [CHARBROOK]										
8004 NB,	FLOWERS COVE H (WALTON X PHILLIPS) P	1988	10000	JUV	NB, NBDNRE					MINE PONDS
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

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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] CONTINUED												
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, 1986-1994 NEWFOUNDLAND

FILE LOCATION	ORIGINAL SOURCE (STOCK/STRAIN)	TRANSFERS YEAR	NUMBER	STAGE	SPONSOR/FACILITY (PURPOSE)	YEAR	NUMBER	STAGE	FINAL DISPOSITION 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)

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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										
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	
3084	QUE, PISCICULTURE ALLEGH (DOM TRIPLOID)	1993	600000	EGGS	NFLD, BAY D'ESPOIR HATCHERY	P1994			SEA CAGES	
3085	PEI, BROOKVALLEY MARINE FARM (DOMESTIC)	1993	25000	EGGS	NFLD, RAINBOW FARMS H/HOPEALL	P1994			FISHOUT POND	
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	
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	
4031	QUE, PISCICULTURE ALLEGHANY (TRIPLOID)	1994	500000	EGGS	NFLD, BAY D'ESPOIR HATCHERY	P1995			SEA CAGES	
4032	QUE, PISCICULTURE ALLEGHANY	1994	15000	FRY	NFLD, RAINBOW TROUT FARM/S DILDO	P1995			FISHOUT POND	
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	
4033	ME, KENNEBEC AQUACULTURE	1994	300000	S/FRY	NFLD, BAY D'ESPOIR H (QUAR)	P1995			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	

SUMMARY OF SALMONID INTRODUCTIONS AND TRANSFERS, 1986-1994 NEWFOUNDLAND

FILE LOCATION	ORIGINAL SOURCE (STOCK/STRAIN)	TRANSFERS YEAR	NUMBER	STAGE	SPONSOR/FACILITY	(PURPOSE)	YEAR	NUMBER	STAGE	FINAL DISPOSITION LOCATION	(PURPOSE)
SALVELINUS ALPINUS [ARCTIC CHAR] CONTINUED											
4034 YUK,	POLAR SEAS FISHERIES FARM	1994	6500	<1 GM	NFLD, GNPDC						
4035 PEI,	INTEGRATED AQUATIC SYSTEMS	1994	30000	0-8 GM	NFLD, GNPDC						
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	
4036 PEI,	BROOKVALLEY MARINE (DOMESTIC)	1994	5500	FISH	NFLD, STEPHENVILLE INDUSTRIAL DEV		1944	5500		GROW OUT AND FISHING	

SUMMARY OF SALMONID INTRODUCTIONS AND TRANSFERS, 1986-1994 NEW HAMPSHIRE

FILE	ORIGINAL SOURCE			TRANSFERS				FINAL DISPOSITION	
	LOCATION (STOCK/STRAIN)	YEAR	NUMBER	STAGE	SPONSOR/FACILITY (PURPOSE)	YEAR	NUMBER	STAGE	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, 1986-1994 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, 1986-1994 NEW YORK

FILE	ORIGINAL SOURCE	TRANSFERS							FINAL DISPOSITION	
LOCATION	(STOCK/STRAIN)	YEAR	NUMBER	STAGE	SPONSOR/FACILITY	(PURPOSE)	YEAR	NUMBER	STAGE	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

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										
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)
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)

SUMMARY OF SALMONID INTRODUCTIONS AND TRANSFERS, 1986-1994 NEW YORK

FILE	ORIGINAL SOURCE	TRANSFERS							FINAL DISPOSITION	
LOCATION	(STOCK/STRAIN)	YEAR	NUMBER	STAGE	SPONSOR/FACILITY (PURPOSE)	YEAR	NUMBER	STAGE	LOCATION	(PURPOSE)
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)	
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	

SUMMARY OF SALMONID INTRODUCTIONS AND TRANSFERS, 1986-1994 NEW YORK

FILE	ORIGINAL SOURCE				TRANSFERS				FINAL DISPOSITION	
	LOCATION (STOCK/STRAIN)	YEAR	NUMBER	STAGE	SPONSOR/FACILITY (PURPOSE)	YEAR	NUMBER	STAGE	LOCATION	(PURPOSE)
SALMO TRUTTA [BROWN TROUT] CONTINUED										
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 MO	SILVER CREEK, LAKE ERIE	
8016	NY, RANDOLPH HATCHERY (ROME LAB)	1988	5000	17 MO					DUNKIRK HARBOUR, LAKE ERIE	
8017	NY, BATH HATCHERY				NY, CALEDONIA HATCHERY (REARING)	1988	14000	17 MO	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)
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 ONT	(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, 1986-1994 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					

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										
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					
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					
4037	QUE, PISCICULTURE ALLEGHANYS	1994	50000	EGGS	NS, SUGAR LOAF FISH FARM/OXFORD (AQUACULTURE)					
4038	ONT, RAINBOW SPRINGS H, THAMESFORD	1994	1000	FISH	NS, HARRIS INDUSTRIAL/MILFORD (BIOASSAY)					
4039	ONT, RAINBOW SPRINGS H, THAMESFORD	1994	2000	FISH	NS, ENVIRONMENT CANADA, EPS/DARTMOUTH (BIOASSAY)					
4040	QUE, PISCICULTURE ALLEGHANYS	1994	170000	EGGS	NS, MERLIN FISH FARM/WENTWORTH VALLEY (AQUACULTURE)					
4041	QUE, PISCICULTURE ALLEGHANYS	1994	180000	EGGS	NS, ESKASONI FISHERIES LTD/NEW WATERFORD (AQUACULTURE)					
4042	ONT, RAINBOW SPRINGS H, THAMESFORD	1994	1500	FISH	NS, ENVIRONMENT CANADA, EPS/DARTMOUTH (BIOASSAY)					
4043	ONT, RAINBOW SPRINGS H, THAMESFORD	1994	50000	EGGS	NS, SUGAR LOAF FISH FARM/OXFORD (AQUACULTURE)					
4044	ONT, RAINBOW SPRINGS H, THAMESFORD	1994	1500	FISH	NS, ENVIRONMENT CANADA, EPS/DARTMOUTH (BIOASSAY)					
4045	ONT, RAINBOW SPRINGS H, THAMESFORD	1994	3000	FISH	NS, HARRIS INDUSTRIAL/MILFORD STATION (BIOASSAY)					
4046	ONT, RAINBOW SPRINGS H, THAMESFORD	1994	50000	EGGS	NS, SUGAR LOAD FISH FARM/OXFORD (AQUACULTURE)					
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					

SUMMARY OF SALMONID INTRODUCTIONS AND TRANSFERS, 1986-1994 NOVA SCOTIA

FILE	ORIGINAL SOURCE			TRANSFERS				FINAL DISPOSITION	
LOCATION	(STOCK/STRAIN)	YEAR	NUMBER STAGE	SPONSOR/FACILITY	(PURPOSE)	YEAR	NUMBER STAGE	LOCATION	(PURPOSE)
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					
4047 ME,	KENNEBEC AQUACULTURE	1994	36000 SMOLT	NS, BAYSIDE SEA FARMS/DIGBY (AQUACULTURE)					
4048 ME,	ATLANTIC AQUAFARMS INC	1994	13000 SMOLT	NS, BASIN EXPERIMENTAL FARMS/DIGBY (AQUACULTURE)					
4049 NB,	KELLY COVE AQUACULTURE	1994	350000 G EGGS	NS, MERLIN FISH FARMS		1994	350000		(AQUACULTURE)
4050 NB,	FUNDY SALMON LTD	1994	500000 G EGGS	NS, MERLIN FISH FARMS		1994	500000		(AQUACULTURE)
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					
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, 1986-1994 — 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)
4051	QUE,	PISCICULTURE	1995	150000	E EGGS	ONT, SPRING VALLEY TROUT FARM	1995	150000	E EGGS	AQUACULTURE
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)
4052	NS,	COLDBROOK HAT (LAHAVE RIVER)	P1995	60000	G EGGS	ONT, OMNR/NORMANDALE H	P1995	60000	G EGGS	DEV OF BROODSTOCK
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

SUMMARY OF SALMONID INTRODUCTIONS AND TRANSFERS, 1986-1994 — ONTARIO

FILE	ORIGINAL SOURCE				TRANSFERS				FINAL DISPOSITION	
	LOCATION	(STOCK/STRAIN)	YEAR	NUMBER	STAGE	SPONSOR/FACILITY (PURPOSE)	YEAR	NUMBER	STAGE	LOCATION (PURPOSE)
SALVELINUS ALPINUS [ARCTIC CHAR] CONTINUED										
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
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)
4053	NY,	NYDEC, SENECA LAKE (WILD)	1994	80000	G EGGS	ONT, OMNR/NORMANDALE H	1994	80000	G EGGS	LK ONTARIO (REHAB & BROODSTOCK DEV)
4054	NY,	NYDEC, SENECA LAKE (WILD)	P1995	80000	G EGGS	ONT, OMNR/NORMANDALE H (QUAR)	P1995	80000	G EGGS	LK ONTARIO (REHAB & BROODSTOCK DEV)

SUMMARY OF SALMONID INTRODUCTIONS AND TRANSFERS, 1986-1994 PRINCE EDWARD ISLAND

FILE	ORIGINAL SOURCE	TRANSFERS							FINAL DISPOSITION	
	LOCATION (STOCK/STRAIN)	YEAR	NUMBER	STAGE	SPONSOR/FACILITY (PURPOSE)	YEAR	NUMBER	STAGE	LOCATION	(PURPOSE)
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	
4055	BC, BIG QUALICUM HATCHERY	1994	10000	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)	

SUMMARY OF SALMONID INTRODUCTIONS AND TRANSFERS, 1986-1994 PRINCE EDWARD ISLAND

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										
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)					
4056 WA,	TROUTLODGE INC	1994	25000	E EGGS	PEI, DOVER FISH HATCHERY				DOVER (AQUACULTURE)	
4057 QUE,	PISCICULTURE ALLEGHANYS	1994	55000	E EGGS	PEI, DOVER FISH HATCHERY				DOVER (AQUACULTURE)	
4058 QUE,	PISCICULTURE ALLEGHANYS	1994	25000	E EGGS	PEI, BROOKVALLEY MARINE FARMS				SOURIS (AQUACULTURE)	
4059 NB,	GREENACRES TROUT HATCHERY	1994	3200	FING	PEI, AQUA HEALTH (VACCINE RESEARCH)				TO BE DESTROYED	
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)	

SUMMARY OF SALMONID INTRODUCTIONS AND TRANSFERS, 1986-1994 PRINCE EDWARD ISLAND

FILE LOCATION	ORIGINAL SOURCE (STOCK/STRAIN)	TRANSFERS YEAR	NUMBER	STAGE	SPONSOR/FACILITY (PURPOSE)	YEAR	NUMBER	STAGE	FINAL DISPOSITION LOCATION (PURPOSE)
SALMO SALAR [ATLANTIC SALMON] CONTINUED									
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
4060 NS,	MERLIN FISH FARMS	1994	6000	FING	PEI, AQUA HEALTH (VACCINE RESEARCH)				TO BE DESTROYED

SUMMARY OF SALMONID INTRODUCTIONS AND TRANSFERS, 1986-1994 QUEBEC

FILE LOCATION	ORIGINAL SOURCE (STOCK/STRAIN)	TRANSFERS YEAR	NUMBER	STAGE	SPONSOR/FACILITY	(PURPOSE)	YEAR	NUMBER	STAGE	FINAL DISPOSITION LOCATION	(PURPOSE)
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,	TROUTLODGE	1993	100000	EGGS	QUE,	JEAN-PIERRE REVILLE/HATCHERY				(AQUACULTURE)	
4061 WA,	TROUTLODGE	1994	1150000	EGGS	QUE,	TRUITE DES SOURCES 1990 INC/HATCHERY				(AQUACULTURE)	
4062 WA,	TROUTLODGE	1994	675000	EGGS	QUE,	ROBERT ZAGIEWICH/HATCHERY				(AQUACULTURE)	
4063 WA,	TROUTSPRING FACILITIES	1994	100000	EGGS	QUE,	LIMNO-SERVICE/HATCHERY				(AQUACULTURE)	
4064 ONT,	RAINBOW SPRING HATCHERY	1994	3750	FRY	QUE,	ENVIRONNEMENT LCQ INC/LABORATORY				BIOASSAY	
4065 ONT,	RAINBOW SPRING HATCHERY	1994	6000	FRY	QUE,	ENVIRONNEMENT CANADA/LABORATORY				BIOASSAY	
4066 ONT,	RAINBOW TROUT HATCHERY	1994	2000	FRY	QUE,	MODULE BIOLOGIE ET TOXICITE				BIOASSAY	
4067 ONT,	RAINBOW SPRING HATCHERY	1994	60000	FRY	QUE,	LABORATOIRES ECO-CNFS				BIOASSAY	
4068 ONT,	RAINBOW SPRING HATCHERY	1994	30000	FRY	QUE,	ROBERT ZAGIEWICH/HATCHERY				(AQUACULTURE)	
4069 ONT,	RAINBOW SPRING HATCHERY	1994	1000	FRY	QUE,	CONSULTANTS BEAK LTEE/LABORATORY				BIOASSAY	
4070 ONT,	RAINBOW SPRING HATCHERY	1994	2500	FRY	QUE,	ALAIN BOURGEOIS/LABORATORY				BIOASSAY	
4071 ONT,	RAINBOW SPRING HATCHERY	1994	6000	FRY	QUE,	ANALEX INC/LABORATORY				BIOASSAY	

SUMMARY OF SALMONID INTRODUCTIONS AND TRANSFERS, 1986-1994 QUEBEC

FILE	ORIGINAL SOURCE	TRANSFERS							FINAL DISPOSITION	
	LOCATION (STOCK/STRAIN)	YEAR	NUMBER	STAGE	SPONSOR/FACILITY (PURPOSE)	YEAR	NUMBER	STAGE	LOCATION	(PURPOSE)
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)
4072 NB,	GREENACRES FISH HATCHERY	1994	130000	EGGS	QUE, MAPAQ/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, 1986-1994 RHODE ISLAND

FILE LOCATION	ORIGINAL SOURCE (STOCK/STRAIN)	TRANSFERS YEAR	NUMBER	STAGE	SPONSOR/FACILITY (PURPOSE)	YEAR	NUMBER	STAGE	FINAL DISPOSITION LOCATION (PURPOSE)
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, 1986-1994 VERMONT

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

NORTH AMERICAN COMMISSION

NAC(95)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 on wild salmon stocks, of using non-local strains of salmon and/or genetically modified 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 and the latest revision to the Fish Health Policy of the US Fish and Wildlife Service.

ANNEX 6

COUNCIL

CNL(95)49

REQUEST FOR SCIENTIFIC ADVICE FROM ICES

CNL(95)49

REQUEST FOR SCIENTIFIC ADVICE FROM ICES

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

   a) describe the events of the 1995 fisheries;
   b) describe the status of the stocks and, where appropriate, evaluate the causes for any changes in salmon abundance with special reference to changes in natural mortality;
   c) identify data deficiencies and research requirements relevant to the management of salmon stocks.

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

   a) possible explanations for changes in sea-age at maturity of Atlantic salmon;
   b) the criteria for defining salmon stocks;

3. Update the evaluation of the effects of the following 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 since 1991;
   c) the suspension of commercial fishing activity during 1993 and 1994 at West Greenland.

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

   a) review the age specific target spawning levels in Canadian rivers;
   b) provide catch options with an assessment of risks relative to the objective of achieving target spawning escapement.

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

   a) provide estimates of age specific spawning targets;
   b) provide catch options with an assessment of risks relative to the objective of achieving target spawning escapement;

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 1995.

ANNEX 7

LIST OF NORTH AMERICAN COMMISSION PAPERS

Paper No.	Title
NAC(95)1	Provisional Agenda
NAC(95)2	Draft Agenda
NAC(95)3	News Release Outlining 1995 Salmon Management Plan (Tabled by Canada)
NAC(95)4	Draft Report of the Twelfth Annual Meeting
NAC(95)5	Salmon Fisheries on St Pierre et Miquelon
NAC(95)6	NASCO Tag Return Incentive Scheme - 1995 Prize
NAC(95)7	Agenda
NAC(95)8	Report of Activities 1994/1995, NAC Scientific Working Group on Salmonid Introductions and Transfers
NAC(95)9	North American Commission's Request for Scientific Advice to the Scientific Working Group on Salmonid Introductions and Transfers
NAC(95)10	Report of the Twelfth Annual Meeting
CNL(95)15	Report of the ICES Advisory Committee on Fishery Management
CNL(95)49	Request for Scientific Advice from ICES

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

TWELFTH ANNUAL MEETING

OF THE

NORTH-EAST ATLANTIC COMMISSION

12-16 JUNE 1995
GLASGOW, SCOTLAND

CHAIRMAN:	MR PEKKA NISKANEN (FINLAND (EU))
VICE-CHAIRMAN:	MR ERNESTO PENAS (EU)
RAPPORTEUR:	MR PER IVAR BERGAN (NORWAY)
SECRETARY:	DR MALCOLM WINDSOR

NEA(95)11

CONTENTS

NEA(95)11

REPORT OF THE TWELFTH ANNUAL MEETING OF THE NORTH-EAST ATLANTIC COMMISSION OF THE NORTH ATLANTIC SALMON CONSERVATION ORGANIZATION 12-16 JUNE 1995, HILTON HOTEL, GLASGOW, SCOTLAND

1. OPENING OF THE MEETING

1.1 The Twelfth Annual Meeting of the North-East Atlantic Commission was opened by the Chairman, Mr Pekka Niskanen (Finland (EU)), who welcomed delegates to Glasgow.

1.2 A list of participants at the Twelfth Annual Meeting of the Council and Commissions is included on page 165 of this document.

2. ADOPTION OF THE AGENDA

2.1 The Commission adopted its agenda, NEA(95)7 (Annex 1).

3. NOMINATION OF A RAPPORTEUR

3.1 The Commission nominated Mr Per Ivar Bergan (Norway) as its Rapporteur for the meeting.

4. NON-GOVERNMENT OBSERVERS AT COMMISSION MEETINGS

4.1 At its Tenth Annual Meeting the Commission endorsed a recommendation from the Council to permit attendance of Non-Government Organizations as observers at its meetings for a trial period of two years covering the 1994 and 1995 meetings. The Chairman referred to the deliberations in the Council on the conditions governing attendance of NGOs at the 1996 and subsequent meetings. The Commission agreed that the present arrangements continue until further notice.

4.2 The representative of Denmark (in respect of the Faroe Islands and Greenland) expressed reservations concerning the attendance of NGOs at the Commission meetings since decisions taken by the Commission on regulatory measures are introduced into legislation and become binding. However, he recognised the desirability of increasing the transparency of the Commission meetings and suggested that the press might also be represented in future.

4.3 The Commission agreed that accredited media would be allowed to attend its meetings and asked that the Secretary develop appropriate criteria which would be agreed by correspondence and issued before the Thirteenth Annual Meeting.

5. REVIEW OF THE 1994 FISHERY AND ACFM REPORT FROM ICES ON SALMON STOCKS IN THE COMMISSION AREA

5.1 The Chairman of the ACFM, Mr Eskild Kirkegaard, presented the scientific advice from ICES relevant to the North-East Atlantic Commission, CNL(95)15, prepared in response to a request from the Commission at its Eleventh Annual Meeting. The ACFM report from ICES which contains the scientific advice relevant to all Commissions is included on page 171 of this document.

5.2 The representative of Denmark (in respect of the Faroe Islands and Greenland) stressed the importance of the research fishing programme in the Faroese zone which should result in improvements in the science. He referred to estimates provided by ACFM of increases in stock size in Scandinavia, Finland and Russia as a result of the compensation arrangement for the Faroese fishery which indicated that while these increases were between 4-12% for multi-sea-winter salmon the ACFM report stated that the increase was within the annual variation and was not statistically significant. He requested clarification of the term "apparent decline" used in the ACFM report and questioned whether a decline was detectable in the pre-fishery abundance estimates provided by ICES. He therefore expressed doubts about the basis for the ACFM recommendation.

5.3 The representative of ICES stressed that the analysis of pre-fishery abundance data is preliminary and that further information is needed before a more precise estimate can be made. Nevertheless, the data show a decline in the pre-fishery abundance of non-maturing 1SW salmon, the statistical significance of which is uncertain, but on the basis of information on the status of stocks in the North-East Atlantic area, ACFM had, for precautionary reasons, recommended that there should be no increase in levels of exploitation of non-maturing 1SW salmon in mixed stock fisheries. The representative of ICES indicated that this referred to all salmon not maturing at one sea winter and that this recommendation did not refer to exploitation by a particular Party.

5.4 The representative of Norway supported the research programme in the Faroese zone and requested clarification as to the meaning of the statement that levels of exploitation in mixed stock fisheries should not increase. The representative of ICES indicated that mixed stock fisheries exploit both stocks which are healthy and those that are not. While it was not possible to make a recommendation for a specific quota, the recommendation cautioned against any increase of the present level of exploitation in mixed stock fisheries. The representative of Denmark (in respect of the Faroe Islands and Greenland) stated that rather than focusing on recruitment, attention should be paid to spawning levels in rivers and all factors which could influence spawning stocks should be considered.

6. ENVIRONMENTAL QUALITY OF SALMON RIVERS

6.1 At its Eleventh Annual Meeting, the representative of Sweden referred to alarming trends in salmon populations in Swedish West Coast rivers. The parasite *Gyrodactylus salaris* had been found and further investigations were being undertaken. The representative of Norway had underlined the need for cooperation between the two Parties to control the parasite and prevent its spread.

6.2 The representative of Sweden advised the Commission that, since the last meeting, the first meeting of scientists and administrators from Norway and Sweden had taken place and considerable progress had been made. He also referred to the Swedish liming programme which commenced in 1976 and is a large-scale activity financed by Government subsidy. He referred to a publication 'Liming of Acidified Surface Waters' prepared by the Swedish Environmental Protection Agency which summarises the Swedish research and development programmes in relation to acidification and their experiences of liming. A copy of this publication has been lodged with the Secretariat.

7. REPORT OF THE NEAC WORKING GROUP ON SALMONID INTRODUCTIONS AND TRANSFERS

7.1 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 Terms of Reference for the Working Group were agreed at the Eleventh Annual Meeting and it was suggested that the Working Group should meet twice during the year.

7.2 The Secretary introduced the report of the Working Group on Introductions and Transfers, NEA(95)3 (Annex 2), and referred to the pressures for the removal of barriers to trade and the possible increase in the risks to wild salmon stocks. The Working Group recognised that if the Commission wished to have confidence that wild salmon stocks are protected there would have to be recommendations on measures stronger than those at present in force. The Working Group had formulated recommendations for consideration by the Commission.

7.3 The Commission welcomed the report of the Working Group but recognised that further work was needed on the classification of rivers and on the concept of zones designed to reduce the spread of unknown diseases and parasites. It agreed that work on these areas should be undertaken by the Secretary and if necessary by an Ad Hoc Working Group to be chaired by the Secretary. The Commission considered a document, NEA(95)12 (Annex 3), which had been prepared by the European Union based on the recommendations of the Working Group on Introductions and Transfers. The Secretary noted that the document did not refer to the need to develop measures, in connection with the rivers classification, to safeguard the wild stocks from introductions and transfers. The representative of the European Union indicated that the intention was to examine and consider the development of relevant measures to protect the wild stocks. The Commission agreed that this would be valuable and adopted the document.

8. REGULATORY MEASURES

8.1 The representative of Denmark (in respect of the Faroe Islands and Greenland) stated that there was no specific biological advice to justify a change in the present quota arrangement. The representatives of Norway, Iceland and the European Union stressed the need for meaningful discussions on a regulatory measure for the Faroe Islands.

8.2 The Commission considered a proposal from the Chair for a regulatory measure for fishing of salmon in the Faroe Islands for the calendar year 1996, NEA(95)10

(Annex 4). Upon a vote, Denmark (in respect of the Faroe Islands and Greenland), the European Union, Finland, Norway, the Russian Federation and Sweden voted in favour of the proposal. Iceland abstained from the vote. The regulatory measure was therefore adopted. The quota was agreed as an interim measure leading towards a quota based on a predictive biological model as soon as such scientific advice is available and was not opposed subject to the condition that the situation be thoroughly examined on the basis of all available information at the Thirteenth Annual Meeting.

8.3 The representative of Denmark (in respect of the Faroe Islands and Greenland) stated that he had voted for the proposal with some hesitation. However, as an interim measure while waiting for detailed catch advice, he had been able to accept it. He indicated that he was satisfied that the quota set had been calculated according to a formula, which Denmark (in respect of the Faroe Islands and Greenland) had proposed, to regulate the quota in the Faroese Fishery Zone according to catches in homewaters. This provides a rational basis for the quota which reflects, in a simple fashion, the combined effect of measures taken in homewaters and changes in the stock situation. The representative of Denmark (in respect of the Faroe Islands and Greenland) informed the Commission that if fishery licences are granted in 1996 the Home Government of the Faroe Islands intends to allocate not more than 390 tonnes of the quota.

8.4 The representative of the European Union indicated that the measure was an important step forward. He noted that next year the Commission would thoroughly evaluate the situation with a view to making further progress. He had noted the statement by the representative of Denmark (in respect of the Faroe Islands and Greenland) concerning the allocation of licences and he stated that as far as the European Union is concerned the 470 tonne quota represents a compromise.

8.5 The representative of Norway expressed his delegation's satisfaction that a NASCO quota had been reached. He stated that it was not easy for Norway to accept the measure and referred to the need for further research fishing. He supported the statement made by the representative of the European Union and emphasised the importance of the statement by the representative of Denmark (in respect of the Faroe Islands and Greenland) that not more than 390 tonnes would be fished. He indicated that Norway was able to accept the prolongation of the fishing season for one year only.

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

9.1 The Secretary 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.

10. RECOMMENDATIONS TO THE COUNCIL ON THE REQUEST TO ICES FOR SCIENTIFIC ADVICE

10.1 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.

10.2 The Commission reviewed document SSC(95)4 and agreed to recommend it to the Council as part of the annual request to ICES for scientific advice. The request to ICES agreed by the Council, CNL(95)49, is contained in Annex 5.

11. ANNOUNCEMENT OF THE TAG RETURN INCENTIVE SCHEME PRIZE

11.1 The Chairman announced that the draw for prizes in the Tag Return Incentive Scheme was made by the Auditors at NASCO Headquarters on 1 June 1995. The winner of the Commission's prize was Mr Martin Røbergvik of Salsbruket, Norway. The Commission offered its congratulations to the winner.

12. OTHER BUSINESS

12.1 There was no other business.

13. DATE AND PLACE OF THE NEXT MEETING

13.1 The Commission agreed to hold its next meeting during the Thirteenth Annual Meeting of the Council, 10-14 June 1996, in Sweden.

14. CONSIDERATION OF THE DRAFT REPORT OF THE MEETING

14.1 The Commission agreed the draft report of the meeting, NEA(95)4.

ANNEX 1

NEA(95)7
TWELFTH ANNUAL MEETING OF THE
NORTH-EAST ATLANTIC COMMISSION
12-16 JUNE 1995, HILTON HOTEL, GLASGOW, SCOTLAND

AGENDA

1. Opening of the Meeting
2. Adoption of the Agenda
3. Nomination of a Rapporteur
4. Non-Government Observers at Commission Meetings
5. Review of the 1994 Fishery and ACFM Report from ICES on Salmon Stocks in the Commission Area
6. Environmental Quality of Salmon Rivers
7. Report of the NEAC Working Group on Salmonid Introductions and Transfers
8. Regulatory Measures
9. Fishing for Salmon in International Waters by Non-Contracting Parties
10. Recommendations to the Council on the Request to ICES for Scientific Advice
11. Announcement of the Tag Return Incentive Scheme Prize
12. Other Business
13. Date and Place of Next Meeting
14. Consideration of the Draft Report of the Meeting

ANNEX 2

NORTH-EAST ATLANTIC COMMISSION

NEA(95)3

REPORT OF THE NORTH-EAST ATLANTIC COMMISSION WORKING GROUP ON INTRODUCTIONS AND TRANSFERS OF SALMONIDS

NEA(95)3

REPORT OF THE NORTH-EAST ATLANTIC COMMISSION WORKING GROUP ON INTRODUCTIONS AND TRANSFERS OF SALMONIDS

1. At its Eleventh Annual Meeting the Commission established a Working Group to advise on the adequacy of existing controls concerning introductions and transfers and to make recommendations for strengthened controls and other measures if necessary. The Working Group held two meetings (November 1994 and March 1995) and as a result of an excellent spirit of cooperation was able to make considerable progress in a very short period of time.

2. The report of the Working Group is attached and the Commission will be asked to consider the report and to decide what action it will take regarding the recommendations which are contained in Section 7 of the report.

Secretary
Edinburgh
24 May 1995

NEA(95)3

REPORT OF THE NORTH-EAST ATLANTIC COMMISSION WORKING GROUP ON INTRODUCTIONS AND TRANSFERS OF SALMONIDS

1. Opening of the Meeting

1.1 The Chairman of the Working Group, Dr Malcolm Windsor, opened the meeting and referred to the fact that we are in an era when there are pressures for the removal of barriers to trade. While this brings undoubted benefits, relaxing controls on trade in fish increases the risk of spreading diseases and parasites with serious consequences for wild salmon stocks. The spread of the parasite *Gyrodactylus salaris* from the Baltic area to Norwegian rivers draining into the Atlantic resulted from a trade in live fish and has highlighted the serious damage that can be caused inadvertently as a result of stock movements. There are also risks of genetic and ecological damage to wild stocks when aquatic organisms are introduced or transferred. He concluded that the challenge before the Working Group was to examine the measures necessary to safeguard the wild stocks without restricting trade more than is necessary.

1.2 The Working Group met twice, on 24/25 November 1994 in London and on 30/31 March 1995 in Bath. A list of participants is contained in Appendix 1.

2. Adoption of the Agenda

2.1 The Working Group adopted its agenda, IAT(94)8, (Appendix 2).

3. Consideration of the Terms of Reference

3.1 At its Eleventh Annual Meeting the North-East Atlantic Commission agreed the following Terms of Reference:

"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."

3.2 The Working Group discussed the interpretation of these Terms of Reference. It was agreed that "other potential vectors" should include vectors of diseases and parasites including fishing gear and equipment, ballast water, and other species of fish. The

question also arose as to whether the reference to salmonid populations was only in relation to disease control or whether it also applied to genetic and ecological aspects. The Working Group agreed to interpret the Terms of Reference as including all aspects relating to the impacts of salmonid introductions and transfers on salmon. The Working Group was advised of the existence of rules developed by the World Trade Organization which might have implications for movements of fish; however, the priority was the protection of the wild stocks.

4. Review of the Adequacy of Existing Controls on Introductions and Transfers

National Legislation

4.1 The Working Group reviewed the existing national legislation, and Directives applying within the European Union, concerning introductions and transfers. A summary of this legislation is contained in IAT(94)11, (Appendix 3).

International Guidelines and Codes of Practice

4.2 The Working Group reviewed the existing International Guidelines and Codes of Practice concerning Introductions and Transfers, IAT(94)7, (Appendix 4). This review indicated that there is a considerable difference in the scope of the existing agreements. Some commit signatories to take measures to protect against damage resulting from introductions and transfers but offer no guidance on the nature of the measures required. Others, such as the ICES Code of Practice to Reduce the Risks of Adverse Effects Arising from Introductions of Non-Indigenous Marine Species, provide general guidance. While most agreements cover a wide range of aquatic organisms, only the Protocols developed by the North American Commission of NASCO deal specifically with salmonids. Furthermore they provide detailed measures to protect wild salmon stocks from the adverse impacts of introductions and transfers and are being incorporated in the domestic laws, regulations and policies of Canada and the United States. In the North-East Atlantic Commission area, despite the existence of a number of international agreements, the parasite *Gyrodactylus salaris* has been introduced across international borders and spread within countries, threatening salmon stocks in the area with extinction. The Working Group agreed that it would therefore be appropriate to formulate recommendations on strengthened measures for consideration by the North-East Atlantic Commission.

4.3 A draft Aquatic Animal Health Code, which is being developed by the Office Internationale des Epizooties (OIE), was drawn to the attention of the Working Group. It is expected that the Code will be finalised during 1995. Many of the principles contained in the Draft Code are similar to those contained in the EU "Council Directive of 28 January 1991 Concerning the Animal Health Conditions Governing the Placing on the Market of Aquaculture Animals and Products (91/67 EEC)". The OIE Code will not be restricted in scope to aquaculture animals but neither of these instruments are intended to deal with genetic or ecological risks.

5. Case Studies

5.1 For centuries man has introduced species in order to improve the native fauna. Such introductions were especially common in the nineteenth century when there was much human migration and societies dedicated to introducing exotic plants and animals flourished. Although intended to enhance production of species favoured by humans, many introductions had unanticipated negative impacts on the native species and their habitat. In addition to intentional introductions, inadvertent movements (for example in ships' ballast water or as a result of engineering works) have also had damaging effects. In recent years there has been increasing interest in introductions and transfers for aquaculture, restoration of stocks or improvement of fisheries and considerable concern has been expressed within NASCO about the possible adverse impacts on the wild stocks from salmonid introductions and transfers.

5.2 In order to assist the Working Group in identifying the nature of strengthened controls which might be necessary to safeguard wild stocks in the light of these increasing introductions and transfers, the Working Group studied two cases, the spread of Gyrodactyliasis caused by *Gyrodactylus salaris* and furunculosis caused by *Aeromonas salmonicida*. These demonstrated the very serious risks to the wild stocks.

Gyrodactylus salaris

5.3. The genus Gyrodactylus is a group of parasitic flatworms which give birth to live offspring and which spend their entire life-cycle on one host. They occur on the skin, and occasionally on the eyes and gills, of the fish they parasitise and can reproduce rapidly. *Gyrodactylus salaris* is restricted in its distribution to Europe and was first described in 1957 after being found on salmon parr at a fish farm on the River Indalsälven draining into the Baltic in northern Sweden. As with other Gyrodactylids this species occurs in fish farms but does not usually cause problems and can be successfully treated. However, in July 1975 the species was found in western Norway following a period of high mortality at the Sundalsøra hatchery near to the river Driva, and the following month it was found in the river Lakselva where the salmon population suffered high mortality to the extent that within two years the population had almost completely disappeared. By 1984 it was estimated that the parasite had caused losses to the Norwegian salmon fishery of between 250-500 tonnes. Initially it was thought that the mortality was due to environmental change in the river but following the discovery of the parasite in three other rivers it was hypothesised that the parasite had been introduced to Norway and subsequently dispersed by stocking. In 1989 the Swedish ecologist Malmberg, who first identified the parasite, concluded that "fish transports with *Gyrodactylus salaris*-infected small salmon helped the parasite to pass the former geographical barrier, the Scandinavian mountains, and thereby reach a new area, Norway, with rivers to the Atlantic Ocean and a form of salmon, the Atlantic salmon, genetically different from the Baltic salmon. A few rivers may have been infected via locally arranged import of salmon or rainbow trout, or via a local hatchery. Most infected rivers, however, seem to have been infected via stocking of parr from a central hatchery".

5.4 By the end of 1992 the parasite had been recorded in 37 rivers and 36 hatcheries in Norway. The spread of the parasite has been attributed to:

- stocking for enhancement purposes from infected hatcheries;
- changing of water and dumping of moribund smolts during transportation;
- escape of infected fish from hatcheries;
- movement of fish through brackish waters to neighbouring rivers.

5.5 Within the salmonids there is a marked difference in susceptibility to *Gyrodactylus salaris* from brown trout and Baltic salmon (restricted parasite attachment, establishment and reproduction almost non-existent, infection eliminated), through rainbow trout (parasite establishment, parasite reproduction moderate, infection not eliminated) to Norwegian Atlantic salmon (highly susceptible, parasite reproduction high, elimination of infection not observed). It has been suggested that selective breeding or "artificial" introgression may in time accelerate the accumulation of genes for resistance against attack. However, the Norwegian authorities' plan of action is to prevent the spread of the parasite, to eliminate it from as many rivers as possible and to preserve local salmon stocks so that these can be restored following elimination of the parasite. The efforts of the Norwegian authorities to prevent the further spread of the parasite to rivers and hatcheries have been successful. The treatment programme has involved the use of rotenone followed by re-establishment of the populations using gene banks or local stocks. This is very labour-intensive work over a period of 10-12 days followed by monitoring and restoration. Twenty-two rivers have been treated successfully with rotenone, ten of which have been taken off the restricted list and re-opened for fishing. The parasite has been eliminated from all but one of the treated rivers. Treatment of large river systems in this way would, however, be almost impossible. In the Drammenselv, for example, stock enhancement is being used as an alternative to rotenone treatment to maintain the stock.

5.6 In recent years the parasite *Gyrodactylus salaris* has been detected in rivers in northern Finland, Russia and, it is now believed, on the Swedish West Coast. In Finland, the parasite appears to have been introduced to Lake Inari with movements of rainbow trout and there is real concern that the parasite might spread to the Teno (Tana) river, a very important salmon river for both Finland and Norway. During 1993, sampling revealed the presence of the parasite on one wild fish from Lake Inari but it is believed that the parasite is no longer present in the lake. In Russia the parasite has been found in the river Keret which drains into the White Sea. In this case it is believed that the parasite was transferred from Lake Onega, which drains into the Baltic, to a hatchery on the river Kem and that stock from this hatchery was planted into the river Keret. In 1992 salmon in this river experienced high levels of mortality. Since 1988 there has been an alarming decline in juvenile salmon densities in the four largest Swedish West Coast rivers. It was reported at NASCO's Eleventh Annual Meeting that *Gyrodactylus salaris* had been found and that further investigations were being undertaken so that a clearer assessment of the occurrence and impacts of the parasite in Swedish rivers may be obtained. Subsequent research has revealed low levels of abundance of *Gyrodactylus salaris*. The parasite has also been detected in Spain, Germany and Denmark but in these countries it has only been identified on hatchery fish. While it is not known to occur in the British Isles, experimental exposure of two Scottish stocks has demonstrated their susceptibility to the parasite, and it is vitally important that the further spread of the parasite is prevented.

5.7 It is clear then that, despite the controls existing at the time, the parasite *Gyrodactylus salaris* has caused severe damage in Norwegian rivers and threatens Atlantic salmon populations in other North-East Atlantic countries.

Furunculosis

5.8 Furunculosis is a specific infective disease caused by the bacterium *Aeromonas salmonicida.* It was identified in continental Europe in 1894 and has been recorded also in North American and Japan, where it may cause infections in both reared and wild salmonids. It was probably introduced to Great Britain in imported trout and it assumed a more serious aspect for salmon in the 1920s when there were many outbreaks of disease in wild salmon populations. This led to the Diseases of Fish Act 1937 which made provisions to prevent the introduction and spread of fish diseases (especially salmonid diseases) in Britain.

5.9 Furunculosis was first recorded in Norway in 1964 following the import of rainbow trout from Denmark. A disease eradication programme at farms was carried out and was completed by 1969. However, following an import of smolts from Scotland furunculosis was found in Atlantic salmon in marine farms in 1985. It is believed that following severe storms in 1988 and 1989 some farmed salmon infected with furunculosis escaped and spread the disease when they subsequently ascended rivers. By the end of 1992 fish infected with furunculosis had been found in 74 Norwegian rivers. The extent of the mortality in these rivers has varied but in some rivers large numbers of wild salmon have died from the disease.

Discussion

5.10 In discussing these case studies the Working Group recognised that in the case of *Gyrodactylus salaris,* at the time of the stock movements from the Baltic area, the parasite was not known to be a danger to Atlantic salmon. In this case the parasite was transferred on live fish to a hatchery where it was held in a facility which also held salmon for release to a number of rivers containing wild salmon. It was only after fish carrying the parasite had been introduced to the wild that the acute pathogenicity of the parasite to Atlantic salmon became apparent. The point was made that in the case of introductions and transfers of fish, unknown and potentially damaging pathogens may appear and the only way to protect wild salmon stocks would be to prevent stock movements, particularly of live fish. In the case of the import of furunculosis to Norway the view was expressed that while the methods for detecting *Aeromonas salmonicida* or carrier fish were not 100% effective, the introduction of the disease would have been unlikely to have occurred under the present system of epidemiological zones since movements from an area where the disease was endemic (Scotland) to one where the disease was absent (Norway) would not now be permitted. The furunculosis case study also demonstrates the damaging role that infected farmed fish can play in transmitting disease to wild populations. The Working Group recognised that while these two case studies highlight the dangers posed to the wild salmon stocks from diseases and parasites there are also serious risks of adverse genetic and ecological interactions associated with stock movements, even movements of eggs.

6. Rationale for New Conservation Measures

6.1 The Working Group, having considered evidence of the damage that can be done to wild salmon stocks by introductions and transfers, recognised that such movements pose genetic, ecological and disease and parasite risks to the wild Atlantic salmon. It is clear that such damage can be so severe as to render certain wild salmon stocks extinct. The fact that diseases and parasites have been first introduced and then spread into other areas previously unaffected strongly suggests the inadequacy of the arrangements existing at the time, whether that be because of the nature of those arrangements or because of lack of implementation. Although in some areas there has been a strengthening of legislation, in other areas there has been a weakening in control partly due to the demands of free trade.

6.2 The Working Group opened to question the underlying philosophy of the present arrangements which are based on the control of known problems and often stem from earlier approaches in agriculture. There is a fundamental difference between the land animals and fish. Epidemiological controls, for example, based on agriculture, operate in a situation where there are few wild animals to protect and the main transfers are of reared stocks which have been very well studied. In the case of fish, however, there are major wild populations to consider and our knowledge of fish is less comprehensive than our knowledge of land-based animals. Control of an exotic species of fish, disease or pathogen, once it has been introduced to the aquatic environment, may not be possible and will involve considerable effort and expense. There are, no doubt, many pathogens of fish that are not known to us. The Group recognised that it is not possible to monitor fish stocks for a problem, whether it be disease, parasitic or genetic, of which the authorities are unaware. It is, for example, this lack of knowledge which allowed the parasite *Gyrodactylus salaris* to be introduced and spread. Moreover, recent disease legislation is based on the needs of aquaculture rather than the potential risks to wild stocks.

6.3 This led the Group to the conclusion that the only safe course is to invoke a precautionary approach. Such an approach is already under active discussion in other international fisheries fora and may be stated as "lack of scientific knowledge should not be used as a reason to postpone or fail to take conservation measures where there is risk to a species". Such an approach is particularly appropriate in the case of introductions and transfers where the risks of damage are high but our knowledge is incomplete. This suggests that all introductions and transfers can be considered risky and should, where possible, be avoided. The Group considered the implications for trade of a complete ban on international trade in live salmon and we believe that, though there would have been real problems for the aquaculture industry of such a ban during its initial establishment and growth periods, there would be little negative impact today. In the case of the wider case of salmonids as a whole there could be problems for trade because of movements of live rainbow trout in continental Europe. Nevertheless, this practice poses a risk to wild salmon which needs consideration.

7. Recommendations on Introductions and Transfers

7.1 The Working Group came to the view that, if the North-East Atlantic Commission wishes to have confidence that wild salmon stocks are properly protected, there would have to be recommendations on measures stronger than those at present in force. The

Group then looked at a number of options for making conservation of the wild stocks more assured and agreed on the recommendations below. These recommendations do not apply to the use of introductions or transfers for research purposes provided that fish moved for such purposes are held in secure quarantine facilities. The recommendations are complementary to those concerning salmon farming, ranching and enhancement in the Resolution by the Parties to the Convention for the Conservation of Salmon in the North Atlantic Ocean to Minimise Impacts from Salmon Aquaculture on the Wild Salmon Stocks (CNL(94)53) adopted by the Council in 1994. The Commission might wish to consider how best to integrate both sets of recommendations in any guidance which follows from this report, to ensure that the potential problems posed to the genetic integrity of wild stocks from escapes from salmon farms, ranching and the release of fish for enhancement purposes are properly addressed.

7.2 **Movements originating from outside the North-East Atlantic Commission Area**

Movements into the Commission area of live Atlantic salmon and their eggs which have originated from outside the Commission area should not be permitted.

Implications: This measure would prohibit imports of live salmon and their eggs from areas such as North America. It would not prohibit, for example, movements of live salmon and their eggs from France to Russia or Norway to Finland and it would not prohibit the movement of other live salmonids and their eggs into the Commission area.

Rationale: Genetic differences between salmon populations tend to increase with geographical distance and major differences have been demonstrated between, for example, European and North American salmon stocks. In recognition of these genetic differences the North American Commission Protocols ban the importation of reproductively viable strains of European origin salmon to that Commission area.

7.3 **Transgenic Atlantic salmon**

Transgenic Atlantic salmon (and other salmonids containing genetic material from Atlantic salmon) should not be permitted in the Commission area except in secure self-contained facilities.

Implications: Any development of transgenic Atlantic salmon would be strictly controlled.

Rationale: The development of techniques to transplant genes in fish could lead to possibilities for unintentional transmission of transplanted genes to wild stocks through interbreeding. There are potentially severe risks to the wild stocks from such interbreeding.

Note: One Party indicated some concern about the provisions of this paragraph because of possible implications for the trade in genetically modified animals.

7.4 Movements within the North-East Atlantic Commission Area

7.4.1 *Specified diseases and parasites*

Mapping of the presence of serious diseases and parasites should be used to establish epidemiological zones, i.e. zones free of specific pathogens, covering the Commission area. Such zones have been created for certain diseases under the European Union's legislation. Management measures within these zones should include monitoring to confirm the disease status of a zone and eradication. These zones should be established for at least the following diseases: Viral Haemorrhagic Septicaemia (VHS), Infectious Haematopoietic Necrosis (IHN), Infectious Salmon Anaemia (ISA) and the parasite *Gyrodactylus salaris*.

Movements of live salmonids and their eggs from a zone where any of the specified diseases is present to a zone free of these diseases should not be permitted. However, movements of salmonid eggs should be permitted where there is no risk of transmission of the specified diseases or parasite.

Implications: This measure would prohibit the movement of fish and restrict the movement of eggs from low health status to high health status zones but it would have no impact on movements within a zone. It would not necessarily have an impact on the spread of unknown diseases.

Rationale: This measure is concerned only with controlling the spread of diseases and parasites. It is recognised that there is less threat of introducing many of the major diseases and parasites with eggs which can be disinfected.

7.4.2 *Unknown diseases and parasites*

The Working Group recommends the strengthening of procedures for the early identification and detection of, and rapid response to, an outbreak of a previously unknown disease or parasitic infection likely to affect Atlantic salmon. However, it is recognised that even with such procedures it may not be possible to respond in time to prevent the spread of such an infection. The Group therefore considered the concept of zones designed to reduce the spread of such diseases. Such zones could reinforce natural barriers to the spread of diseases and parasites. They could be defined using geographical, climatic and biological criteria and might involve the territories of one or of more than one Party. Movements of live salmonids between such zones would be prohibited.

The Working Group recognised that such zones would be effective in reducing the spread of unknown diseases and parasites, and some members of the Working Group were in favour of recommending the establishment of such zones to limit the spread of unknown diseases so as to act now to safeguard the wild stocks. Others however felt that such an approach would create problems with internal markets and that the establishment of meaningful criteria for defining such zones would require careful consideration.

7.4.3 *Health inspections of donor facilities*

Movements of live salmonids and their eggs from hatcheries to areas containing Atlantic salmon stocks, or to facilities where there is a risk of transmission of infection to such areas, should only take place from facilities where regular inspections have not detected significant diseases and parasites.

Implications: The impact of this measure would depend upon the frequency and nature of the health inspections prescribed.

Rationale: This element is also concerned principally with disease and parasite problems and is intended to reduce the risk of spreading a disease to the wild stocks in a zone. It recognises the need to monitor facilities to confirm their disease status.

7.5 Movements of Non-Indigenous Fish Species

No non-indigenous fish species should be introduced into a river containing Atlantic salmon without a thorough evaluation of the potential adverse impacts on the Atlantic salmon population(s) which indicates that there are no risks of adverse ecological interactions. Where a decision is taken to proceed with the introduction of a non-indigenous species it should be carried out in accordance with the codes of practice developed by ICES and EIFAC.

Introductions of non-indigenous anadromous salmonids into the Commission area should not be permitted.

Implications: This measure is to protect salmon rivers without adversely affecting the movements of non-salmonids.

Rationale: These options recognise that non-indigenous fish have the capacity to adversely affect Atlantic salmon stocks through ecological interactions. Non-indigenous anadromous salmonids pose a particular risk to wild salmon stocks.

7.6 Classification of Rivers

The Working Group supports the development of a classification of Atlantic salmon rivers and proposes that a classification system, based on the NASCO Salmon Rivers Database but perhaps including an additional category for rivers which are of particular value, might form a suitable basis for the development of management measures in relation to introductions and transfers. The rationale for this approach is to permit different measures to be developed for each class of river. Given the diversity of rivers, salmon stocks and geography within the Commission area, the measures required will probably differ from Member to Member. The Working Group recommends that the North-East Atlantic Commission encourages its Members to provide information for inclusion in the database to the NASCO Secretariat as a matter of urgency. The Group also recommends that the Commission establishes an ad hoc Committee to review the suitability for this purpose of the descriptive classes

used in the database and to propose both a classification system and the management measures which might be developed for each class of river.

Implications: This element is principally to limit the extent of any genetic impacts on the wild stocks. It could restrict aquaculture activities (farming, ranching and enhancement) in particular rivers depending on how each river is classified.

Rationale: In addition to disease risks, the Working Group recognizes that there are genetic and ecological risks to wild Atlantic salmon stocks from transfers and as a result of escapes from aquaculture. The Resolution of the NASCO Council to Minimise Impacts from Salmon Aquaculture on the Wild Salmon Stocks recognised these risks and recommended that mechanisms to control transfers should be introduced where necessary. Classification of rivers has the advantage of offering greater protection to rivers where the status of the stocks is high while offering flexibility in cases where salmon stocks have already been damaged or modified.

A classification system for rivers might be based on the following five classes, as used in the NASCO Salmon Rivers Database, but some rivers might be designated as being of particular importance and have additional management measures.

Class 5: Rivers in which the wild stocks of salmon are not considered to be threatened with loss.

Class 4: Rivers in which there is a threat to the natural stock of salmon which would lead to loss of the stock unless the factor(s) causing the threat is(are) removed.

Class 3: Rivers in which the natural stock of salmon is known to have been lost in the past but in which there is now a self-sustaining stock of salmon as a result of restoration efforts or natural recolonization.

Class 2: Rivers in which there is no natural stock of salmon, which are known to have contained salmon in the past, but in which a salmon stock is now only maintained through human intervention.

Class 1: Rivers in which there is no natural or maintained stock of salmon but which are known to have contained salmon in the past.

Measures Applying to All Rivers

Aquaculture within the North-East Atlantic Commission area should be conducted in accordance with the Resolution of the Council of NASCO on Minimising the Impacts from Salmon Aquaculture on the Wild Salmon Stocks adopted at the Eleventh Annual Meeting, Oslo, Norway in June 1994.

Measures for Specific River Classes

Measures should be developed for each class of river concerning management practices such as the use of hatchery fish; the use of non-indigenous fish; the location, monitoring and operation of salmon farming, and salmon ranching and enhancement activities.

7.7 Ad Hoc Committee on Introductions and Transfers

The Working Group discussed the possible benefits of a Standing Committee to advise the Commission on matters relating to introductions and transfers. The Group felt that it was not appropriate to establish a Standing Committee. However, it was agreed that, in the light of the changing situation with regard to the disease, parasite, genetic and ecological implications of introductions and transfers, the best approach would be for the Commission to consider the establishment of an ad hoc Committee. The Committee would meet only at the request of the Commission and only with a defined mandate. Its first task should be to advise on an appropriate system of classification of rivers and on the management measures concerning introductions and transfers which might be considered for each class (see 7.6). The Committee could also review progress on the operation of the measures adopted by the North-East Atlantic Commission arising from this Working Group.

Rationale: An ad hoc Committee could develop measures for the different river classes, could advise on the potential threats, and could monitor the implementation and effectiveness of measures agreed by the Commission.

7.8 Unintentional Introductions and Releases and Related Education and Information

The Working Group is concerned at the impacts of unintentional introductions of aquatic species which may adversely affect wild salmon stocks. For example, in ships' ballast water, with containers for transport of fish, as a result of the release of live bait or on fishing equipment. The Working Group recommends that the Members of the North-East Atlantic Commission take steps to limit the risks from such unintentional introductions. To this end it recommends that the NASCO Secretariat produces educational material and other information to increase awareness of the risks.

7.9 Definitions

Atlantic salmon - The species *Salmo salar L.*

Introduction - The intentional or accidental release of a species into the environment outside its native or natural range.

Non-indigenous - Any species introduced to an environment outside its native or natural range.

North-East Atlantic Commission Area - Since introductions and transfers affect salmon stocks subject to the Convention but take place within the territories of the

Members of the Commission, for the purposes of these recommendations the Commission area includes these territories.

River - For the purposes of these recommendations a river includes any tributaries or lakes flowing into that river.

Salmon aquaculture - The culture or husbandry of Atlantic salmon and includes salmon farming, salmon ranching and salmon enhancement activities.

Salmon farming - A production system which involves the rearing of Atlantic salmon in captivity for the duration of their life-cycle until harvested.

Salmon ranching - The release of reared juvenile Atlantic salmon with the intention of harvesting all of them on their return.

Salmonid - All species and hybrids of the family Salmonidae, i.e. members of the genera *Salmo, Oncorhynchus* and *Salvelinus*.

Transgenic Atlantic salmon - Atlantic salmon carrying foreign genes which have been incorporated into their chromosomes.

Transfer - The deliberate or accidental transport of Atlantic salmon (or salmonids) within their native or natural range.

8. Conclusions

In summary, the Working Group confirms that measures have not been sufficient to prevent the spread of diseases and parasites, some of which have had devastating results. With regard to genetic risks the evidence is less certain but the potential is serious. Therefore the Working Group recommends that the measures outlined above be adopted by the Commission as guidelines to the Members of the Commission and that the Commission agree to review, at regular intervals, the effectiveness of these guidelines in protecting the wild Atlantic salmon stocks.

Appendix 1

MEETING OF THE NEAC WORKING GROUP ON INTRODUCTIONS AND TRANSFERS
WALDORF HOTEL, LONDON, 24-25 NOVEMBER 1994
LANSDOWN GROVE HOTEL, BATH, 30-31 MARCH 1995

LIST OF PARTICIPANTS

* Denotes Head of Delegation

EUROPEAN UNION

*MR ERNESTO PENAS	Commission of the European Communities, Brussels
MR JOHN BROWNE	Department of the Marine, Dublin
MR WILLEM DAELMANN	Commission of the European Communities, Brussels
**MS KAJSA HAKULIN	Ministry of Agriculture and Forestry, Helsinki
**DR BO HOLMBERG	National Board of Fisheries, Gothenburg
DR BARRY J HILL	Ministry of Agriculture, Fisheries and Food, Weymouth
MR IVOR LLEWELYN	Ministry of Agriculture, Fisheries and Food, London
**MR PEKKA NISKANEN	Ministry of Agriculture and Forestry, Helsinki
MR WILLIAM J SCRIVEN	Ministry of Agriculture, Fisheries and Food, London
DR ALAN MUNRO	Scottish Office Agriculture and Fisheries Department, Aberdeen
MR ALESSANDRO PICCIOLI	Commission of the European Communities, Brussels
MR TED POTTER	Ministry of Agriculture, Fisheries and Food, Lowestoft
MR JOSE A SANCHEZ-PRADO	University of Oviedo, Spain
MR MICHAEL WALDRON	Council of the European Union, Brussels
MR ROBERT WILLIAMSON	Scottish Office Agriculture and Fisheries Department, Edinburgh

ICELAND

*MR ARNI ISAKSSON	Institute of Freshwater Fisheries, Reykjavik

NORWAY

*MR PER IVAR BERGAN	Directorate for Nature Management, Trondheim
*MR STEINAR HERMANSEN	Ministry of the Environment, Oslo
MR KJETIL HAMNES	Ministry of Agriculture, Oslo
MR HELGE LORENTZEN	Ministry of the Environment, Oslo
MR ANDREAS STOCKSETH	Ministry of Fisheries, Oslo
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RUSSIAN FEDERATION

*DR ALEXANDER SOROKIN	PINRO, Murmansk
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MS ELENA SAMOILOVA	PINRO, Murmansk
DR ALEXANDER ZUBCHENKO	PINRO, Murmansk

SECRETARIAT

DR MALCOLM WINDSOR	Secretary
DR PETER HUTCHINSON	Assistant Secretary
MISS MARGARET NICOLSON	PA to the Secretary

NOTE Not all delegates were present at both meetings

** At the second meeting, Finland and Sweden were represented within the delegation of the European Union, following their accession to the Union on 1 January 1995.

Appendix 2

IAT9408

NORTH-EAST ATLANTIC COMMISSION

WORKING GROUP ON INTRODUCTIONS AND TRANSFERS OF SALMONIDS

Waldorf Hotel, Aldwych, London
Thursday 24 and Friday 25 November 1994
and
Lansdown Grove Hotel, Bath
Thursday 30 and Friday 31 March 1995

A G E N D A

1. Opening of the Meeting

2. Adoption of the Agenda

3. Consideration of the Terms of Reference

4. Review of the adequacy of Existing Controls on Introductions and Transfers

   (a) National Legislation
   (b) International Guidelines and Codes of Practice

5. Recommendations on the need for:

   - strengthened controls
   - other measures
   - the establishment of a Standing Committee on Introductions and Transfers of Salmonids

6. Arrangements for Second Meeting

7. Other Business

8. Consideration of the Report of the Meeting

Appendix 3

IAT9411

IAT(94)11

NORTH-EAST ATLANTIC COMMISSION
WORKING GROUP ON INTRODUCTIONS AND TRANSFERS OF SALMONIDS

EXISTING NATIONAL LEGISLATION ON INTRODUCTIONS AND TRANSFERS

EUROPEAN UNION (FINLAND)

SUMMARY OF THE FINNISH VETERINARY LEGISLATION CONCERNING INTRODUCTIONS AND TRANSFERS OF LIVE FISH AND THEIR EGGS AND GAMETES

1. Imports

The import of live fish, live crustaceans or their eggs or gametes is allowed only if the importer has obtained an individual import licence from the Veterinary and Food Department of the Ministry of Agriculture and Forestry. Ornamental fish may, however, be imported without a licence.

For the last twenty years granting of such import licence has been very restricted. During the 80's and 90's, the only imports of live fish that have been allowed are the import of rainbow trout and salmon from Sweden into the county of Åland and the import of eels from Swedish quarantine into some water courses in the South of Finland. The import of live rainbow trout and salmon from Sweden was, however, banned in 1988 because of the risk for renibacteriosis. In addition, some import licences for the import of fertilized rainbow trout eggs from Sweden have been granted as well as one import licence for the import of fertilized eggs of arctic char from Russia.

2. Transfers within Finland

There are four different Decisions of the Ministry of Agriculture and Forestry in force concerning restrictions of transfers of fish, eggs and gametes. Two of these concern transfers to the water courses connected to the Barents Sea:

1) According to the Decision concerning the prevention of the spreading of *Gyrodactylus salaris* all transfers of live fish from other parts of Finland to the Tenojoki, the Näätämöjoki, the Paatsjoki and the Luttojoki water catchment areas are banned, as well as transfers from the Paatsjoki and the Luttojoki water catchment areas to the Näätämöjoki and Tenojoki water catchment areas. The Tenojoki water catchment area is also protected by the Tenojoki Agreement between Norway and Finland (see point 3). The Veterinary and Food Department has the right to grant derogations from this ban, but in practice such derogations have only been granted for transfers to the Paatsjoki and Luttojoki water catchment area, and since 1991 no derogations have been granted.

2) According to the Decision concerning the prevention of the spreading of furunculosis all transfers of live fish or gametes from those parts of Finland, which are infected, to those parts which are free, are prohibited. Fertilized eggs may be transferred if they are disinfected with an iodine solution. The local fishing authorities are allowed to grant derogations from this Decision. The Tenojoki, Näätämöjoki, Paatsjoki and Luttojoki water catchment areas are considered free from furunculosis.

The aim of the other two Decisions is to protect the Finnish inland waters and certain coastal areas from viral diseases and renibacteriosis. These Decisions also protect the Tenojoki, Näätämöjoki, Paatsjoki and Luttojoki water catchment areas from the spreading of these diseases from the Baltic area.

3. International Agreements

1) The Tenojoki Agreement between Norway and Finland protects the Tenojoki water catchment area from all transfers of fish, eggs or gametes from other water catchment areas. Transfers within the Tenojoki area are banned as well, but in some cases derogations are made.

2) The EEA-agreement includes the EC-directive concerning the animal health rules on the placing on the market of aquaculture animals (91/67/EEC), but Finland obtained the right to keep its national legislation on the placing on the market of live fish, live crustaceans and their eggs and gametes if they are intended for farming or restocking purpose.

3) In the Act of Accession (to the EU) it was decided that regarding fish, and eggs and gametes thereof, intended for farming and restocking, consignments to or from Finland shall not be authorized during a transitional period of three years from the date of entry into force of the Accession Treaty. After that period Finland must implement the EC-directive 91/67/EEC, which means that aquaculture animals must be excluded from the movement restrictions mentioned above.

EUROPEAN UNION (IRELAND)

Department of the Marine, Leeson Lane, Dublin 2

October 1994

Dear Malcolm,

Further to your request of 6 October to Heads of Delegation I attach the text of our Live Fish (Restriction on Import) Order 1972 which is self-explanatory.

The taking of salmonid fish for propagation or re-stocking is covered by authorisation under Section 14 of the Fisheries (Consolidation) Act, 1959 which reads as follows:

(1) Subject to subsection (2) of this section, nothing in this Act or in any Instrument made thereunder shall prohibit anything done by the Minister or a person previously authorised in writing by the Minister in that behalf for the purpose of the artificial propagation of fish, for some scientific purpose or for the improvement or development of any fishery.

(2) Nothing shall be done pursuant to subsection (1) of this section in relation to a several fishery without the consent of the owner thereof.

(3) A person authorised by the Minister under this section to do anything shall be furnished by the Minister with a certificate of such authorisation and when doing anything pursuant to the authorisation shall, if requested by any person affected, produce the certificate to that person.

The transfer of fish in the course of commercial fish farming operations is covered by licensing conditions under Sections 15 and 54 of the 1959 Act.

I take it that O. Tougaard will supply you with copy of the Community's Fish Health Directive.

There is I understand an ICES protocol on introductions and transfers which should be available from their Secretariat.

Yours sincerely

John Keohane

c.c. O Tougaard Cion
A McDaid Perm Rep

S.I. No. 4 of 1972

LIVE FISH (RESTRICTION ON IMPORT) ORDER, 1972

I, JOHN FAHEY, Parliamentary Secretary to the Minister for Agriculture and Fisheries, in exercise of the powers conferred on me by section 17 of the Fisheries (Consolidation) Act, 1959 (No. 14 of 1959), and the Fisheries (Transfer of Departmental Administration and Ministerial Functions) Order, 1965 (S.I. No. 83 of 1965) (as adapted by the Agriculture (Alteration of Name of Department and Title of Minister) Order, 1965 (S.I. No. 146 of 1965)) and the Fisheries (Delegation of Ministerial Functions) Order, 1970 (S.I. No. 123 of 1970), hereby order as follows:

1. This Order may be cited as the Live Fish (Restriction on Import) Order, 1972.

2. This Order shall come into operation on the 1st day of February, 1972.

3. The import of live fish and of the eggs or young of such fish, save under and in accordance with a licence in that behalf issued under section 17 (4) of the Fisheries (Consolidation) Act, 1959 (No. 14 of 1959), is hereby prohibited.

4. This Order shall not apply to -

   (a) tropical aquarium fish, or

   (b) fish which have been taken by and are landed in the State from an Irish sea-fishing boat within the meaning of Part XIII of the Fisheries (Consolidation) Act, 1959 (No. 14 of 1959).

5. The Live Fish (Restriction in Import) Order, 1962 (S.I. No. 39 of 1962), is hereby revoked.

GIVEN under my hand this 12th day of January, 1972.

JOHN FAHEY,
Parliamentary Secretary to the Minister for Agriculture and Fisheries.

Notice of the making of this Statutory Instrument was published in "Iris Oifigiuil" of 14th January, 1972.

The version of this Statutory Instrument in the Irish language, officially prepared, is printed on the opposite pages.

EUROPEAN UNION (SPAIN)

EXPLANATORY NOTE: SUMMARY OF LEGISLATION

Order of 11 May 1982

The Autonomous Communities have exclusive competence on inland waters, the restocking of which is, therefore, their individual responsibility. Inland waters are those comprised between the coast lines and straight base-lines that bound the territorial sea.

The Dirección General de Ordenación Pesquera is now the Dirección General de Estructuras Pesqueras.

References to the Comandancias Militares de Marina should be read now as references to the Direcciones Provinciales of the Ministry of Agriculture, Fisheries and Food.

Law No. 4/1989 of 27 March 1989

Article 29 therein relates to the establishment of catalogues of endangered species, which is the responsibility of the Autonomous Communities. A national catalogue of endangered species will also be instituted.

ORDER OF 11 MAY 1982 REGULATING THE ACTIVITIES OF SEA RESTOCKING (BOLETIN OFICIAL DEL ESTADO NO. 125 OF 26 MAY 1982)

TITLE I

General Provisions

Article 1

These regulations are aimed at the restocking of the continental shelf and the exclusive economic zone, both in the territorial sea and inland seawaters, without prejudice to the competences that the Autonomous Communities may have in this field.

Article 2

For the purposes of the present regulations, sea restocking means any action aimed to increase the natural animal and/or plant populations of the seas. Within this context, two types of restocking are considered, namely:

2.1 Artificial restocking, by which is meant the release of animal and/or plant species, in any stage of their lifecycle, into their natural environment.

2.2 Natural restocking, meaning the establishment of facilities or measures which foster the development of animal and/or plant species.

Article 3

All facilities and measures leading to natural restocking are included under this heading, especially the following:

3.1 Artificial, man-made reefs that supply a favourable habitat to marine species.

3.2 Biotypes or natural reefs which, having lost their favourable condition for the development of marine species, are man-restored to regain such favourable condition. This concept includes any area suitable for the development of any species, especially so if relating to the restoration of weed-fields and barnacle-breeding rocks.

3.3 Reserve zones for the protection of marine species, aiming to their development and proliferation.

CHAPTER I

Artificial Restocking

Article 5

Applications for a licence will specify:

(a) The name and other details of the applicant.

(b) Restocking species, their life stage and place of origin.

(c) The place(s) where the sowing or release of such species is to take place, accompanying a transparent superimposable sheet marking clearly the relevant places on the relevant nautical chart.

(d) An ecological study justifying both the place(s) and the species chosen.

Article 6

Artificial restocking may be authorized by the Dirección General de Ordenación Pesquera, under the conditions made necessary by the defense of ecosystems, after examination of the reports submitted thereon by the Federación Nacional de Cofradias de Pescadores, the Instituto Español de Oceanografia and the relevant naval authorities.

Article 7

These licences will not imply a right or priority to the harvesting of restocked areas, except as relates to the release of smolt, in which case the Dirección General de Ordenación Pesquera, acting in mutual agreement with the Instituto para la Conservación de la Naturaleza (ICONA), may authorize restockers to catch all or part of the returning individuals, specifying both the place and the time period when the fishery may take place.

LAW NO. 23/84 OF 25 JUNE 1984, RELATING TO SEA FARMING

TITLE I

Scope of the Law

Article 1

This Law is aimed at the management and regulation of sea farming in the national territory, the littoral area, arms of the sea, estuaries, lagoons and sea-lakes permanently or temporarily connected to the sea, as well as in the territorial sea and the exclusive economic zone, both in public and private domains, without prejudice to the powers and competences pertaining to the Autonomous Communities.

Definition

Article 2

Trying to establish a unified nomenclature, for the purposes of this Law the main concepts of sea farming are defined as below.

1. Meaning of the following concepts:

   (a) Sea farming: the carrying out of actions and all kinds of labour activities relevant to the reproduction and/or growth of one or more marine species, either plant or animal, or other species associated with them.

   (b) Spawning: the process by which marine species release their eggs, larvae or spores into the water.

   (c) Rearing: the culture of marine animal species in their early life stages, prior to raising.

   (d) Raising: the culture of juveniles and/or adults of marine animal species to commercial sizes.

   (e) Marine restocking: the release of animal and/or plant species, in any stage of their life cycle, into their natural environment in order to increase their populations.

TITLE IV

Marketing

Article 20

The transfer of eggs, spores and/or individuals of non-commercial size, in any of their life stages, will only be carried out for the purposes of cultivation, research or experiment.

Article 21

The export of eggs, spores or non-commercial size individuals, in any life stage, whatever their destination, will need the authorization of the Ministry of Agriculture, Fisheries and Food, which will note the opinion of the fisheries authority having exclusive competence in the Autonomous Community of origin.

Article 22

The importation of any species, whatever their size and life stage, for their cultivation or simple immersion, will need a previous favourable report from the Ministry of Agriculture, Fisheries and Food.

In order to prevent ecological disequilibriums, when the importation of foreign species not occurring naturally in our waters is contemplated, the aforementioned authorization will need the favourable opinion of the Instituto Español de Oceanografia.

Imports will need to be accompanied, moreover, by a health certificate issued by the relevant authority in the country of origin, containing the specifications required by the said Instituto, at the request of any interested party.

In any case, the immersion of imported species will need to be authorised, supervised and inspected by the Autonomous Community Agency having competence on fisheries.

LAW NO. 4/1989 OF 27 MARCH 1989, RELATING TO THE CONSERVATION OF NATURAL SPACES AND WILDLIFE

TITLE I

General Provision

Article 1

Pursuant to Articles 45.2 and 149.1.23 of the Constitution, this Law aims to establish the rules for the protection, conservation, rebuilding and improvement of natural resources and especially those relating to natural spaces and wildlife.

TITLE IV

On Wildlife

CHAPTER I

General Provisions

Article 26

1. Public administrations will take the necessary measures to ensure the conservation of plant and animal species that live in a wild state within the Spanish territory, paying special attention to autochthonous species.

2. Priority will be given to the preservation of their habitats; specific protection regimes will be established for the species, communities and population whose state so requires, including those in one or other of the categories listed in Article 29 of this Law.

3. The relevant Administrations will attend to the preservation, maintenance and restoration of sufficiently large and diversified spaces that will provide adequate habitats for plant and animal species not included in paragraph 2 above.

4. It is hereby forbidden to kill, injure, trouble or disturb wild animals intentionally, specially those involved in any of the categories comprised in Article 29 below, including their taking alive and/or the harvesting of their eggs and young, as well as to modify or destroy vegetation.

   It is equally forbidden to possess, traffic or trade in wild animals, either alive or dead, even their remains, including foreign trade.

Article 27

The actions of Public Administrations to foster the preservation of the genetic diversity of our natural heritage will mainly be based on the following criteria:

(a) Priority will be given to conservation and preservation measures in the framework of the natural habitat of every single species, taking account at the same time of the possibility of establishing complementary measures outside such habitat.

(b) To prevent the introduction and proliferation of non-autochthonous species, subspecies or races insofar as they could complete with their indigenous equivalents, alter the genetical purity of the same or change ecological equilibriums.

(c) To give priority to endemic species and subspecies, as well as to migratory ones and those others whose distribution area is highly limited.

Article 28

1. The prohibitions established under Article 26.4 will not apply to wild species not included in any of the categories specified in Article 29 when such species are subject to specific regulation in legislation relating to forest, hunting or inland fishing, without prejudice to the provisions in Chapter III of this Title.

2. The prohibitions established under Article 26.4 may become inoperative, pursuant to the authorization by the relevant administration, when any of the following circumstances occur:

   (a) When their implementation may result in harmful effects on human health or security.

   (b) When their implementation may result in harmful effects on protected species.

(c) The prevention of significant damage to crops, livestock, forest, game, fish or the quality of water.

(d) When necessary, owing to reasons relating to research, education, restocking, reintroduction and/or captive breeding.

(e) To prevent accidents in relation to flight security.

3. When the authorization is based on research reasons, the decision will be made taking into account the criteria adopted by the Comision Interministerial de Ciencia y Tecnologia pursuant to the opinion expressed on such criteria by the Consejo General de la Ciencia y la Tecnologia.

4. When, owing to reasons of urgency, the prior administrative authorization referred to in paragraph 2 above cannot be obtained, the relevant administration will be immediately informed of the action taken, and such administration will conduct an administrative enquiry to determine the correctness of the alleged urgency.

EUROPEAN UNION (SWEDEN)

Imports of live fish are based on the Governmental Veterinary Regulation. The Board of Agriculture promulgates the detailed terms. At present import is not allowed for live and round fish. Import for breeding purposes is allowed if the fish is kept in constant quarantine and never released. Offspring can be released under certain conditions. Glass eel may be imported and quarantinized. After approved laboratory tests they may be released along the southern part of the Swedish coast and inland waters. Since 1986 no live fish (except glass-eel) or eggs have been imported.

The Animal Health Control Act stipulates that the Board of Agriculture has the mandate to approve a health control program. The program is voluntary but only farms joining the program are allowed to transfer fish from one water system to another.

According to the Fisheries Ordinance the establishment of a fish farm requires permission and fish may not be released or transferred from one water system to another without permission from the County Administration. The National Board of Fisheries promulgates regulations and issues guidelines on how to deal with the risks of diseases and other biological constraints. Live fish for stocking or farming can only be transferred if the fish is free from notifiable diseases and if the fish farm is a member of the Fish Health Control. Stocking of fish will not be permitted if "valuable" indigenous fish populations can be threatened. The releasing of salmon in a river system is only permitted if the fish originates from that particular river.

EUROPEAN UNION (UNITED KINGDOM)

Fish Health Controls

1. In Great Britain the Fish Health Regulations 1992 (as amended) and in Northern Ireland the Fish Health Regulations (Northern Ireland) 1993 implement EU Directive 91/67/EEC concerning the animal health conditions governing the placing on the market of aquaculture animals and products. Under the terms of this Directive both Great Britain and Northern Ireland have been recognised as approved (i.e. disease-free) zones in respect of VHS and IHN. As a result, introductions into Great Britain and Northern Ireland of live salmonids and other susceptible species from non-approved zones is prohibited, as is the import of uneviscerated dead salmonids. There are also controls on the introduction of other species which might transmit these diseases passively. In addition, the Diseases of Fish (Control) Regulations 1994 provide for immediate eradication action in the event of an outbreak of ISA (which is absent from the EU) VHS or IHN in Great Britain; similar regulations are being introduced into Northern Ireland.

2. Under the Diseases of Fish Acts 1937 and 1983 and the Diseases of Fish (Northern Ireland) Act 1967 discovery or suspicion of *Gyrodactylus salaris* must be notified to the Government; in this event movement controls would be imposed on the site in question. The United Kingdom is also seeking approval, under the terms of Directive 91/67, for the introduction of controls requiring salmonids introduced into the United Kingdom to come from regions certified as applying similar controls against the disease as are applied to UK zones.

Other Controls

3. Under the Wildlife and Countryside Act 1981 in Great Britain and the Wildlife (Northern Ireland) Order 1985 in Northern Ireland there is a prohibition on the release into the wild of species, including fish, which are not normally resident in or regularly visit Great Britain and Northern Ireland, unless a licence is issued by the appropriate Minister.

4. In England and Wales, the Salmon and Freshwater Fisheries Act 1975 prohibits the introduction of any fish or fish eggs into any inland water without the written consent of the National Rivers Authority but this prohibition does not apply to fish farms. Under the Import of Live Fish Act 1980, the Minister of Agriculture may prohibit, either absolutely or except under licence, the keeping and release of live fish of a species not native to England and Wales and which might compete with, displace, prey on or harm the habitat of freshwater fish (including salmonids) in England and Wales.

5. In Scotland, the Import of Live Fish (Scotland) Act 1979 allows the Secretary of State for Scotland to prohibit, either absolutely or except under licence the keeping and release of live fish of a species not native to Scotland and which might compete with, displace, prey on or harm the habitat of freshwater fish (including salmonids) in Scotland. The Salmon Act 1986 prohibits the intentional introduction of salmon or sea trout into inland waters in any area administered by a District Salmon Fishery

Board unless the permission of the relevant Board is obtained, but this provision does not extend to any water which is in a fish farm.

6. In Northern Ireland, the Fisheries Act (Northern Ireland) 1966 empowers the Department of Agriculture to introduce subordinate legislation to prohibit the introduction into certain waters, except under the authority of a permit, of live fish, eggs or fry of any particular species which would be detrimental to the fishery of those waters.

ICELAND

Regulatory measure concerning transportation and release of salmonids and prevention of fish diseases and genetic mixing of salmon stocks

Paragraph 1

Definitions

The following definitions hold throughout the following text:

Enhancement: Any activity intended to sustain or increase salmon populations, including smolt and fry releases, river improvement, fish passes etc.

Fish rearing: Feeding of fish in captivity, salmon ranching, hatching and rearing of juveniles in fresh and saltwater alike.

Fish farm: A place where fish rearing takes place in sea cages and land-based units, including salmon ranches.

Land rearing: Rearing of salmonids in land-based tanks often with pumping of seawater.

Salmon ranch: A place where salmon are released for ranching and recaptured in traps after their oceanic feeding migration.

Salmon ranching: The act of releasing hatchery smolts and their recapture upon freshwater return after their oceanic migration.

Salmon stock: Group of salmon spawning together in a specific place during a specific period and interbreeding to no extent with other populations.

Wild salmon stock: Group of salmon which is the progeny of natural spawning in a stream.

Rearing stock: Group of salmon which are the progeny of captive salmon and have acclimatised to rearing conditions.

Ranching stock: Group of salmon which are the progeny of ranched parents.

Sterile stock: Group of salmon which are infertile and can not produce viable offspring.

Paragraph 2

Transport of living wild salmon and their eggs

2.1 Transport of wild salmon alive is prohibited without a permit from the fish Disease Committee and the fisheries association of the river of origin. Similarly the transport of living wild salmon and their eggs from one watershed to another for storage, spawning or release into the wild is prohibited. The Minister of Agriculture can permit the transport of living brood fish between watersheds for temporary storage if

recommended by the Fish Disease Committee. After spawning all these brood fish shall be slaughtered and samples taken for disease analysis as recommended by the Disease Committee in each case.

2.2 Enhancement in salmon rivers shall be based on indigenous stock. The chairman of each river association must consult the Director of Freshwater Fisheries before embarking on such activity. The Director of Freshwater Fisheries can permit the transport of disinfected eggs or resulting progeny for enhancement into streams or lakes with low or nil salmon production, provided that the salmon stocks used are from nearby watersheds of similar character. Enhancement efforts in small streams without salmon which flow into the sea in or close to the estuarine area of a major salmon stream shall be based upon stocks from the major stream or in exceptional cases from nearby streams.

2.3 The Director of Freshwater Fisheries can permit the transport of wild parr or adult wild fish from a lake or stream into rearing stations, provided that the station has outflow into the watershed where the fish originate, rearing stocks are not being used and the transport has been approved by the Fish Disease Committee. The transport of wild salmonids into land stations and sea cages can similarly be permitted by the Director of Freshwater Fisheries.

Paragraph 3

Transport and release of rearing and ranching stocks

3.1 Any person intending to start salmon ranching shall seek the advice of the Director of Freshwater Fisheries. Ranching stations are permitted to use ranching stock from all ranching stations which have been recognized according to par. 66, 1, no. 76/1970.

3.2 Rearing stations with water supply which has the potential of being contaminated with germs from wild fish shall comply to regulatory measure no. 403/1986 with respect to transport of eggs and other living material. Transport shall otherwise comply with this regulatory measure.

3.3 Disinfected eggs and the resulting progeny of Icelandic origin as well as brood fish of reared origin can be transported between rearing stations as long as the transport complies with regulatory measure no. 403/1986.

3.4 The transport of salmonids of foreign origin for enhancement and ranching is strictly forbidden. The Ministry of Agriculture can permit the transport of such stocks between rearing stations upon a recommendation from the Director of Freshwater Fisheries and the Fish Disease Committee.

Paragraph 4

Various provisions

4.1 Exemptions from the following regulations are subject to a written application to the Ministry of Agriculture or the Director of Freshwater Fisheries as appropriate.

4.2 Salmon ranching and enhancement efforts on the north and east coast of Iceland using wild salmon stocks shall use stocks originating from that general area and similar operations on the south and west coasts shall similarly use stocks from that area. The boundaries of the areas are the following:

4.2.1 Southern and western Iceland. Eastern boundaries at Stokknes, northern boundaries at Hornbjarg.

4.2.2 Northern and eastern Iceland. Western boundaries at Bjargtanar, southern boundaries at Ingólfshöfoi.

4.2.3 The Director of Freshwater Fisheries can grant exemptions from those clauses for experimental comparisons of salmon stocks.

4.3 Salmon ranching, land-rearing and sea cage stations producing salmon shall not be permitted closer than 5km to salmon streams with an average annual catch exceeding 100 salmon for the last 10 years. For salmon streams with an annual catch exceeding 500 salmon the minimum distance shall be 15km unless local or sterile stocks are used in which case the distance can be shortened to 5km. The distance between land-based stations, salmon ranches and sea cages among themselves shall be at least 2 kilometres. Those distances are measured as the crow flies over open water. The Director of Freshwater Fisheries can recommend to shorten those distances upon a mutual request from fish farmers and fisheries associations in the area concerned.

4.4 Salmon ranchers shall microtag 10% of released smolts up to a release of 100 thousand smolts. A minimum figure for larger releases is 10 thousand smolts. Fish farmers using sea cages shall tag at least 1000 salmon with micro- or external tags. Recaptures of these tags in other areas shall form the basis for revision of this regulatory measure.

4.5 The release of adult salmon of ranching or reared origin into rivers and lakes for put and take fishery is not permitted unless a local stock is used. The Minister of Agriculture can, however, permit such releases upon the recommendations of the fish Disease Committee and the fisheries association concerned.

Paragraph 5

Penalties and implementation

5.1 Violations of this regulatory measure are punishable according to paragraph 97, j-1, in laws no. 76/1970 on salmon and trout fishing unless specified otherwise in other laws.

5.2 Violations of this regulatory measure shall be handled according to public law.

5.3 This regulatory measure, which is based on paragraphs 22, 66 and 81 of law no. 76/1970 on salmon and trout fishing, goes into effect immediately and shall be revised before July 1 1990.

Ministry of Agriculture, 12th of July 1988
Jón Helgason (Minister)
Jón Höskuldsson (Attorney)

NORWAY

A brief review of legislation and practice concerning introductions and transfers of aquatic organisms in Norway

This document gives a brief review of the present Norwegian system for legislation, regulation and management relevant to introductions and transfers. The focus is on main principles and practices, but ongoing efforts to improve management tools and practices are also briefly described.

1. Legal framework applicable to introductions and transfers of aquatic organisms in Norway.

The legal basis for the Norwegian policy and practice on introductions and transfers is given in:

- the Act on Anadromous Salmonids and Freshwater Fish
- the interim Fish Diseases Act
- the Aquaculture Act
- the Act on Saltwater Fisheries
- the Quality Control Act
- the Gene Technology Act

Of these Acts the two former are the most important for the considerations of the Working Group.

The main objective of the Act on Anadromous Salmonids and Freshwater Fish is to ensure that natural stocks of anadromous salmonids, freshwater fish, their habitats and other freshwater organisms are managed with a view to maintaining natural diversity and productivity. The Act is administered by the Ministry of the Environment and by the Directorate for Nature Management and the Regional Commissioners as underlying authorities. The environmental authorities, consequently, have the competence in questions relating to import and release of anadromous salmonids.

Under this Act, and reflecting environmental and ecological considerations, the import of any freshwater organism is prohibited without permission from the Ministry.

Likewise, the release of anadromous salmonids, freshwater fish and other freshwater organisms is prohibited without permission from the environmental authorities. Permissions are granted only when local stocks are used, and there is an absolute condition that no fish is transported between regions. As from 1995, these issues will be addressed in regional plans for stock enhancement formulated by each county. Such plans are presently worked out, and will be assessed by the authorities before implementation. The intention is i.a. that the enhancement plans shall secure genetic resources and prevent the spread of diseases and parasites.

The Act on Anadromous Salmonids and Freshwater Fish further prohibits measures for stock enhancement without permission from the Ministry of Environment. Permission for stock enhancement measures may be granted by regulations for specific types of activities or areas, or by individual decision on application. The regulations in this field are very strict,

including the use of local stocks as a mandatory prerequisite. Through 1995-1998, enhancement measures will gradually be integrated in, and considered as part of, the stock enhancement plans.

The Interim Fish Diseases Act is aimed at prevention, control and eradication of diseases in aquatic organisms. For marine species, the Act relates only to organisms in containment. Present regulations regarding fish health as well as introductions and transfers of aquatic organisms are mainly based on this legislation. The Act enables the Ministry of Agriculture and its underlying authorities to implement the measures deemed necessary to fulfil the object of the Act.

Under the Fish Diseases Act, it is prohibited to sell or offer for sale, give away, purchase, receive or release living aquatic organisms if it is clear, or there is reason to suspect, that they are suffering from or infected by diseases to which the Act applies. The Act further enables the veterinary authorities to prohibit import of living aquatic organisms, used packing, used fishing gear and other products or articles that may be contaminated with infectious agents.

This Act further prohibits the establishment of new hatcheries without the approval of the veterinary authorities, and a prior consent from the Ministry is required for the establishment of new, or expansion of existing, installations for rearing aquatic organisms.

In addition to the strict measures listed, the interim Fish Diseases Act is the legal basis for regulations dealing with:

- records of aquatic organisms going into or out of fish farms
- ban on stripping of eggs from organisms in case of disease
- visits to fish farms
- control of broodstock
- routine disinfection of eggs
- certificate of origin and health relating to sale, transfer and release of living fish and eggs
- treatment of waste, used equipment etc
- zones for control of specific diseases
- disease prevention measures in fish slaughterhouses, processing plants etc
- approval of methods and equipment for the treatment of dead fish, waste, effluents etc originating from aquaculture

The veterinary regulations have been adjusted to meet the standards set by the Treaty of European Economic Association and conform with the relevant regulations in the European Union, except for those concerning living aquatic organisms.

The Aquaculture Act (Ministry of Fisheries) regulates aquaculture with a view to enhancing a balanced and sustainable industry contributing to vitality and prosperity in coastal regions. Under this Act, import of living marine organisms or living eggs of such organisms for aquaculture purposes requires an approval from the Ministry of Fisheries.

The Saltwater Fisheries Act (Ministry of Fisheries) regulates the exercise of saltwater fishing in Norwegian waters and forms the basis for a wide variety of technical regulations. In addition, this Act contains a provision prohibiting the release of organisms and living eggs in the sea without permission from the Ministry of Fisheries. Permissions may be given by

regulations for specific organisms and specific areas or by individual decision on application. As yet, no specific regulations have been established under this provision, but work has been initiated in this respect.

The Quality Control Act (Ministry of Fisheries) regulates the handling and processing of fish, but a regulation given under this Act also contains provisions regarding import of living lobsters and mussels.

The Gene Technology Act (Ministry of the Environment) regulates the production and use - including introductions and transfers - of genetically modified organisms with an aim to ensure that such activity is carried out in an ethically and socially acceptable way, in accordance with the principle of sustainable development and without detrimental effects on health and the environment.

2. Recent Practice Regarding Imports, Transfers and Release

2.1 Import

For the last years, no applications for import of anadromous salmonids, freshwater fish or other freshwater organisms have been put forward. This may reflect the restrictive practice in this field that is based upon previous experience, i.a. with *Gyrodactylus salaris* and furunculosis.

As for marine organisms, some import permissions have been given. Most of them have been related to import of lobster for consumption, where strict conditions have been set. Some permissions were granted for import of living oysters for aquaculture purposes before 1990, but since then no permissions have been granted. Import of oysters at present is restricted to consumptive uses. Permission to import a limited number of sea bass as brood stock was given to a land based aquaculture site some years ago, after a thorough health and quarantine inspection.

The veterinary authorities grant permission for import of freshwater organisms for contained use in aquaria etc, but the practice regarding import of organisms for release has been strict, and no permissions have been granted.

2.2 Transfers

Transfers of organisms has been practised in connection with stock enhancement, aquaculture and sea ranching. All such cases are considered according to the provisions of the interim Fish Diseases Act in addition to other relevant legislation.

Current practice regarding stock enhancement is very strict, and only local stocks are allowed for this purpose. The new county stock enhancement plans, coming into effect in 1995, will contribute to even better protection of the wild stocks, as each county will be divided into separate zones expected to be self-contained with fish for stocking.

Where fish farming is concerned, restrictions have been set for trade in smolts for release into net pens where disease has been proven or suspected. Transfer of fish between different net pen localities is prohibited, and the only permissions given for such 'transfers' relates to emergency situations (i.a. poisonous algal blooms). Further, a report has been drafted by the

relevant authorities where a proposal has been made to divide the country into nine different epidemiological regions i.a. with a view to improving the disease status in the industry. According to the proposal, each region will be self-supported, and there will be strict regulations regarding transport of, and trade in, living fish between regions. A decision has not yet been taken on this issue.

Sea ranching is not a commercial industry in Norway, but different models for future sea ranching have been explored. Where this work has involved anadromous salmonids, relevant regulations in the Act on anadromous salmonids and freshwater fish has been applied. Projects involving marine species (cod and lobster) are treated under the Saltwater Fisheries Act, but so far only very few applications have been granted.

2.3 Release

Release of fish and other aquatic organisms may take place deliberately or incidentally. Deliberate release in the form of stock enhancement or sea ranching has already been described and will not be discussed further.

The most common form of incidental release relates to damage to net pens in aquaculture, which has been a highly discussed problem for some years. Due to i.a. improved controls of net pen installations, the extent of this problem has diminished during the last couple of years. A system for certification of installations has been proposed, but is pending decision.

Another form of incidental release relates to illegal spreading of fish. This activity has in some cases been based upon "enhancement" of certain stocks - especially freshwater salmonids (trout and charr). There has also been problems associated with the use of live bait. Due to the often clandestine nature of this activity, the extent is unknown. However, much attention is presently given to this problem.

RUSSIA

REGULATIONS ON THE PROCEDURES USED FOR ACCLIMATION OF FISH, OTHER AQUATIC ORGANISMS AND FOR STOCKING OF RESERVOIRS OF THE RUSSIAN FEDERATION

(Approved by the Order of the Russian Fisheries Committee)

1. General

1.1 Acclimatization of fish, other aquatic organisms and stocking into reservoirs are a part of a complex of measures aimed at enhancement of fish resources and resources of other aquatic organisms in the wild and in artificial reservoirs. The goal of acclimatization and stocking is to enhance the production in and economic value of reservoirs through directed development of ecosystems (improvement of species composition and increase of the numbers of certain valuable species of fish and invertebrates and expansion of their native habitat). In view of this in carrying out acclimatization one proceeds from species properties and stocking capacity of a reservoir.

1.2 Acclimatization of aquatic organisms is a biological and biotechnical process implying introduction of species transported from one reservoir, region, country to another, which were not their native habitat before or from where they vanished, with the aim of its full or partial naturalization, and other forms of economic utilization (recreational fisheries, lake farming, biological amelioration). Acclimatization can be done in two ways: full-cycle and step-by-step acclimatization.

Full-cycle acclimatization - naturalization - is a final stage of the process of acclimatization, when an introduced species has adapted to a new habitat, has found its niche and developed relations with resident species in the ecosystem of the reservoir of introduction, flexible equilibrium of the numbers of the introduced population has set in and it has become possible that it can be used as prey and taken as commercial catch.

Step-by-step acclimatization is an incomplete acclimatization, when certain stages in the development of the introduced species can not be completed under the conditions available in a new habitat and go off in another reservoir or under the human protection.

Stocking is a particular case of step-by-step acclimatization, which describes type, method of economic activity and implies a regular release of stocking material for feeding into already tested waters.

Re-acclimatization is an introduction of a species with the aim to rehabilitate its population within its natural (in the past) habitat, from where this species vanished for some reason.

2. Organisation, planning and fulfilment of acclimatization work

2.1 All work to develop food supply and ichthyofauna in natural and other reservoirs shall be carried out pursuant to these Regulations.

2.2 Practical measures to develop fauna and flora of a reservoir shall be preceded by biological justification including biological description of the introduced species, capacity of a reservoir, to which stocking is undertaken, action plan to fulfil introduction and economic evaluation of this measure.

2.3 Biological justification for introduction of an object of acclimatization and stocking, including species fished in recreational fisheries, into natural waters and reservoirs can come from individual persons and organisations. Locally it is considered by a Scientific Council of a basin Fisheries Research Institute together with a basin Department of the Ichthyological Commission, local organs of the Ministry of Conservancy of Environment and Natural Resources of the Russian Federation and basin agencies of fish conservancy. If approved the biological justification followed by two copies of a protocol are forwarded for approval to the Scientific Council on Acclimatization of Fish and Invertebrates within the Ichthyological Commission, one copy shall be sent to the Central Directorate of Fisheries Expertise and Standards on Protection, Enhancement of Fish Resources and Acclimatization (TSUREN) to coordinate practical measures connected to supply and transport of stocking material.

2.4 Positive decision by the Scientific Council on Acclimatization of Fish and Invertebrates within Ichthyological Commission shall be sent to those who had prepared the biological justification together with the recommendation to publish it within one month time and besides to territorial organs of conservancy of environment and natural resources and to fish conservancy agency.

2.5 Approved biological justification is a basis for inclusion into annual plans made by basin fish conservancy directorates and fisheries organisations of releases of species for acclimatization and stocking into natural waters and reservoirs.

2.6 TSUREN undertakes coordination of acclimatization measures, control over planning and arrangement of operations on acclimatization of fish, other aquatic organisms and stocking of reservoirs in the Russian Federation, provides methodological and practical assistance in carrying out operations, summarizes results from acclimatization and stocking.

2.7 Basin fish conservancy directorates and fisheries organisations submit to TSUREN within times set by the Russian Fisheries Committee draft plans on releases of species for acclimatization and stocking in natural waters and reservoirs for analysis and working out of acclimatization measures, which require consideration by the Scientific Council on Acclimatization of Fish and Invertebrates within the Ichthyological Commission.

2.8 Amendments made by the Scientific Council on Acclimatization of Fish and Invertebrates, shall be advised by TSUREN to the basin fish conservancy directorates and fisheries organisations for further adjustment of draft plans on acclimatization of fish, other aquatic organisms and stocking of natural waters and reservoirs.

2.9 To preserve the genofond of aquatic organisms it is prohibited to release interspecific and intergeneric hybrids into natural waters and reservoirs. For economic purposes hybrids can be released at lake farms only after this operation has been agreed with the Scientific Council on Acclimatization of Fish and Invertebrates and the Scientific Council on Genetics and Selection of Fish within the Ichthyological Commission. Import of species from abroad for acclimatization and stocking for scientific and economic purposes shall be undertaken only after having been agreed with the Ichthyological Commission.

2.10 It is prohibited to undertake acclimatization in reservoirs having endemic fauna.

2.11 Transportation of species for acclimatization and stocking is carried out in a strict compliance with established veterinary procedures to be used for transportation of live fish, fertilized eggs, crayfish and other aquatic organisms.

2.12 Stocking material shall be released in the presence of representatives of fish conservancy agencies, territorial organs of conservancy of environment and natural resources, scientific and fisheries organisations and this operation is documented as act of acceptance-transfer of culture produce.

2.13 Termination of introduction of species for acclimatization and stocking into natural waters and reservoirs is decided by TSUREN and agreed with the Scientific Council on Acclimatization of Fish and Invertebrates within the Ichthyological Commission after relevant documents have been presented by fisheries organisations.

3. Control over fulfilment of acclimatization operations

3.1 Control over fulfilment of acclimatization operations in natural waters and reservoirs is accomplished by the Russian Fisheries Committee through TSUREN and basin fish conservancy directorates, by the Ministry of the Conservation of Environment and Natural Resources of the Russian Federation and its territorial organs with participation of relevant scientific organisations.

3.2 Basin fish conservancy directorates and subordinate industrial and acclimation stations and fish protection inspections carry out control locally over the compliance with all requirements as specified by these Regulations and ensure:

- guarding of sites of acclimatization and stocking,
- education work among local residents to explain the need of protection of introduced species,
- collection and submission on a regular basis to TSUREN of comprehensive information on all releases of stocking material and results of stocking,
- monitoring of acclimatization together with territorial organs of conservation of environment and natural resources and scientific organisations.

4. Responsibilities for non-compliance with procedures to be used in acclimatization of fish, other aquatic organisms and stocking

4.1 Managers of companies engaged in acclimatization and stocking into natural waters and reservoirs shall bear personal responsibility for the cases, when:

- species for acclimatization and stocking have been released without relevant biological justification, approved by the Scientific Council on Acclimatization of Fish and Invertebrates within the Ichthyological Commission,
- other species, including disease agents, which can cause epizooty in a reservoir, mortality of fish and other aquatic organisms have been introduced to reservoirs together with species for acclimatization and introduction,
- stocking material designated for introduction into natural waters and reservoirs has been used for stocking at lake farms.

4.2 Officials and persons, enterprises, institutions and organisations shall bear administrative responsibility for offences specified by item 4.1 or others related to non-compliance with ecological or other regulations and which caused mortality of aquatic organisms, deterioration of production conditions and other adverse ecological effects pursuant to Article 84 of the RF Law "On conservation of natural environment", Article 84 (2) of the RF Code "On administrative offences" and RF Law "On the procedure to calculate fines stipulated by the RF Code on Administrative Offences".

Prepared and signed by
The Directorate of Conservancy, Enhancement of Fish Resources and Fisheries Management

Agreed with the Ichthyological Commission

Approved through the Order of 27 December 1993 by
the Chairman of the Russian Fisheries Commission

L A W

OF THE UNION OF SOVIET SOCIALIST REPUBLICS

ON

CONSERVATION AND USE OF THE ANIMAL WORLD

Article 29 Transfers, acclimation and interbreeding of animals

Transfers of animals to new habitats, acclimatization of species which are new for the fauna of the USSR, and interbreeding of animals are allowed for scientific and economic purposes if underpinned by justification from relevant scientific organisations and after a decision from specially authorized governmental agencies on conservation and regulation of the use of animal world.

IAT9407

IAT(94)7

NORTH-EAST ATLANTIC COMMISSION
WORKING GROUP ON INTRODUCTIONS AND TRANSFERS OF SALMONIDS

INTERNATIONAL AGREEMENTS ON INTRODUCTIONS AND TRANSFERS

IAT(94)7

INTERNATIONAL AGREEMENTS ON INTRODUCTIONS AND TRANSFERS

INTRODUCTION

As part of its deliberations on the need for changes in measures to deal with introductions and transfers the Working Group will wish to consider existing international agreements. As a result of concern about the damage caused by poorly planned introductions, provisions dealing with introductions have been included in many international agreements. These are summarised briefly below.

United Nations Convention on the Law of the Sea

Under Article 196 "States shall take all measures necessary to prevent, reduce and control pollution of the marine environment resulting from the use of technologies under their jurisdiction or control, or the intentional or accidental introduction of species, alien or new, to a particular part of the marine environment, which may cause significant and harmful changes thereto".

United Nations Environment Programme Convention on Biological Diversity of 5 June 1992

Article 8 of this Convention states that "Each Contracting Party shall as far as possible and as appropriate

(g) Establish or maintain means to regulate, manage or control the risks associated with the use and release of living modified organisms resulting from biotechnology which are likely to have adverse environmental impacts that could affect the conservation and sustainable use of biological diversity;
(h) Prevent the introduction of, control or eradicate those alien species which threaten ecosystems, habitats or species".

Convention on the Conservation of European Wildlife and Natural Habitats of 19 September, 1979 (the Bern Convention)

Under Article 11, paragraph 2 of this Convention each Contracting Party undertakes:

a) to encourage the reintroduction of native species of wild flora and fauna when this would contribute to the conservation of an endangered species, provided that a study is first made in the light of the experiences of other Contracting Parties to establish that such reintroduction would be effective and acceptable;
b) to strictly control the introduction of non-native species.

Convention on the Conservation of Migratory Species of Wild Animals of 23 June 1979 (the Bonn Convention)

Under Article V, paragraph 5(e) conservation and management agreements concluded under the Convention should provide for "conservation and, where required and feasible, restoration

of the habitats of importance in maintaining a favourable conservation status and protection of such habitats from disturbances, including strict control of the introduction of, or control of already introduced, exotic species detrimental to the migratory species". The Bonn Convention does not, however, apply to Atlantic salmon.

Preliminary Draft Code of Conduct for Responsible Fishing

The Declaration of Cancun which was adopted at the International Conference on Responsible Fishing requested FAO to draft, in consultation with other international organizations, an International Code of Conduct on Responsible Fishing. During a Technical Consultation held in Rome, Italy from 26 September - 5 October 1994 a Preliminary Draft Code was reviewed. Article 8 of this Preliminary Draft addresses Aquaculture Development and paragraph 8.2.6 states that "States should conserve genetic diversity and maintain genetic integrity of aquatic communities and eco-systems by minimizing the risks of introducing non-native species or genetically altered stocks used for aquaculture including culture-based fisheries into waters". This Code of Conduct is still being developed and was considered by the Committee on Fisheries at its Twnety-first session during 10-15 March 1995. It is clear from the inclusion of this Article that FAO recognises the potentially damaging effects of introduced species on native species and their environment.

ICES Code of Practice to Reduce the Risks of Adverse Effects Arising from Introductions of Non-Indigenous Marine Species

At its 1973 Statutory Meeting, ICES adopted a Code of Practice to Reduce the Risks of Adverse Effects Arising from Introduction of Non-Indigenous Marine Species. Revised Codes were adopted in 1979 and in 1990. These Codes apply to anadromous as well as marine species. The revised 1990 Code of Practice to Reduce the Risks of Adverse Effects Arising from Introduction and Transfers of Marine Species includes details of the procedures to follow prior to reaching a decision regarding new introductions; the actions to be taken if it is decided to proceed with the introduction; and the procedures to be followed for introduced or transferred species which are part of current commercial practice. The Code also encourages regulatory authorities to use the strongest possible measures to prevent unauthorised or unapproved introductions.

The Code recommends that prior to reaching a decision, member countries contemplating a new introduction should be requested to present to the Council of ICES, at an early stage, details of the proposed introduction (including species, stage in the life-cycle, area of origin, proposed plan of introduction and objectives, etc.) so that the Council can consider the possible outcome and offer advice on the acceptability of the choice. Further, the appropriate authorities of the importing country should examine each proposed introduction in its natural environment, and assess the justification for the introduction, its relationship with other members of the ecosystem and the role played by parasites and diseases. The probable effects of the introduced species in its new area should be carefully assessed. This information should be communicated to ICES for evaluation and comment. If the decision is taken to proceed with the new introduction a broodstock should be established in an approved quarantine situation in sufficient time to allow adequate evaluation of its health status, and only the first generation progeny of the introduced species should be transplanted to the natural environment if no diseases or parasites become evident. Initially, the F1 progeny should be placed on a limited scale into open waters to assess ecological interactions with native species. All effluents from hatcheries or establishments used for quarantine should be

sterilised in an approved manner. A continuing study of the introduced species in its new environment should be made and progress reports made to ICES.

For introduced or transferred species which are part of current commercial practice the Code recommends periodic inspection by the receiving country of material prior to mass transplantation to confirm freedom from introducible pests and diseases with importation discontinued immediately if inspection reveals any undesirable development. The Code also recommends inspection and control of each consignment on arrival, quarantine and disinfection whenever possible and where appropriate and establishment of broodstocks certified free of specific pathogens.

In 1994, the ICES Working Group on Introductions and Transfers of Marine Organisms prepared a further revision of the Code of Practice. This latest revision has a shortened title (1994 Code of Practice on Introductions and Transfers of Marine Organisms), includes a preamble which warns of the risks associated with introductions and/or transfers and includes a section on genetically modified organisms. Greater emphasis is placed on the genetic implications of introductions and transfers. The Revised Code was recommended for adoption by the Council of ICES at its Annual Science Conference in St John's, Canada, in September 1994.

EIFAC Code of Practice to Reduce the Risk of Adverse Effects Arising from the Introduction and Transfer of Inland Aquatic Organisms

At its Fourteenth session held in Bordeaux, France in 1987 the European Inland Fisheries Advisory Commission (EIFAC) endorsed the efforts of the first session of its Working Party on Introductions. The report of the EIFAC Working Party included a "Code of Practice to Reduce the Risk of Adverse Effects Arising from the Introduction and Transfer of Inland Aquatic Organisms" which was based closely upon the Revised 1979 ICES Code of Practice.

The Code recommends that prior to reaching a decision regarding proposed introduction, member countires should provide information to EIFAC so that advice may be offered. It is further recommended that the appropriate authorities of the importing country examine each "candidate for admission" and assess carefully the probable effects of the introduction. If the decision is taken to proceed with the introduction it is recommended that a broodstock developed from imported eggs is established in an approved quarantine situation and, if no pathogenic organisms including parasites become evident, the first generation progeny of the introduced species may be transplanted to culture sites or to the natural environment, preferably to small, isolated and restricted river basins or lakes. Following the introduction it is recommended that a continuing study of the introduced species is made and progress reports submitted to EIFAC and efforts should be made to contain the species within the water bodies into which the introduction was made. The Code also encourages regulatory agencies to use the strongest possible measures to prevent unauthorized or unapproved introductions and transfers. Where introductions and transfers are part of current commercial practice the Code recommends periodic inspection of material by the receiving country, prior to mass transplantation, inspection and control of each consignment on arrival, quarantining or disinfection where appropriate and establishment of broodstocks certified free of specified pathogens.

The EIFAC Code will be reviewed to ensure uniformity with the amendments to the ICES Code. Furthermore, the need for increased effort to make the Codes more visible and more

practical in certain areas has been recognised and a Users Manual is being considered in this regard.

International Union for Conservation of Nature and Natural Resources (IUCN) Position Statement on Translocation of Living Organisms - Introductions, Re-introductions and Re-stocking

The IUCN statement is divided into three sections dealing with introductions, re-introductions and re-stocking and describes the decisions that should be taken before proceeding with these different categories of translocation.

Introductions, ie the intentional or accidental dispersal by human agency of a living organism outside its historically known native range, should only be considered if clear and well defined benefits can be foreseen and if no native species is considered suitable. However, no alien species should be deliberately introduced into any natural habitat, and no alien species should be introduced into any semi-natural habitat unless there are exceptional reasons for doing so and only following careful investigation and planning in advance. With regard to introductions to man-made habitats, it is recommended that an assessment be made of the effects of surrounding natural and semi-natural habitat and appropriate action taken to minimise negative effects. With regard to planning a beneficial introduction, essential features of investigation and planning consist of an assessment phase; an experimental, controlled trial and the extensive introduction phase. The extensive introduction should only be carried out if the introduced species behaves as predicted under the experimental conditions. The statement also deals with accidental introductions and states that measures should be taken to discharge the escape of farmed, including captive bred, alien wild animals and newly domesticated species which could breed with their wild ancestors if they escape.

Re-introduction, ie the release of a species into an area in which it was indigenous before extermination, should only take place where the original causes of the extinction have been removed and where the habitat requirement of the species are satisfied. The programme for a re-introduction should consist of a feasibility study, a preparation phase, release or introduction phase and a follow-up phase.

Restocking, ie the release of a species into an area in which it is already present, may be a useful tool, for example, where a population has dropped below critical levels and recovery by natural growth will be dangerously slow. Before restocking care should be taken to ensure that the problem is not the result of poor management which has allowed deterioration in the habitat or over-utilisation of the population. Where there are compelling reasons for re-stocking attention should be paid to the genetic constitution of stocks used; the species used for restocking must be of the same race as the population into which they are released and individuals from a similar climatic or ecological zone should be used.

The IUCN position statement also recommends that governments should set up or utilise existing scientific management authorities to advise on policy matters concerning translocations and on individual proposals for translocation of wild species, capture and transport of wild animals, selection and propagation of wild species for domestication and prevention and control of invasive alien species. At the national level, legislation is required to curtail introductions. Deliberate introductions should be subject to a permit system which should apply not only to species introduced from abroad but also to native species introduced to a new area in the same country. With regard to accidental introductions for all potentially

harmful organisms there should be a prohibition on their importation and trade in them except under a permit and under stringent conditions. There should also be strict controls on the use of live fish bait to avoid inadvertent introductions of species into areas where they do not naturally occur. The person responsible for an introduction without a permit or by negligence should be legally liable for the damage incurred and should, in particular, bear the costs of eradication.

Position Statement of the American Fisheries Society on Introductions of Aquatic Species

In 1972 the American Fisheries Society endorsed a position statement on Introductions of Aquatic Species, subsequently modified in 1986, containing the following elements:

1. Encourage fish importers, farmers, dealers and hobbyists to prevent and discourage the accidental or purposeful introduction of aquatic species into their local ecosystems;
2. Urge that no city, county, state, province, or federal agency introduce, or allow to be introduced, any species into any waters within its jurisdiction which might contaminate any waters outside its jurisdiction without official sanction of the exposed jurisdiction;
3. Urge that only ornamental aquarium fish dealers be permitted to import such fishes for sale or distribution to hobbyists;
4. Urge that importation of fishes for purposes of research not involving introduction into a natural ecosystem, or for display in public aquaria by individuals or organizations, be made under agreement with responsible government agencies;
5. Urge that all species considered for release be prohibited and considered undesirable for any purposes of introduction into any ecosystem unless that species shall have been evaluated upon the following bases and found to be desirable:

    a) Rationale for seeking an import should be clearly stated and demonstrated;
    b) Search of possible contenders should be made;
    c) Preliminary assessment of the impact on the target aquatic ecosystems, general effect on game and food fishes or waterfowl, on aquatic plants and public health;
    d) Publicity and review to facilitate careful evaluation; no importation is so urgent that it should not be subject to careful evaluation.
    e) Experimental research in confined waters to test the impact;
    f) Evaluation or recommendation;
    g) Introduction, if the evaluation process is favourable, followed by monitoring.

Resolution by the Parties to the Convention for the Conservation of Salmon in the North Atlantic Ocean To Minimise Impacts From Salmon Aquaculture on The Wild Stocks

This Resolution, developed in response to concern about the adverse impacts of salmon aquaculture on the wild stocks, was adopted by the Council of NASCO at its Eleventh Annual Meeting in 1994 and contains a number of elements concerning transfers. For example, Article 2 states that each Party shall take measures, to the full extent practicable, to minimise escapes of farmed salmon; minimise the straying of ranched salmon and minimise adverse genetic and other biological interactions from enhancement activities. Under Part I of the Annex to the Resolution it is stated that "transfers of salmon shall be conducted so as to minimise the potential for transmission of diseases and parasites, and for genetic and other biological interactions. Mechanisms to control transfers should be introduced where necessary".

Protocols for the Introduction and Transfer of Salmonids in the North American Commission Area of NASCO

Introductions and transfers of aquatic species for stock restoration and to satisfy demand for recreational/commercial fishing have been carried out in Canada and the north-eastern USA since the 1800's. In recent years there has been increasing interest in introductions and transfers for use in aquaculture. At the North American Commission's First Annual Meeting a Scientific Working Group on Introductions of New Salmonids on the Atlantic Seaboard was established and this Working Group, subsequently renamed the NAC Scientific Working Group on Salmonid Introductions and Transfers, has continued to provide advice and comments to the Commission on relevant issues. In a report to the Commission in 1987 the Group recognised that there was a potential for adverse impacts on North American Atlantic salmon resulting particularly from the transfer of European Atlantic salmon as well as from the introduction of Pacific salmonids, particularly steelhead rainbow trout (*Oncorhynchus mykiss*), to the east coast of North America. Furthermore, the different mechanisms in place in the United States and Canada offered varying degrees of control against the spread of disease agents and a particular concern was expressed about the possible transfer from the west coast of the virus causing the disease Infectious Haematopoietic Necrosis (IHN) which it was believed would probably "prove devastating to indigenous salmonid stocks". Concern was also expressed about the growing use of "genetically homozygous" Atlantic salmon in aquaculture and their occurrence in the wild following escape and the use of genetically engineered stocks. The Working Group considered that blanket bans against all salmonid introductions and transfers may not be warranted but that there was a need for interim measures until appropriate protocols could be developed. These protocols developed by the Working Group were adopted by the North American Commission at its Ninth Annual Meeting in 1992 and have the following objectives:

a) To minimise the risk of introduction and spread of infectious disease agents;
b) To prevent the reduction in genetic diversity and prevent the introduction of non-adaptive genes to wild Atlantic salmon populations;
c) To minimise the intra- and inter-specific impacts of introductions and transfers on Atlantic salmon stocks.

The protocols which are considered the minimum to safeguard the wild stocks are reviewed every two years and were amended at the Commission's Annual Meeting in 1994. Three zones (I-III) have been designated based on the degree of degradation or manipulation of the wild salmon populations. To allow operational flexibility there are three classes of rivers (I-III) although in most cases the river is given the same class as the zone in which it occurs. The following Protocols apply to all three zones:

i) Reproductively viable strains of Atlantic salmon of European origin, including Icelandic origin, are not to be released or used in aquaculture in the North American Commission area;
ii) No live salmonid fish, fertilised eggs, gametes or fish products are to be imported from IHN enzootic areas unless sources have an acceptable history of disease testing demonstrating the absence of IHN;
iii) Prior to any transfer of eggs, juveniles or broodstock, a minimum of three health inspections of the donor facility will be undertaken during the two-year period immediately preceding the transfer; the inspections must reveal no evidence of either emergency or restricted fish pathogens in the donor population;

iv) Prior to any movement of non-native fishes into a river system or rearing site inhabited by Atlantic salmon the agency with jurisdiction shall review and evaluate fully the potential for adverse impacts on wild Atlantic salmon populations;

(v) Hatchery rearing programmes should try to use only F1 progeny from wild stocks; derive broodstock from all phenotype age-groups and the entire run of a donor population; avoid selection of "best fish"; and during spawning make only single paired matings of a broodstock of no less than 100 parents.

Each zone then has specific protocols dealing with rehabilitation, establishment or re-establishment of salmon in rivers or parts of watersheds with no salmon; and aquaculture (including ranching). The protocols are most restrictive for Zone I (containing rivers which are mainly pristine) and least restrictive for Zone III (containing rivers where habitats have been altered, or the fish communities destabilised and where exotic species are present). The protocols also detail the responsibilities of the proponents and of government agencies having the authority to issue permits and they provide details of the information required in preparing proposals and on how proposals should be evaluated. The responsibilities of the NAC Scientific Working Group on Salmonid Introductions and Transfers are also detailed and these include maintaining an inventory of all introductions of salmonids; of transfers of salmonids from IHN-infected areas and of importation of salmonids across national boundaries into the Commission area. In this way the Working Group can review and evaluate all introductions and transfers before they take place and report to the Commission.

CONCLUSIONS

From this brief review it is clear that the potentially damaging effects of introductions and/or transfers are clearly recognised in international conservation agreements. Some of these agreements are regional and are not therefore of relevance to all NASCO Parties; others are global but have not been accepted by all NASCO Parties. Some of these agreements commit signatories to take measures to protect against damage resulting from introductions and/or transfers but offer no guidance on the nature of the measures required. Others, such as the ICES and EIFAC codes, and the IUCN Position Statement provide general guidance. The agreements also vary considerably in their scope. The ICES Code deals with marine organisms (including anadromous species), the EIFAC Code deals with inland aquatic organisms and the IUCN Position Statement applies to all living organisms. The ICES and EIFAC Codes and the AFS Protocols are non-binding, whereas the NAC Protocols deal specifically with salmonids and are being incorporated in the domestic laws, regulations and policies of Canada and the United States. Despite the existing international agreements it is clear that in the North-East Atlantic the parasite *Gyrodactylus salaris* has been introduced inadvertently across international borders and spread within countries, threatening a number of salmon stocks with extinction. The North-East Atlantic Commission's Working Group on Introductions and Transfers might therefore wish to consider whether some form of international agreement or guidelines dealing specifically with salmonids is desirable or whether it considers that the existing international agreements are adequate.

ANNEX 3

NORTH-EAST ATLANTIC COMMISSION

NEA(95)12

INTRODUCTIONS AND TRANSFERS

NEA(95)12

INTRODUCTIONS AND TRANSFERS

1. The North-East Atlantic Commission, having considered evidence of the damage that can be done to wild salmon stocks by introductions and transfers, recognised that such movements pose genetic, ecological and disease and parasite risks to the wild Atlantic salmon. It is clear that such damage can be so severe as to render certain wild salmon stocks extinct. The fact that diseases and parasites have been first introduced and then spread into other areas previously unaffected strongly suggests the inadequacy of the arrangements existing at the time, whether that be because of the nature of those arrangements or because of lack of implementation. In recent years there has been a strengthening of legislation although the measures are of a different nature depending on the Contracting Parties.

2. The North-East Atlantic Commission came to the view that, to protect wild salmon stocks there should be measures stronger than those at present in force. The Commission looked at a number of options for making conservation of the wild stocks more assured and, subject to reservations on the implementation of some of the measures which may be incompatible with existing legislation, the Parties, agreed, in principle, on the guidelines below. The Parties agreed to implement the measures in the proposed guidelines as soon as practicable and to present the guidelines in an appropriate form for formal approval before or at the next meeting of the Commission. (These proposed guidelines do not apply to the use of introductions or transfers for research purposes provided that fish moved for such purposes are held in secure quarantine facilities.) The proposed guidelines are complementary to the recommendations on salmon farming, ranching and enhancement in the Resolution by the Parties to the Convention for the Conservation of Salmon in the North Atlantic Ocean to Minimise Impacts from Salmon Aquaculture on the Wild Salmon Stocks (CNL(94)53) adopted by the Council in 1994.

3. **Movements Originating from Outside the North-East Atlantic Commission Area**

- Movements into the Commission area of live Atlantic salmon and their eggs which have originated from outside the Commission area should not be permitted.

4. **Transgenic Atlantic Salmon**

- Transgenic Atlantic salmon (and other salmonids containing genetic material from Atlantic salmon) should not be permitted in the Commission area except in secure self-contained facilities.

  On this point, however, there is at this stage no unanimous position.

5. **Movements within the North-East Atlantic Commission Area**

(a) *Specified diseases and parasites*

- Mapping of the presence of serious diseases and parasites should be used to establish epidemiological zones, i.e. zones free of specific pathogens, covering

the Commission area. Management measures within these zones should include monitoring to confirm the disease status of a zone and eradication. These zones should be established for at least the following diseases: Viral Haemorrhagic Septicaemia (VHS), Infectious Haematopoietic Necrosis (IHN), Infectious Salmon Anaemia (ISA) and the parasite *Gyrodactylus salaris*.

- Movements of live salmonids and their eggs from a zone where any of the specified diseases is present to a zone free of these diseases should not be permitted. However, movements of salmonid eggs should be permitted where there is no risk of transmission of the specified diseases or parasite.

(b) *Unknown diseases and parasites*

- The North-East Atlantic Commission recommends the strengthening of procedures for the early identification and detection of, and rapid response to, an outbreak of a previously unknown disease or parasitic infection likely to affect Atlantic salmon. However, it is recognised that even with such procedures it may not be possible to respond in time to prevent the spread of such an infection. The North-East Atlantic Commission considered the concept of zones designed to reduce the spread of such diseases. Such zones could reinforce natural barriers to the spread of diseases and parasites. They could be defined using geographical, climatic and biological criteria and might involve the territories of one or of more than one Party. Movements of live salmonids between such zones would be prohibited. The EU indicated that the implementation of the zones could be incompatible with existing Community legislation.

(c) *Health inspections of donor facilities*

- Movements of live salmonids and their eggs from hatcheries to areas containing Atlantic salmon stocks, or to facilities where there is a risk of transmission of infection to such areas, should only take place from facilities where regular inspections have not detected significant diseases and parasites.

6. Movements of Non-Indigenous Fish

- No non-indigenous fish should be introduced into a river containing Atlantic salmon without a thorough evaluation of the potential adverse impacts on the Atlantic salmon population(s) which indicates that there are no risks of adverse ecological interactions. Where a decision is taken to proceed with the introduction of a non-indigenous species it should be carried out in accordance with the codes of practice developed by ICES and EIFAC.

- Introductions of non-indigenous anadromous salmonids into the Commission area should not be permitted.

7. Classification of Rivers

- The North-East Atlantic Commission will consider the development of a classification system for Atlantic salmon rivers as a suitable basis for the development of management measures in relation to introductions and

transfers. The rationale for this approach is to permit different measures to be developed for each class of river.

8. **Unintentional Introductions and Releases and Related Education and Information**

- The North-East Atlantic Commission is concerned at the impacts of unintentional introductions of aquatic species which may adversely affect wild salmon stocks. Such introductions and transfers can occur, for example, in ships' ballast water, with the use of containers for transport of fish, as a result of the release of live bait or on fishing equipment. It is recommended that steps should be taken to limit the risks from such unintentional introductions. To this end it recommends that the NASCO Secretariat produces educational material and other information to increase awareness of the risks.

9. **Ad Hoc Working Group on Introductions and Transfers**

The North-East Atlantic Commission asked the Secretary to complete the following work:

- review the suitability of the descriptive classes used in the NASCO rivers database as a classification system that could be used as a basis for the application of relevant measures for different river classes;

- review and propose appropriate criteria for defining zones designated to reduce the spread of diseases and parasites.

The Contracting Parties should work by correspondence so that the Secretary could present a draft Resolution on Guidelines on Introductions and Transfers of Salmonids to the Commission at its Thirteenth Annual Meeting. If there should be a need for a Working Group each Party should nominate experts for an ad hoc Working Group to be chaired by the Secretary. If the Secretary decides that an inter-sessional meeting proves to be necessary, it is agreed to hold this in Brussels. Another possibility would be to have a meeting during the Thirteenth Annual Meeting of the Commission.

ANNEX 4

NORTH-EAST ATLANTIC COMMISSION

NEA(95)10

REGULATORY MEASURE FOR FISHING OF SALMON IN THE FAROE ISLANDS FOR THE CALENDAR YEAR 1996

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 1996 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 470 tonnes.

This quota was not opposed subject to the condition that the situation be thoroughly examined on the basis of all available information at the Thirteenth Annual Meeting.

This quota was agreed as an interim measure leading towards a quota based on a predictive biological model as soon as such scientific advice is available.

Appendix 1

The following regulatory measures for the fishing of salmon in the fisheries zone of the Faroe Islands for the year 1996 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 30 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 5

COUNCIL

CNL(95)49

REQUEST FOR SCIENTIFIC ADVICE FROM ICES

CNL(95)49

REQUEST FOR SCIENTIFIC ADVICE FROM ICES

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

   a) describe the events of the 1995 fisheries;
   b) describe the status of the stocks and, where appropriate, evaluate the causes for any changes in salmon abundance with special reference to changes in natural mortality;
   c) identify data deficiencies and research requirements relevant to the management of salmon stocks.

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

   a) possible explanations for changes in sea-age at maturity of Atlantic salmon;
   b) the criteria for defining salmon stocks;

3. Update the evaluation of the effects of the following 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 since 1991;
   c) the suspension of commercial fishing activity during 1993 and 1994 at West Greenland.

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

   a) review the age specific target spawning levels in Canadian rivers;
   b) provide catch options with an assessment of risks relative to the objective of achieving target spawning escapement.

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

   a) provide estimates of age specific spawning targets;
   b) provide catch options with an assessment of risks relative to the objective of achieving target spawning escapement;

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 1995.

ANNEX 6

LIST OF NORTH-EAST ATLANTIC COMMISSION PAPERS

Paper No.	Title
NEA(95)1	Provisional Agenda
NEA(95)2	Draft Agenda
NEA(95)3	Report of the North-East Atlantic Commission Working Group on Introductions and Transfers of Salmonids
NEA(95)4	Draft Report of the Twelfth Annual Meeting
NEA(95)5	NASCO Tag Return Incentive Scheme, 1995 Prize
NEA(95)6	Introductions and Transfers
NEA(95)7	Agenda
NEA(95)8	Introductions and Transfers (Including the Amendments Proposed by the European Union) (1st draft)
NEA(95)9	Introductions and Transfers (Including the Amendments Proposed by the European Union) (2nd draft)
NEA(95)10	Regulatory Measure for Fishing of Salmon in the Faroe Islands for the Calendar Year 1996
NEA(95)11	Report of the Twelfth Annual Meeting
NEA(95)12	Introductions and Transfers
CNL(95)15	Report of the ICES Advisory Committee on Fishery Management
CNL(95)49	Request for Scientific Advice from ICES

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

TWELFTH ANNUAL MEETING

OF THE

WEST GREENLAND COMMISSION

12-16 JUNE 1995
GLASGOW, SCOTLAND

CHAIRMAN:	MR ERNESTO PENAS (EU)
VICE-CHAIRMAN:	MR ROBERT JONES (USA)
RAPPORTEUR:	MR DAVID DUNKLEY (EU)
SECRETARY:	DR MALCOLM WINDSOR

WGC(95)11

CONTENTS

WGC(95)11

REPORT OF THE TWELFTH ANNUAL MEETING OF THE WEST GREENLAND COMMISSION OF THE NORTH ATLANTIC SALMON CONSERVATION ORGANIZATION 12-16 JUNE 1995, HILTON HOTEL, GLASGOW, SCOTLAND

1. OPENING OF THE MEETING

1.1 The Twelfth Annual Meeting of the West Greenland Commission was opened by the Vice-Chairman, Mr Ernesto Penas (EU), who welcomed the delegates to Glasgow.

1.2 A list of participants at the Twelfth Annual Meeting of the Council and Commissions is included on page 165 of this document.

2. ADOPTION OF THE AGENDA

2.1 The Vice-Chairman pointed out that following the resignation of Mr David Egan (USA) as Chairman, the agenda would have to be modified to allow the election of a new Chairman. The Commission adopted the modified Agenda, WGC(95)9 (Annex 1).

3. ELECTION OF OFFICERS

3.1 The representative of Canada proposed the election of Mr Ernesto Penas as Chairman. The nomination was seconded by the representative of Denmark (in respect of the Faroe Islands and Greenland). There being no other nominations, Mr Penas was elected as Chairman.

3.2 The representative of the European Union proposed Mr Robert Jones (USA) as Vice-Chairman. The nomination was seconded by representative of the USA. There being no other nominations, Mr Jones was elected as Vice-Chairman.

4. NOMINATION OF A RAPPORTEUR

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

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 as observers at its meetings for a trial period of two years covering the 1994 and 1995 meetings.

5.2 The representative of Denmark (in respect of the Faroe Islands and Greenland) reminded the Commission that the agreement to permit the attendance of Non-Government Observers at its meetings was for two years, 1994 and 1995. He also pointed out that at the Eleventh Meeting of the Commission held in Oslo in 1994, he had reminded the Commission that any articles published by the Observers should be copied to the Secretariat and reviewed by the delegation of Denmark (in respect of the Faroe Islands and Greenland) to determine that they reflected accurately what had happened at the meeting. Since last year, only three groups had sent reports to the

Secretariat and of these, only two were considered to be accurate. The representative of Denmark (in respect of the Faroe Islands and Greenland) reminded Observers that their presence at Commission meetings depended upon the agreement of all delegations and this could be withdrawn. The representative of Denmark (in respect of the Faroe Islands and Greenland) said that in order to ensure that information to the public was accurate, the members of the press should be allowed to attend Commission meetings if Observers were allowed to attend. He further suggested that as the trial period for attendance by Non-Government Observers was now completed, the matter should be discussed by Heads of Delegations to reach an agreement on the future participation of Observers.

5.3 The representative of the European Union underlined the importance of the intervention of the representative of Denmark (in respect of the Faroe Islands and Greenland). He pointed out that any reports of the Commission meetings must be accurate.

5.4 The representative of the USA stated that he supported the views expressed by the representative of the European Union. He felt that it was simply responsible and courteous for people to provide copies of articles to the people about whom they were written.

5.5 The Chairman referred to the deliberations in the Council on the conditions governing attendance of NGOs at the 1996 and subsequent meetings, and agreed that the present arrangement continue until further notice. The Commission agreed that accredited media would be allowed to attend the meetings and asked that the Secretary develop appropriate criteria which would be agreed by correspondence and issued before the Thirteenth Annual Meeting.

6. REVIEW OF THE 1994 FISHERY AND ACFM REPORT FROM ICES ON SALMON STOCKS IN THE COMMISSION AREA

6.1 The Chairman of ACFM, Mr Eskild Kirkegaard, presented the Scientific Advice from ICES relevant to the West Greenland Commission, CNL(95)15, prepared in response to a request from the Commission at its Eleventh Annual Meeting. The ACFM report from ICES, which contains the scientific advice relevant to all Commissions, is included on page 171 of this document.

6.2 The Chairman of ACFM reported that in 1993 and 1994 the salmon fishery in Greenland had been restricted to an estimated unreported subsistence catch of 12 tonnes, equivalent to about 4,000 fish. There was no information available on the size or composition of the 1994 catch.

6.3 The Chairman of ACFM pointed out the continuing downward trend in recent years in the estimated pre-fishery abundance of non-maturing 1SW salmon. The estimate for 1993 was the lowest in the time series. The thermal habitat model used in the prediction exercise had been improved by considering three winter months (January, February and March) instead of March alone as in previous years. He noted that if the same mechanism as used last year was to be adopted this year, a quota of 77t would be recommended. However, ACFM were conscious of the fact that the 50% probability level of achieving target spawning levels also meant that there was a 50% probability that

targets would not be met. He pointed out that in the last six years, the predicted pre-fishery abundance had consistently overestimated the observed value. At high pre-fishery abundance levels the predicted value tended to underestimate the observed value but at low levels, the predicted value tended to overestimate the observed value. Latest estimates show that pre-fishery abundance is now very close to the level of 2SW salmon returns to North America so that any catch might have a negative impact on the number of returning salmon. Thus, ACFM recommended that the mixed stock fishery in the West Greenland Commission area should be closed in 1995 and the mixed stock fishery in the North American Commission area should be closed in 1996. He also recommended that a research survey should be undertaken at West Greenland to provide necessary biological information on the status and composition of the stocks there.

6.4 The representative of Canada asked if there was any reason why predicted levels of pre-fishery abundance had overestimated observed levels for so many years. The Chairman of ACFM said that the errors involved were not random but systematic. However, it was not possible to identify any biological reasons for this with the information available.

6.5 The representative of Canada asked if this information comparing predicted and observed levels of pre-fishery abundance levels was new. The Chairman of ACFM said the data were not new but had not been examined in that way previously.

6.6 The representative of the USA reminded the Commission that while great advances had been made in the development of predictive models to estimate pre-fishery abundance, it had to be remembered that we had no understanding of the biological mechanisms behind the model. It was, therefore, necessary to be aware of the limitations of the technique. The Chairman of ACFM reminded the Commission that this point had been made to the Commission at previous meetings.

6.7 The representative of Canada asked why predicted levels of pre-fishery abundance had underestimated observed levels in 1983-1988 and whether something had happened in 1988 to reverse the relationship. The Chairman of ACFM said it was not possible to give a definitive answer. It was clear that something had happened but the difference was not due to any mathematical problem.

6.8 The representative of Denmark (in respect of the Faroe Islands and Greenland) reminded the Commission that at the Eleventh Annual meeting of the Commission, it had been pointed out that it was not appropriate for ICES to state management objectives. Since the ACFM advice this year was preceded by the term "To protect all the stocks contributing to the fishery...", he felt that ICES, without request from NASCO, had unilaterally established this as the management objective. The Chairman of ACFM agreed that it was not the duty of ICES to define management objectives. However, where there is a lack of clear management objectives and there is a likelihood of catches exceeding safe biological limits, ICES felt it was correct to address this. With regard to the present level of the fishery, there was clearly a chance that stocks may decrease to below safe biological limits. This was not due to high exploitation rates but to other factors. However, the only factor which may be controlled is the level of exploitation.

7. REGULATORY MEASURES

7.1 The representative of Denmark (in respect of the Faroe Islands and Greenland) stated that there had been no catches in Greenland in 1993 and 1994, other than the agreed subsistence fishery, and yet salmon stocks still appeared to be low. He said that the reductions in catches in the Greenland fishery had not had any visible influence in the returns to the countries of origin of the salmon, suggesting that the critics of the Greenland fishery had been mistaken in identifying this fishery as the main threat to salmon stocks.

7.2 The representative of Denmark (in respect of the Faroe Islands and Greenland) pointed out that the quota levels set in 1993 and 1994 had been 213t and 159t respectively but had not been fished. He compared these levels with estimated losses due to the effects of acid precipitation (1200t), the effects of the parasite *Gyrodactylus salaris* (300-500t), fishing by Panamanian and Polish registered vessels (up to 350t) and the probable losses of thousands of tonnes due to habitat degradation in homewaters. The effects of genetic pollution and escapes from aquaculture establishments had not been quantified but could be large. Other factors might include pollution from the nuclear and oil industries. Unreported catches in homewaters had been of the level of 1600 -3200t *per annum* since 1987 but nothing had been done to reduce these losses by the homewater countries. The level of unreported catches had gone down but this was because they were calculated as a proportion of the reported catches.

7.3 The representative of Canada agreed with the representative of Denmark (in respect of the Faroe Islands and Greenland) that there was a number of factors involved. However, he drew the Commission's attention to a statement in the Report of the Working Group on North Atlantic Salmon that "The 2SW salmon estimated to have returned to North American waters (35,009) as a result of the closure of the Greenland fishery in 1993 therefore represented between 20 to 40% of the total 2SW return of 87,738 to 176,435." He stated that this should not be forgotten.

7.4 The representative of the United States referred to the ACFM advice that there should be no fishery at West Greenland this year. The representative of Canada also referred to this advice. The US and Canadian delegations jointly tabled a proposal for a catch quota at West Greenland, WGC(95)7 (Annex 2). The representative of Denmark (in respect of the Faroe Islands and Greenland) referred to the historic five-year agreement agreed by NASCO in 1993 which was based on science and to the fact that the model was central to this agreement. He indicated that he would therefore vote against the proposal. The Chairman referred to the fact that one vote against a proposal would cause it to fail. The US and Canada accepted a recommendation from the Chair that the proposal be withdrawn.

7.5 A catch quota, WGC(95)6, was then proposed by the Chair. The representative of Canada indicated that, in the light of the scientific advice, and the experience in other fishery organizations, his delegation would not be able to support the proposal. The representative of Denmark (in respect of the Faroe Islands and Greenland) indicated that they could support the proposal which in their view was consistent with the 1993 agreement although this would mean that their quota would go down by more than 50%. The EU substantiated its position with reference to the

importance of maintaining the model of 1993 which incorporates provision for flexibility and that the inputs would be reviewed next year, the necessity to ensure that a research programme would be carried out this year and that the difference between the two proposals was not great. Therefore, on balance, taking account of all these elements the EU could, with some hesitation, support the proposal from the Chair. The representative of the USA urged delegates to refer carefully to document WGC(93)9 and consider the flexibility indicated in the sections dealing with the quota mechanism and the allocation of surplus. He reminded delegates that the flexibility could be used to adjust the quota to reflect the advice from ICES. He would not therefore be able to support the proposal.

7.6 The Chairman then put the proposal to the vote. Denmark (in respect of the Faroe Islands and Greenland) and the European Union voted in favour. Canada and the USA abstained. The measure was therefore adopted, WGC(95)10 (Annex 3). An explanatory note on the quota calculation, WGC(95)8, is contained in Annex 4.

8. RECOMMENDATIONS TO THE COUNCIL ON THE REQUEST TO ICES FOR SCIENTIFIC ADVICE

8.1 The Chairman of the Standing Scientific Committee, Dr Peter Hutchinson, reported that Mr Jens Møller Jensen (Denmark (in respect of the Faroe Islands and Greenland)) had retired and, accordingly, a new member of the Committee would have to be elected. The representative of Denmark (in respect of the Faroe Islands and Greenland) nominated Mr Michael Andersen (Denmark (in respect of the Faroe Islands and Greenland)). The Secretary reminded the Commission that members of the Standing Scientific Committee did not represent any particular delegations. It was agreed that Mr Andersen should be elected as a member of the Standing Scientific Committee.

8.2 The representative of Denmark (in respect of the Faroe Islands and Greenland) stated that many of the factors affecting salmon stocks related to the environment. He asked whether the questions posed to NASCO were being addressed to the correct Committee, suggesting that they might be addressed better by ACME than ACFM. The Chairman of ACFM replied that all requests for scientific advice were addressed to ICES rather than to an individual Committee and that requests would be channelled to the appropriate Committee by ICES. The Chairman of the Commission stated that it was important that questions to ICES were framed correctly so that it was clear how they should be dealt with.

8.3 The Commission reviewed document SSC(95)4 and agreed to recommend it to the Council as part of the annual request to ICES for Scientific Advice. The request to ICES agreed by the Council, CNL(95)49, is contained in Annex 5. The representative of Denmark (in respect of the Faroe Islands and Greenland) indicated that he would like to see ICES providing advice on issues other than those specifically referred to in the request from NASCO if they were relevant. He suggested that subsequent requests from NASCO might include a statement indicating that ICES should feel free to advise on any relevant issues it felt necessary.

9. ANNOUNCEMENT OF THE TAG RETURN INCENTIVE SCHEME PRIZE

9.1 The Chairman announced that the draw for prizes in the Tag Return Incentive Scheme was made by the Auditors at NASCO Headquarters on 1 June 1995. The winner of the Commission's prize was Mr Jens Willumsen, Arsuk, Greenland. The Commission offered its congratulations to the winner.

10. OTHER BUSINESS

10.1 The representative of the USA referred to the list of problems outlined earlier by the representative of Denmark (in respect of the Faroe Islands and Greenland) and said that these should be examined. He also asked about the development of predictive models for pre-fishery abundance of salmon originating in North-East Atlantic Commission area countries. The Chairman of ACFM reported that progress had been made in the development of such models but this was still at an early stage of development. For all Commission areas, it was hoped that links between the biology of the animals and the environment could be investigated.

10.2 The representative of the USA said that a number of the problems referred to earlier by the representative of Denmark (in respect of the Faroe Islands and Greenland) were being addressed both within and outwith NASCO. A number of Protocols had been developed, such as on the control of the spread of diseases. With regard to investigations into the causes and repair of habitat degradation, some countries where damage has been greatest have been leaders in trying to clean up the environment and have made significant progress in many areas. He also pointed out that NASCO should take a great deal of the credit in combatting the problem of the fishing for salmon in international waters by ships reflagged in countries such as Panama and Poland.

10.3 The representative of the USA recognised that the introduction of management proposals may impose problems on peoples who have few other resources but that this had to be balanced against the possible loss of salmon for everyone. There was a clear need for sound, scientific programmes to investigate these problems.

10.4 The representative of Denmark (in respect of the Faroe Islands and Greenland) welcomed the recognition for research survey work to be done at Greenland.

11. DATE AND PLACE OF NEXT MEETING

11.1 The Commission agreed to hold the next annual meeting during the Thirteenth Annual Meeting of the Council, in Gothenburg, Sweden, from 10-14 June 1996.

12. CONSIDERATION OF THE DRAFT REPORT OF THE MEETING

12.1 The Commission agreed the draft report of the meeting, WGC(95)3.

ANNEX 1

WGC(95)9
TWELFTH ANNUAL MEETING OF THE WEST GREENLAND COMMISSION
12-16 JUNE 1995, HILTON HOTEL, GLASGOW, SCOTLAND

AGENDA

1. Opening of the Meeting
2. Adoption of the Agenda
3. Election of Officers
4. Nomination of a Rapporteur
5. Non-Government Observers at Commission Meetings
6. Review of the 1994 Fishery and ACFM Report from ICES on Salmon Stocks in the Commission Area
7. Regulatory Measures
8. Recommendations to the Council on the Request to ICES for Scientific Advice
9. Announcement of the Tag Return Incentive Scheme Prize
10. Other Business
11. Date and Place of Next Meeting
12. Consideration of the Draft Report of the Meeting

ANNEX 2

WEST GREENLAND COMMISSION

WGC(95)7

PROPOSAL BY CANADA AND THE USA FOR A CATCH QUOTA FOR THE WEST GREENLAND FISHERY IN 1995

Having regard to the measure for the period 1993 to 1997, adopted by the Parties at its Tenth Annual Meeting, WGC(93)9 (attached), the Commission agrees to establish a catch quota for the West Greenland salmon fishery in 1995 of 45 metric tonnes including catch for research purposes.

The Commission also recognises that, in view of the scientific advice from ICES, it considers that some of the parameters used in the model may need to be updated. Such an update will be considered at its 1996 meeting.

Attachment

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.

WEST GREENLAND COMMISSION

WGC(95)10

CATCH QUOTA FOR THE WEST GREENLAND FISHERY IN 1995

Having regard to the measure adopted by the Parties at its Tenth Annual Meeting, WGC(93)9, and having regard to the West Greenland quota calculation, WGC(95)8, the Commission agrees to establish a catch quota for the West Greenland salmon fishery in 1995 of 77 tonnes.

Taking into account recommendations from ACFM that since the latest scientific sampling in this fishery was conducted in 1992, a research survey should be carried out, the Commission agrees to recommend to the Parties the undertaking of such a research survey in 1995.

Considering the opinion of ACFM that the model referred to above has consistently predicted higher levels of pre-fishery abundance than have been observed in the past 6 years, the Commission agrees that, at the next annual meeting, special consideration will be given to the pre-fishery abundance estimate to be used in the model.

ANNEX 4

WEST GREENLAND COMMISSION

WGC(95)8

EXPLANATORY NOTE ON THE 1995 WEST GREENLAND QUOTA CALCULATION

WGC(95)8

EXPLANATORY NOTE ON THE 1995 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 at that time, and thereafter the Parties will seek to achieve 100% of the ICES target spawning escapement reserve level.

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 1995 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 forecast of pre-fishery abundance of potential 2SW salmon of North American origin for 1995 as advised by ICES is:

244,000 salmon

FACTOR B: TARGET SPAWNING ESCAPEMENT RESERVE

The North American spawning target of 2SW salmon used by ICES in providing catch options in 1995 is

186,486 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

21,684 salmon

giving a revised total of **208,170 salmon**

Under the 1993 Regulatory Measure the Parties seek to achieve 100% of the target spawning escapement reserve for 1995

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 = 244,000 - 208,170

The surplus available for harvest is therefore | 35,830 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:

35,830 x 0.4 = | 14,332 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:

(14,332/0.54) - 14,332 = | 12,209 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 1995 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. [(14,332 x 2.525) + (12,209 x 2.660)] x 1.121/1000

i.e. (36,188 + 32,476) x 1.121/1000

i.e. **77 tonnes**

ANNEX 5

COUNCIL

CNL(95)49

REQUEST FOR SCIENTIFIC ADVICE FROM ICES

CNL(95)49

REQUEST FOR SCIENTIFIC ADVICE FROM ICES

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

   a) describe the events of the 1995 fisheries;
   b) describe the status of the stocks and, where appropriate, evaluate the causes for any changes in salmon abundance with special reference to changes in natural mortality;
   c) identify data deficiencies and research requirements relevant to the management of salmon stocks.

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

   a) possible explanations for changes in sea-age at maturity of Atlantic salmon;
   b) the criteria for defining salmon stocks;

3. Update the evaluation of the effects of the following 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 since 1991;
   c) the suspension of commercial fishing activity during 1993 and 1994 at West Greenland.

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

   a) review the age specific target spawning levels in Canadian rivers;
   b) provide catch options with an assessment of risks relative to the objective of achieving target spawning escapement.

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

   a) provide estimates of age specific spawning targets;
   b) provide catch options with an assessment of risks relative to the objective of achieving target spawning escapement;

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 1995.

ANNEX 6

LIST OF WEST GREENLAND COMMISSION PAPERS

Paper No.	Title
WGC(95)1	Provisional Agenda
WGC(95)2	Draft Agenda
WGC(95)3	Draft Report of the Twelfth Annual Meeting
WGC(95)4	NASCO Tag Return Incentive Scheme - 1995
WGC(95)5	Not issued
WGC(95)6	Proposal by the Chair for a Catch Quota for the West Greenland Fishery in 1995
WGC(95)7	Proposal by Canada and the USA for a Catch Quota for the West Greenland Fishery in 1995
WGC(95)8	Explanatory Note on the 1995 West Greenland Quota Calculation
WGC(96)9	Agenda
WGC(95)10	Catch Quota for the West Greenland Fishery in 1995
WGC(95)11	Report of the Twelfth Annual Meeting
CNL(95)15	Report of the ICES Advisory Committee on Fishery Management
CNL(95)49	Request for Scientific Advice for ICES

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.

TWELFTH ANNUAL MEETING OF THE COUNCIL
HILTON HOTEL, GLASGOW, SCOTLAND
12-16 JUNE, 1995

LIST OF PARTICIPANTS

* Denotes Head of Delegation

CANADA

*MR JEAN-EUDES 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, Québec
DR ALEX BIELAK	Department of Natural Resources and Energy, Fredericton, New Brunswick
MR RICHARD HEGAN	Department of Fisheries and Oceans, Ottawa, Ontario
MR MURRAY HILL	Department of Fisheries, Halifax, Nova Scotia
MR KEN JONES	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 John's, Newfoundland
MR BERKLEY SLADE	Department of Fisheries and Oceans, St John's, Newfoundland

DENMARK (IN RESPECT OF THE FAROE ISLANDS AND GREENLAND)

*MR KJARTAN HOYDAL	Representative Faroese Home Government, Torshavn
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FOOTNOTE: With effect from 1st January 1995 Finland and Sweden became members of the European Union. These Parties have denounced the Convention and their membership of the Organization will cease with effect from 31 December 1995.

REPORT OF THE ICES ADVISORY COMMITTEE ON FISHERY MANAGEMENT

CNL(95)15

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REPORT TO THE NORTH ATLANTIC SALMON CONSERVATION ORGANIZATION COUNCIL

Source of information: Report of the Working Group on North Atlantic Salmon, April 1995 (ICES Doc. C.M.1995/Assess:14)

Sections 1-6 of this report are set out in the order of the questions from NASCO to ICES (Appendix 1).

1. EVENTS OF THE 1994 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 1960-1994 are given in Table 1.1.1 and catches by NASCO Commission areas for 1989-94 are shown below (in tonnes):

Area	1989	1990	1991	1992	1993	1994
NEAC	4419	3758	2951	3379	3348	3486
NAC	1143	915	713	524	375	354
WGC	338	275	476	242	0	0
Total	5900	4948	4140	4136	3723	3840

Figures for 1994 (3840 t) are provisional and incomplete, but the total is slightly above the 1993 total, which was the lowest recorded since 1960 (Figure 1.1.1). There is some indication that the numbers of fish farm escapees may have declined in 1994, but ranched fish still make up a large proportion of the catch in Iceland. It is clear that some of the decline in catches in recent years can be accounted for by management plans which have reduced fishing effort in several countries.

1.1.2 Unreported catches of salmon in the North Atlantic

The total unreported catch within the NASCO Commission areas in 1994 was estimated to be 1276 t, a decrease of 22% compared with 1993 and 33% below the 1989-1993 five-year mean of 1891 t. Estimates for the Commission Areas are given below (in tonnes):

Area	1989	1990	1991	1992	1993	1994
NEAC	2103	1779	1555	1825	1471	1157
NAC	174	111	127	137	161	107
WGC	N/A	N/A	N/A	N/A	12	12
International waters	N/A	180-359	25-100	25-100	25-100	25-100

1.1.3 Production of farmed and ranched salmon in the North Atlantic

The production of farmed salmon in the North Atlantic Area in 1994 was 326,785 t. This was the highest production in the history of the farming industry and represented a 22% increase (59,410 t) compared to 1993 (Figure 1.1.2).

Ranching was defined as the production of salmon through smolt releases with the intention of harvesting the total population that return to freshwater (harvesting may include collecting fish for broodstock). The harvest of ranched fish in 1994 was 325 t which was considerably lower than in 1993 (519 t). The great majority (95%) of this production has been in Iceland.

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

1.2.1 Fishing in the Faroes Area

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 Faroes territorial waters was suspended for the years 1994 to 1996. A research fishery for salmon continued to operate in the Faroes area in the 1993/94 season, and one research vessel fished a total of 30 sets during 4 trips. The long-line gear used was the same as in previous seasons.

Catch: The total catch in the research fishery in the 1993/94 season was 7 t, and the catch in the 1994 calendar year was 6 t, excluding fish that were tagged and released. The proportion of fish less than 60 cm (that would normally have been discarded) was 14.4%, which is near the upper end of the range observed since the 1982/83 season.

Catch per unit effort: The CPUE of 43 salmon per 1000 hooks for the 1993/94 season is the third lowest value since the 1981/82 season and was only half the CPUE (84) in the 1992/93 season (Figure 1.2.1).

Biological composition of the catch: In the 1993/94 season 17% of the fish were of reared origin. This compares with much higher figures in the 1989/90 to 1992/93 seasons (27-44%). Figure 1.2.2 shows the CPUE for past seasons divided into wild fish and farm escapees and suggests that the increase in CPUE in the previous four seasons and the decrease in 1994 was due in part to the numbers of farmed fish in the catch.

Origin of the catch: External tags (ext.) and CWTs were recovered from countries regularly represented in the tag recovery programmes in the past, namely: Ireland (10 CWT), Norway (6 CWT and 30 ext.), Sweden (3 ext.), UK (England and Wales) (1 CWT), Iceland (1 CWT) and Spain (1 CWT). As in the past, the highest recapture rates were from releases in Norway and Sweden; recapture rates from other areas are low.

In the 1992/93 to 1994/95 fishing seasons, a total of about 5,300 salmon caught on long-line have been tagged and released in the open sea north of the Faroes. After two fishing seasons (i.e., 1993 and 1994) 66 tagged fish have been reported recaptured in 10 countries as shown below.

	Recaptures	
Country	**Total to date**	**%**
Norway	37	56.1
Scotland	9	13.6
Ireland	5	7.6
Russia	5	7.6
Sweden	4	6.1
Denmark	2	3.0
England	1	1.5
Iceland	1	1.5
Spain	1	1.5
Canada	1	1.5
Total	**66**	**100**

These preliminary results confirm earlier information that the majority of salmon in the Faroese area originate from Norway. Between 17% and 33% of the tagged fish were assumed to be of farmed origin, and the recapture rate for these fish has been lower than for wild fish.

Exploitation rates at Faroes: The exploitation rate on all monitored stocks in the Faroes fishery in 1993/94 was very low. The highest level (3%) was recorded on 2SW hatchery fish from the R. Imsa, Norway.

1.2.2 Homewater fisheries in the NEAC Area

Gear and effort: There has been a continuation in the general trend to reduce commercial fishing effort in the NEAC Area, reflecting conservation measures in the respective countries as well as the reduced value of commercially caught salmon. Reduction in commercial fishing effort in 1994 was reported for salmon fisheries in France, Ireland, Russia, Sweden, UK (England and Wales) and UK (N. Ireland). Minor changes were reported for Finland, Norway and UK (Scotland), but there was an extension of the sport fishing period in Iceland.

Catch: Catches in 1994 were reported to be close to or better than the mean of the last five years in France, Ireland, UK (England and Wales), UK (N. Ireland) and UK (Scotland). Norway and Russia reported catches similar to the previous year, but Iceland, Finland (Teno R.) and Sweden had considerably lower catches than in 1993.

CPUE: Catch per unit effort in general followed the same pattern. In Ireland and parts of UK, catches of 1SW salmon were very good at the beginning of the season but declined suddenly before the end of the season.

Composition of catch: There was an increase in the proportion of 1SW salmon in catches in Ireland, Norway and Russia compared to the previous year. Finland (Teno R.) and Sweden reported similar grilse ratios but France and, in particular, Iceland reported considerable reductions in grilse abundance. No significant trends were reported for MSW salmon.

Origin of catch: Ranched fish continue to comprise the majority of the Icelandic catch and some straying occurs into rivers. There has been a reduction in the frequency of fish farm escapees in Norwegian coastal waters and rivers. Fish farm escapees are also observed at variable levels in coastal and in-river fisheries in Scotland and in low proportions in Ireland and UK (N. Ireland).

Exploitation rates: Considerable reductions of exploitation rates in commercial nets were reported for Russia but exploitation rates in other countries appeared similar to previous years.

1.2.3 Status of stocks in the NEAC Area

There are data from monitored rivers since the early 1980s. The general trends in these rivers suggest that there has been no significant change in smolt production in the NEAC area over that period. Adult runs in western European rivers appear to be remaining stable or increasing, probably due to reduced exploitation in recent years.

A general downward trend in marine survival was noted for wild and hatchery, 1SW and 2SW stocks over the past 11 years, but this trend is not evident in the most recent 6 years. In contrast, survival to freshwater for 1SW wild fish tended to increase over both time periods, which would suggest that reductions in homewater exploitation in recent years have resulted in improved survival to the rivers, despite poor marine survival in this period.

Provisional spawning targets were provided for 6 rivers in the NEAC area. Of the four rivers for which 10 year time series of target attainment data were provided, two had achieved their egg deposition targets in at least 80% of years and two had failed to meet their targets in at least 80% of years. The remaining two rivers had failed to exceed egg deposition targets in the years for which data were provided (one and three years respectively).

1.2.4 Data deficiencies and research needs for the NEAC Area

ACFM supports the continuation of the research fishing programme in the Faroes area and recognises that the results from the project will improve the possibility of developing reliable assessment models in the North-East Atlantic.

Historical scale data from the Faroes fishery should be analysed to assess geographical and temporal variation in smolt age composition of wild salmon which may reflect differences in the stock composition of catches. The results should be compared with historical data on tag recoveries in the Faroese fishery area, to determine whether stock composition estimates by both approaches concur.

The composition by country of origin of national salmon catches in the NEAC area should be determined from best available data for the fours years 1991-94 combined, as a basis for future comparison.

Work should be carried out to refine the estimates of pre-fishery abundance for the North-East Atlantic stocks and to analyse the variability of the estimates. Where possible, separate data sets should be provided for different parts of each country and

fishing effort data should be examined to improve estimates of changes in exploitation rates.

Spawning targets based on best available information should be established for all rivers in the NEAC area as soon as possible.

1.3 Fisheries and stocks in the North American Commission (NAC) Area

1.3.1 Fisheries in the NAC area

Canada

Gear and effort: The moratorium on the commercial fishery in Newfoundland continued in 1994. Quotas were reduced in the remaining commercial fisheries in Labrador and Quebec. Seasonal bag limits in the recreational fishery in both Newfoundland and Labrador were reduced and the seasonal bag limit within Newfoundland was further subdivided into two seasons, before and after July 31. Rivers in several fishing areas were closed to angling for part of, or the entire, season as a result of low stock abundance or low water and high water temperatures. There was no change in gear used in Canada.

Catch: The total salmon landings for Canada in 1994 were 351 t, which was the lowest recorded landing since 1960 (Table 1.1.1). The landings of small and large salmon were 41% and 54% of the previous 5 year averages respectively. The decline in commercial catches from 1593 t in 1987 to 141 t in 1994 is a result of the closure of fisheries in Salmon Fishing Areas (SFA) 3-14A in 1992, a reduction in quotas and the general decline in population size. The 1994 recreational catch was the third lowest since 1974, just over 71,000 fish. Recreational catches of small salmon were generally above ten year averages in Labrador, Quebec and north-east Newfoundland and lower in almost all other areas. Recreational catches of large salmon were above the previous ten year averages in Labrador, Quebec (Q1-Q3) and western Newfoundland (SFA 12-14) but were among the lowest recorded in all the other areas of eastern Canada.

Composition and origin of catch: No tagged salmon of USA origin were caught in Canada in 1994. Fish farm escapees were detected primarily in rivers in the Bay of Fundy (SFA 23) where the majority of the aquaculture industry is located.

USA

Gear and effort: The only fishing directed at Atlantic sea-run salmon is by angling in the State of Maine; there were no changes in gear used in 1994. This fishery was further reduced in 1994 by restricting the season bag limit to one small (<64 cm) salmon per year per angler. There was a 31% decrease in licence sales (from 2,656 to 1,821) from the previous year.

Catch: The recreational harvest was the lowest recorded, 13 fish; an additional 249 fish were caught and released mainly in the Penobscot River. Exploitation rates for 1SW salmon in Maine were less than 1%.

France (Islands of St. Pierre and Miquelon)

The catch of salmon for the islands of St. Pierre and Miquelon in 1994 was 2.7 t by 26 professional fishermen, an increase of 50% over that reported for 1993. An additional 1-2 t was harvested by recreational gill-net fishermen.

1.3.2 Status of stocks in the NAC Area

Returns of small and large salmon to rivers of eastern North America in 1994 were among the lowest observed in the last five years. In the more southern areas, returns to some rivers were among the lowest in the last eleven years, while returns in a few were the best in this period.

Despite increased stocking of hatchery-reared salmon in USA during recent years, the numbers of salmon returning to most USA rivers continued to decline in 1994. Returns of MSW salmon were 37% below those documented in 1993 and 62% below the ten year mean.

Egg depositions exceeded or equalled the specific river targets in only 19 of 66 rivers assessed in 1994 in Canada and USA. Large deficiencies in egg depositions were noted in the Bay of Fundy, the Atlantic coast of Nova Scotia and throughout the USA (Table 1.3.1). When estimates of 2SW spawners only are compared to target levels, the status of stocks is of greatest concern in the USA, Scotia-Fundy area (SFAs 19-23) and Labrador (SFA 1-2). Marine survival of smolts of both hatchery and wild origin continued to decline in many monitored rivers, even though improved survival had been expected in recent years as a result of reduced marine fisheries.

1.3.3 Data deficiencies and research needs in the NAC area

ACFM recommended that further efforts be made to refine the spawning target estimates. Improvements are needed in the estimation of suitable habitat, the appropriateness of the habitat-specific egg targets, and in the determination of the desired sea-age composition of spawners.

The results of monitoring of smolt production and survival from numerous rivers has been useful to ACFM in the determination of appropriate spawner targets. There are, however, some areas for which smolt production estimates are not available (e.g. Labrador) and, for areas where there are estimates, they are usually for small rivers or hatchery stocks. It would be useful to expand the enumeration of smolts to other areas and larger rivers.

The relationship between air temperature at the time of smolt migration from the Conne River and their subsequent survival was presented to ACFM. Further research into mechanisms accounting for the relationship between environmental and biological characteristics would be useful.

1.4 Fisheries and stocks in the West Greenland Commission (WGC) Area

1.4.1 Fishery in WGC area

Gear and effort: In accordance with the agreement between the Organisation of Hunters and Fishermen in Greenland and the North Atlantic Salmon Fund, all commercial fishing for salmon in Greenland territorial waters was suspended for the years 1993 and 1994.

Catch: The agreement allows for a small subsistence harvest of 12 t each year, representing some 4000 fish. No information is available on the size of the 1994 catch or its composition.

Exploitation rates: The time series of the extant exploitation rates on the North American 2SW stock complex is presented in Figure 1.4.1. Exploitation varied between 20 and 50% until the 1992 fishing season, but, with the dramatic reduction of fishing pressure in both Canada and Greenland in 1993, exploitation on the stock complex has declined to less than 5%.

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, 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 (see Section 1.2). Similar declines in abundance have been noted in many North American stocks that contribute to the West Greenland fishery (see Section 1.3). Thus the overall status of the stocks and stock components contributing to the West Greenland fishery remains poor.

1.4.3 Data deficiencies and research needs in the WGC area

The mean weights, sea ages, and proportion of the fish originating from North America and Europe are essential parameters used by ACFM to provide catch advice for the West Greenland fishery. As these parameters are known to vary over time and the latest sampling was conducted in 1992, ACFM recommends that a research survey be carried out.

2. EVALUATION OF EFFECTS OF MANAGEMENT MEASURES

2.1 Quota management measures and closures implemented in Canadian salmon fisheries

The closure of the commercial fisheries in SFAs 15-23 and Q1-Q3 in 1984 resulted in a noticeable increase in returns of small and large salmon to the rivers. The effect of this reduced marine exploitation and the reduced in-river mortality, which resulted from the mandatory hook and release of large salmon in the recreational fishery in many areas of eastern Canada, has been increased egg depositions in many rivers and increased juvenile abundance. However, in some areas, such as the Bay of Fundy, the

increased escapement has not been sustained; returns to these rivers are now lower than they were prior to 1984.

The commercial fishery moratorium which has been in operation in Newfoundland since 1992 has mainly benefited the escapement into rivers of Newfoundland and Labrador, except in SFAs 11 to 13 where stocks are either early running and/or the exploitation has already been reduced by the delayed opening of the commercial seasons in 1978 and 1984. Generally, the proportion of large salmon in the returns to the rivers during the moratorium years was higher than in the period 1986 to 1991. While returns of large salmon showed an overall improvement in the last three years, higher returns had been observed at several monitoring facilities in years prior to the moratorium. Had the moratorium not been in effect, severe over-exploitation of many Atlantic salmon stocks would have occurred in 1994.

The effect of the management measures taken in coastal waters of insular Newfoundland after 1991 was evaluated by estimating the numbers of salmon that returned to rivers as a result of the management measures. These estimates are summarised below:

			Increase in returns	
Year	**Angling catch**	**Total returns**	**Small salmon**	**Large salmon**
	(,000)	(,000)	(,000)	(,000)
1992	37	140-280	62-123	12-24
1993	43	149-300	71-142	5-11
1994	31	112-223	62-104	6-11

In general, there was a significant increase in counts of small and large salmon at fishways and counting facilities in Newfoundland in the years since the moratorium compared to the period just prior to it (1986-91), but this was not evident for Southern rivers. While returns of large salmon showed an overall improvement in 1992-94 compared to the 1986-91 mean, for several Northern, Eastern and Southern counting facilities, there were pre-moratorium years when returns were higher. Numbers of large salmon released by anglers in SFAs 12, 13, and 14A during the moratorium years showed a marked increase over the means overall but they were still comparable to catches in the late 1970s and early 1980s. For most Northern and Eastern counting facilities, the proportion of large salmon in all three years of the moratorium were higher than the 1984-1989 and 1986-91 means. This was also the case for three out of five Southern counting facilities.

Smolt to adult survival rates for the Western Arm Brook, Newfoundland, increased from 1.5 to 3.0% in pre-moratorium years to 3.6 to 7.0% in post-moratorium years.

The effects of the management changes in Labrador (SFAs 1, 2, & 14B) may be seen in the increased proportion of large salmon in counts at Sandhill River (SFA 2) from an average of 7% in 1970-73 to 26% in 1994. The proportion of the total production returning to freshwater increased from 64% to 90% for small salmon and from 8% to 75% for large salmon. Since the quotas in Labrador were not attained, this measure

did not result in any increase in returns to rivers. However, the reduction in licensed effort in 1992 should have reduced commercial exploitation on Labrador salmon stocks.

The closure of the fishery in zones Q7 and Q8 in 1994 may have resulted in 29 to 43 small salmon and 713 to 905 large salmon not being caught assuming that the exploitation rates in 1994 would have been the same as in 1990-92 and there had been no management change.

There has been a marked increase in the proportion of 2SW salmon surviving to spawn for a second time on the Miramichi River. The survival increased from 0-7% prior to 1984 to 5-15% when hook and release regulations were introduced into the recreational fisheries and when coastal commercial fisheries in the Maritimes were closed. It increased to more than 30% when exploitation in Newfoundland and Labrador was reduced as a result of the quota restrictions of 1990 and 1991 and as a result of the commercial salmon moratorium of 1992.

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

The moratoria on the commercial cod fishery in Canada in 1992-94 will have reduced the by-catch of salmon.

2.2 Suspension of commercial fishing activity at Faroes

Assuming that monitored stocks have been relatively stable over the past five years, the suspension of commercial fishing should have reduced exploitation at Faroes to less than 10% of levels in the previous three seasons. In practice, the mean levels of exploitation on 2SW fish from R. Imsa (Norway) (hatchery and wild fish) and R. Lagan (Sweden) (hatchery fish) decreased from 18% in the 1988/89 to 1990/91 seasons to 5% in the 1991/92 to 1993/94 seasons. In most years the level of exploitation on 1SW fish from Scandinavia and 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 if the full Faroese quota had been taken in the 1991/92 to 1993/94 seasons (550 t each season) were as follows:

	Estimated reduction in returns if quota had been taken	
Age/Origin	**1993**	**1994**
Wild 1SW	9,000	19,000
Wild 2SW	48,000	77,000
Wild 2SW+	39,000	40,000

The analysis also suggests that the fishery would have caught an extra 126,000 fish of farm origin if the full quota had been taken in each season.

The expected increase in total returns to all homewaters and to stocks in Scandinavia, Finland and Russia in 1993 and 1994 resulting from the reduction in the Faroese catches in the 1991/92 to 1993/94 seasons compared with the period 1988/89 to 1990/91 were as follows:

	Age	Increase in total returns	Estimated increase in stocks in Scandinavia, Finland and Russia	
1993	1SW	4,000	2,400-3,200	<1%
	MSW	67,000	40,200-53,600	5%-12%
1994	1SW	3,000	1,800-2,400	<1%
	MSW	49,000	29,400-39,200	4%-11%

In addition 126,000 fish of farm origin are estimated to have been taken in the three years, but it is not known how many of these would have returned to homewaters.

The increase in the catches of wild fish is within the annual variation of catches in these countries and does not represent a statistically significant increase. There were no significant changes in the catches for Ireland, Scotland (large salmon) and Russia (2SW salmon) in 1992-1994 compared with those in 1987-1991.

2.3 Suspension of commercial fishing activity at West Greenland

The expected increase in returns of 2SW salmon to homewaters in North America and Europe in 1994 and 1995 as a result of the 213 t West Greenland quota not being taken in 1993 and the 157 t quota in 1994 were as follows:

	Expected Increase in numbers returning to homewaters	
Continent	**1994**	**1995**
North America	35,000	26,000
Europe	30,000	22,000

The expected increases in 1994 represent about 20 to 40% of the estimated total 2SW returns in North America and about 3 to 7% of the returns to southern European countries (UK, Ireland and France).

3. MANAGEMENT ADVICE FOR THE WEST GREENLAND AND NORTH AMERICAN COMMISSION AREAS

3.1 Provide catch options, with an assessment of risks, related to the management objective of achieving target spawning escapement

Background

To provide advice on management of the stock at West Greenland the size of the stock was assessed by estimating pre-fishery abundance using the run reconstruction model developed for this purpose. This could only be done in the year following the fishery when the fish returned to North America as 2SW fish.

A relationship was found between pre-fishery abundance and an index of the area suitable for salmon over the winter period based on sea surface temperature. The temperature data are available annually before the fishery so that it became possible to predict pre-fishery abundance.

ACFM is concerned that the underlying biological or environmental rationale for the relationship on which the prediction is based is not understood.

Pre-fishery abundance forecast

The databases for the North American run-reconstruction model were updated. The mid-point of the pre-fishery abundance estimate for 1993 was 150,470, which is the lowest value in the 20 year time series (Figure 3.1.1). The results show a continuing downward trend in pre-fishery abundance for North American MSW stocks.

A number of new approaches for improving the predictions of pre-fishery abundance were considered. Although evidence was provided that suggested that grilse abundance or grilse size might be related to MSW stock abundance, no unbiased measures of these parameters were available for North American stocks for the full time series because of the various fishery closures and reductions in effort.

A summed thermal habitat index for January, February, and March (winter) proved to be better correlated with the abundance data than the March habitat data alone and it was therefore used in the assessment. This index had the advantage of broadening the basis for the predictive relationship and may be less subject to small variations in the monthly habitat data.

An unbiased prediction of pre-fishery abundance and its residuals is presented in Table 3.1.1 and Figure 3.1.2. The predicted values are shown to fit the observed data quite well except during periods of low abundance in 1978 and in the late 1980s and 90s (Figure 3.1.3). The probability that the 1995 forecast was less than a particular level was estimated and is shown in the table below:

Probability %	1995 Forecast
25	154,000
30	175,000
35	193,000
40	211,000
45	229,000
50	244,000
55	262,000
60	280,000
65	298,000
70	316,000
75	337,000

The forecast estimate of pre-fishery abundance for 1995 using this model is about 244,000 at the 50% probability level. ACFM is concerned that all of the predicted pre-fishery abundance estimates since 1988 have been well above the observed values (see negative residuals in Figure 3.1.2) with an average difference of 101,000 fish. If this trend continues the actual pre-fishery abundance could be considerably lower than the 244,000 abundance forecast for 1995.

Development of catch options for 1995

The procedure for calculating the quota for the West Greenland fishery is summarised in Appendix 2. In addition to the estimate of pre-fishery abundance, this computation requires an estimate of the stock composition by continent [PropNA], mean weights of North American and European 1SW salmon [WT1SWNA and WT1SWE, respectively], and a correction factor for the expected sea age composition of the total landings [ACF]. The 1993 forecasts of these parameters were used because there are no biological samples for 1993 or 1994 with which to update the parameters.

Parameter	Forecast	Minus 1SE	Plus 1SE
PropNA	0.540	0.477	0.603
WT1SWNA	2.525	2.406	2.643
WT1SWE	2.660	2.510	2.810
ACF	1.121	1.070	1.172

It should be emphasised that these parameters have changed in the past and thus that they should be updated with new data periodically to ensure the greatest possible accuracy in the quota calculation.

In Table 3.1.2, the Greenland quota is computed for a range of probable abundance values and varying proportions of salmon available at West Greenland (Fna).

It should be noted that the 50% probability level 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 target is achieved (estimated to be a 50% probability) it is likely that some stocks will fail to meet their individual target spawner requirements, while others will exceed their target levels. 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 the 50% probability level may result in some stocks failing to meet their targets over an extended period. This would be likely to result in a long-term decline in those stocks.

It is evident from the indicators of stock status and the extremely low quota levels computed under both previously-used and proposed risk levels, that the North American stock complex is in a tenuous condition. Record low stock levels have been observed despite almost complete closures of mixed and single stock fisheries, a continuing trend of below target spawning escapement for 2SW salmon, and some of the lowest marine survival rates for monitored stocks.

ACFM stresses also that there are a number of difficulties in relying on the prediction model.

- The parameters associated with the West Greenland fishery used in the model have not been estimated since 1992.

- ACFM is concerned that the model has consistently predicted higher pre-fishery abundances than have been observed in the past 6 years. All of the residuals from the prediction have been negative since 1988 as discussed above.

Catch advice for the WGC and NAC areas

The pre-fishery abundance of 1SW salmon and the number of 2SW returns to North American rivers is shown in Figure 3.1.4. Pre-fishery abundance is now very close to the observed numbers of 2SW returns. Any fishery on this stock component could therefore have a detrimental effect on the chances of recovery. To protect all the stocks contributing to the fishery **ACFM recommends that mixed stock fisheries should be closed, in 1995 in the West Greenland Commission Area and in 1996 in the North American Commission Area.**

ACFM also notes that salmon stocks in SFAs 1, 2, 19-23 and in the USA appear to be at a very low level and considers that fishing mortality on these stocks from additional sources should be kept as low as possible.

Risk assessment

ACFM reviewed a stage-based projection model for North American 2SW salmon stocks and considered how the stochastic projections from this model might be used to provide advice on the assignment of risk associated with various management policies in the West Greenland Commission. The model characterises the probability of a population falling to a particular level over a given period and was used to evaluate the effects on the probability of adjusting the 1SW pre-fishery abundance.

This type of approach may provide a basis for risk assessment in the future.

3.2 Review the target spawning level in USA rivers in the light of the present condition of the rivers and the stocks

Determination of the optimal spawning numbers of 2SW salmon in USA rivers is based upon the egg deposition targets derived for Canadian rivers (240 eggs. $100m^{-2}$) and historical observations of the populations, particularly during periods prior to the initiation of mixed-stock fisheries.

Composite estimates for 2SW spawning targets were developed for salmon rivers in the USA based upon the area of accessible juvenile salmon habitat and biological characteristics of the USA salmon stocks and maiden 2SW salmon. Summary estimates by geographical regions in New England are provided in Table 3.2.1. Estimates for existing juvenile salmon habitat are based upon available information, while estimates of potential salmon habitat assume that spawners would have access to measured habitat at some time in the future. Estimates of habitat for most of the rivers in the State of Maine are thought to be low because much of the existing information is based upon old or incomplete information: for example, most rivers have fewer dams today; water quality has been markedly improved; and modern technology allows more complete assessment of available habitat.

Spawning targets for all areas under salmon restoration programs in the USA appear reasonable. For those areas of Maine not currently receiving adequate spawning escapement, the potential deficit in 1996 represents 18-26% of the USA 2SW spawner requirements and 3-4% of the total requirement for North America. Although there is a short-term deficit for these rivers, these targets are considered to be achievable in the future. If excess 2SW spawners were achieved in the rivers currently being enhanced, then restoration programs could be initiated and expanded in other Maine rivers where there are spawner deficits.

4. MANAGEMENT ADVICE FOR THE NORTH-EAST ATLANTIC COMMISSION AREA

4.1 Provide estimates of spawning targets for optimal production

Definition of stock targets

ACFM agreed that spawning targets are best derived from stock and recruitment data. Regardless of the type of model which provides the best fit to the data, the point of maximum gain (MG) and the replacement point (RP) (Figure 4.1.1) can be regarded as reference points which define the lower and upper bounds of target spawning requirement. Somewhere between these limits will lie an optimum which will minimise the risk of recruitment over-fishing while maximising the gain. The lower recruitment reference point (MG) has been adopted by ACFM as an objective standard spawning target. However, this should not be regarded as the target level applicable to management as it takes no account of the risk of the stock falling below target. It therefore equates to the minimum biologically acceptable level (MBAL) for a stock. In order to avoid falling below this point because of variability in recruitment and exploitation rates, a target should be set at some level above the maximum gain (MG) level. The exact location of the target is an issue which should be considered locally by biologists and managers.

For rivers where no clear stock-recruitment relationship can be fitted or where no stock-recruitment data are available, it may still be possible to derive a spawning target following the principles defined by ICES (Report of the Workshop on Salmon Spawning Stock Targets in the North-East Atlantic, C.M.1994/M:6). Where insufficient stock-recruitment data are available, target spawning levels must be derived using data from other rivers in the same geographic area or with similar environmental characteristics.

Development of spawning targets in the NEAC area

Some advances in the development of spawning targets in the NEAC area have been made and these have also been used to provide advice on the status of stocks for the first time. However, in order for spawning targets to be used to provide catch advice they will have to be prepared for all stocks in the NEAC area (or all those affected by a particular fishery, if appropriate stock complexes can be defined). **ACFM recommends that all countries should establish preliminary spawning targets for all their rivers as soon as possible.**

4.2 <u>Develop methods which could be used in providing advice on catch quotas in relation to stock abundance and, if possible, provide catch advice</u>

Methods for providing advice on catch options in relation to stock abundance in the NEAC Area are likely to depend upon adopting a similar approach to that used for the provision of catch advice for the West Greenland fishery since 1993.

ACFM has pointed out the risks to individual stocks in this approach and noted that the implications have not been fully explored for the management of European stocks, where the patterns of movements of fish between areas and the interaction between fisheries may be more complex than in the North American and West Greenland Commission areas.

ACFM prepared a preliminary analysis of estimates of the pre-fishery abundance of maturing and non-maturing 1SW salmon in the NEAC area. These were based on the catch in numbers of 1SW and MSW salmon in each country, which were raised to take account of natural mortality and minimum and maximum estimates of non-reported catches, and exploitation rates on the two age classes. It was recognised that this would have to be done for a number of stock complexes.

Figures 4.2.1-4.2.2 show these preliminary estimates for two European stock complexes as defined below:

Southern European stock complex	Northern European stock complex
Ireland	Iceland
France	Finland
UK (England & Wales)	Norway
UK (Northern Ireland)	Russia
UK (Scotland)	Sweden

Although there was variation in the estimates of pre-fishery abundance, there was an apparent decline in non-maturing 1SW salmon in both stock complexes.

In the absence of a fully-developed time series of pre-fishery abundance data it was not possible to test any predictive models for total stocks.

Catch advice for the NEAC area

In view of the apparent decline in the pre-fishery abundance estimates and in the absence of a predictive model, **ACFM recommends that levels of exploitation on non-maturing 1SW salmon in both southern and northern European stock complexes in mixed stock fisheries should not be allowed to increase until more detailed assessments are available which show that this will not have an adverse effect on recruitment.**

5. RESEARCH DEVELOPMENTS WHICH MIGHT ASSIST NASCO

5.1 The impacts of fish farm escapees and sea-ranched fish on the wild stocks

In its 1994 advice ACFM reported in detail on the likely impacts of fish farm escapees and sea-ranched fish on wild stocks under the following headings: the percentage appearing in the fisheries at Faroes, West Greenland and in homewaters (including rivers), and the genetic, disease, parasite, ecological and environmental impacts of these fish.

No new information was available to ACFM.

5.2 Criteria for identifying recruitment overfishing of Atlantic salmon

This topic was dealt with in the advice given in 1994 and ACFM had no new information.

5.3 Predictive models of annual migration and distribution of Atlantic salmon stock complexes

In its advice in 1994 ACFM described initial trials with an Atlantic salmon migration model intended to explore the part that different known factors play in migration. ACFM had no new information to report.

5.4 Biological and environmental variables affecting salmon abundance

5.4.1 Differences in marine survival between stocks

Icelandic studies of the possibilities of using selective breeding to increase performance and profitability of salmon ranching show that there is significant variation in return rates between salmon stocks and even more variation between families within stocks. This suggests that the profitability of ranching could be improved by increasing return rates and body weight at return by selective breeding. These results also have implications for the management of wild salmon because they

suggest that there could be genetically-based differences in survival rates between stocks.

5.4.2 Post-smolt growth and maturation

Return rates for 1SW and 2SW salmon are significantly higher in the Penobscot than the Connecticut stock. In addition, the fraction of the smolt year class or cohort that matured as 1SW fish was also higher for the Penobscot stock. Image processing techniques were used to study scale characteristics and suggest that systematic differences in growth, survival, and maturation between these two reared stocks may be related to their post-smolt migrations. This in turn suggests that post-smolt growth may play a significant role in deciding the age-at-maturity and survival patterns of Atlantic salmon.

5.4.3 Forage base of Atlantic salmon in North America and Europe

There is a statistical relationship between the distribution of sea surface temperature and the abundance of non-maturing 1SW North American salmon, although the underlying biological causes remain unknown. The transition to marine feeding is recognised as important to post-smolt survival and may contribute to the overall survival of a smolt cohort and thus contribute to the variability in production of the 1SW and 2SW age components of salmon stocks. An investigation of the most important prey items may therefore provide a valuable tool to help in understanding how the sea surface temperature affects salmon stocks.

6. COMPILATION OF TAG RELEASE AND FINCLIP DATA FOR 1994

Data on releases of tagged and finclipped fish in 1994 were compiled as a separate report. In excess of 1.64 million CWTs and 0.46 million external tags were applied to Atlantic salmon released in 1994. In addition, 2.33 million salmon were marked with finclips alone. Thus, more than 4.24 million marked fish were released, 4.05 million of which were hatchery reared. This compares with a total of 3.62 million marked fish released in 1993 and 4.49 million in 1992.

Table 1.1.1 Nominal catch of SALMON by country (in tonnes round fresh weight), 1960-1994. (1994 provisional figures)

Year	Canada (1)	Den.	Faroes	Finland	France	East Grld	West Grld (2)	Iceland	Ireland (3,4)	Norway (5)	Russia	Spain (6)	St.P&M	Sweden (West)	UK (E&W) (4,7)	UK (N.Ireland)	UK (Scotland)	USA	Other (8)	Total Reported Catch	Unreported catches		
																					NASCO Areas	International waters (9)	Total Catch
1960	1636	-	-	-	-	-	60	100	743	1659	1100	33	-	40	283	139	1443	1	-	7237	-		-
1961	1583	-	-	-	-	-	127	127	707	1533	790	20	-	27	232	132	1185	1	-	6464	-		-
1962	1719	-	-	-	-	-	244	125	1459	1935	710	23	-	45	318	356	1738	1	-	8673	-		-
1963	1861	-	-	-	-	-	466	145	1458	1786	480	28	-	23	325	306	1725	1	-	8604	-		-
1964	2069	-	-	-	-	-	1539	135	1617	2147	590	34	-	36	307	377	1907	1	-	10759	-		-
1965	2116	-	-	-	-	-	861	133	1457	2000	590	42	-	40	320	281	1593	1	-	9434	-		-
1966	2369	-	-	-	-	-	1370	106	1238	1791	570	42	-	36	387	287	1595	1	-	9792	-		-
1967	2863	-	-	-	-	-	1601	146	1463	1980	883	43	-	25	420	449	2117	1	-	11991	-		-
1968	2111	-	5	-	-	-	1127	162	1413	1514	827	38	-	20	282	312	1578	1	-	9793	-		-
1969	2202	-	7	-	-	-	2210	133	1730	1383	360	54	-	22	377	267	1955	1	403	11594	-		-
1970	2323	-	12	-	-	-	2146	195	1787	1171	448	45	-	20	527	297	1392	1	893	11286	-		-
1971	1992	-	-	-	-	-	2689	204	1639	1207	417	16	-	18	426	234	1421	1	922	10735	-		-
1972	1759	-	9	32	34	-	2113	250	1804	1568	462	40	-	18	442	210	1727	1	471	10955	-		-
1973	2434	-	28	50	12	-	2341	256	1930	1726	772	24	-	23	450	182	2006	2.7	486	12770	-		-
1974	2539	-	20	76	13	-	1917	225	2128	1633	709	16	-	32	383	184	1708	0.9	533	11957	-		-
1975	2485	-	28	76	25	-	2030	266	2216	1537	811	27	-	26	447	164	1621	1.7	373	12236	-		-
1976	2506	-	40	66	9	<1	1175	225	1561	1530	772	21	2.5	20	208	113	1019	0.8	475	9557	-		-
1977	2545	-	40	59	19	6	1420	230	1372	1488	497	19	-	10	345	110	1160	2.4	289	9514	-		-
1978	1545	-	37	37	20	8	984	291	1230	1050	476	32	-	10	349	148	1323	4.1	192	7682	-		-
1979	1287	-	119	26	10	<1	1395	225	1097	1831	455	29	-	12	261	99	1076	2.5	138	8118	-		-
1980	2680	-	536	34	30	<1	1194	249	947	1830	664	47	-	17	360	122	1134	5.5	193	10127	-		-
1981	2437	-	1025	44	20	<1	1264	163	685	1656	463	25	-	26	493	101	1233	6	277	9954	-		-
1982	1798	-	865	54	20	<1	1077	147	993	1348	354	10	-	25	286	132	1092	6.4	313	8644	-		-
1983	1424	-	678	58	16	<1	310	198	1656	1550	507	23	3	28	429	187	1221	1.3	437	87555	-		-
1984	1112	-	628	46	25	<1	297	159	829	1623	593	18	3	40	345	78	1013	2.2	466	69923	-		-
1985	1133	-	566	49	22	7	864	217	1595	1561	659	13	3	45	361	98	913	2.1	101	9108	-		-
1986	1559	-	530	37	28	19	960	310	1730	1598	608	27	2.5	54	430	109	1271	1.9	-	9274	-		9274
1987	1784	-	576	49	27	<1	966	222	1239	1385	564	18	2	47	302	56	922	1.2	-	8160	2788		10948
1988	1311	-	243	36	32	4	893	396	1874	1076	419	18	2	40	395	114	882	0.9	-	7736	3248		10984
1989	1139	-	364	52	14	<1	337	278	1079	905	359	7	2	29	296	142	895	1.7	-	5900	2277		8177
1990	911	13	315	60	15	<1	274	426	586	930	315	10	2	33	338	94	624	2.4	-	4948	1890	180-350	6838
1991	711	3.3	95	70	13	4	472	505	404	876	215	15	1	38	200	55	462	0.8	-	4140	1682	25-100	5822
1992	522	10	23	77	20	5	237	635	630	867	166	16	1.3	49	186	91	600	0.7	-	4136	1962	25-100	6098
1993	373	9	21	70	16	-	-	656	543	923	140	14	1.8	56	270	83	547	0.6	-	3723	1644	25-100	5367
1994(10)	351	6	6	49	18	-	-	448	819	937	138	15	2.7	44	319	91	596	0	-	3840	1276	25-100	5116
Means																							
1989-1993	731	-	164	66	16	5	330	500	648	900	239	12	2	41	258	93	626	1	-	4570	1891	-	6461
1984-1993	1056	-	336	55	21	8	589	380	1051	1174	404	16	2	43	312	92	813	1	-	6304	-	-	-

1 Includes estimates of some local sales, and, prior to 1984, by-catch
2 Includes catches made in the West Greenland area by Norway, Faroes, Denmark
3 Until 1994, includes only those catches sold through dealers
4 Catch on River Foyle allocated 50% Ireland and 50% N. Ireland
5 Before 1966, sea trout and sea charr included (5% of total)
6 Weights estimated from 1994 mean weight. Early years may be underestimates.
7 Not including angling catch (mainly 1SW).
8 Includes catches in Norwegian Sea by vessels from Denmark, Sweden, Germany, Norway and Finland.
9 Estimates refer to season ending in given year.
10 Includes provisional and incomplete data.

Table 1.3.1 Egg depositions relative to target during 1984 to 1994 for the assessed rivers in eastern Canada.

		Year of spawning of small and large salmon									
		1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
Bay of Fundy / Atlantic Coast of Nova Scotia (% of rivers assessed)											
Number of rivers assessed		2	2	2	2	4	4	4	5	5	13
Depositions as % of target	>=100%	100%	50%	50%	50%	75%	50%	50%	20%	20%	10%
	<50%	0%	0%	0%	0%	0%	25%	0%	40%	60%	90%
Rivers flowing into the Gulf of St. Lawrence (% of rivers assessed)											
Number of rivers assessed		27	27	27	27	26	26	26	29	32	36
Depositions as % of target	>=100%	26%	37%	56%	70%	54%	42%	54%	55%	38%	36%
	<50%	26%	4%	11%	7%	4%	8%	8%	17%	19%	19%
South and Northeast Newfoundland and Labrador (% of rivers assessed)											
Number of rivers assessed		4	5	6	10	11	11	11	11	12	14
Depositions as % of target	>=100%	50%	60%	67%	40%	27%	27%	9%	36%	42%	36%
	<50%	25%	20%	33%	40%	55%	55%	73%	45%	33%	43%

Table 3.1. 1 Observed and predicted prefishery abundance and residuals (difference between predicted and observed values).

Year	Prefishery Abundance Mid-point	Prefishery abundance from Jan+Feb+Mar Unbiased Predicted	Unbiased Residual
1974	689188	562294	126894
1975	795276	505968	289308
1976	706814	533307	173507
1977	566179	609952	-43772
1978	320904	761988	-441084
1979	705962	664701	41261
1980	619221	610182	9039
1981	591253	555599	35654
1982	490695	482746	7949
1983	270166	308158	-37992
1984	291667	201769	89898
1985	467162	240950	226212
1986	499987	469771	30217
1987	460708	412789	47919
1988	367376	474788	-107412
1989	300048	466486	-166438
1990	256106	357093	-100986
1991	277135	300145	-23010
1992	177570	301257	-123687
1993	150470	236110	-85640
1994			
1995			

Table 3.1.2 Quota options (in tonnes) for 1995 at West Greenland based on regression forecasts of fishery abundance. Proportion at West Greenland refers to the fraction of harvestable surplus allocated to the West Greenland fishery. The probability level refers to the pre-fishery abundance levels derived from the probability density function.

Prob.	Proportion at West Greenland (Fna)										
level	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	0	0	0	0	0	0	0	0	0	0
40	0	2	3	5	6	8	9	11	12	14	15
45	0	11	22	34	45	56	67	78	89	101	112
50	0	19	38	58	77	96	115	135	154	173	192
55	0	29	58	87	116	145	173	202	231	260	289
60	0	39	77	116	154	193	231	270	309	347	386
65	0	48	96	145	193	241	289	338	386	434	482
70	0	58	116	174	232	290	347	405	463	521	579
75	0	69	138	208	277	346	415	484	554	623	692

Sp. res =	208,170
Prop NA =	0.54
WT1SWNA =	2.525
WT1SWE =	2.66
ACF =	1.121

Table 3.2.1 Esumated Atlantic salmon spawner requirements (2SW) for USA rivers[1].

State	River	Units of salmon habitat ($100m^2$)				Required Spawners (2SW)		
		Existing Habitat Units	(%)	Potential Habitat Units	*	(%)	Existing	Potential
Connecticut	Connecucut	145,900	33.3	261,400		35.2	9,727	17,427
Rhode Island	Paucatuck	5,370	1.2	5,370		0.7	367	367
New Hampshire	Merrimack	38,980	8.9	57,065		7.7	2,599	3,804
Maine	Aroostook	60,775	13.9	60,775	*	8.2	4,052	4,052
	Prestile	835	0.2	835	*	0.1	56	56
	Meduxnekeag	5,000	1.1	5,000	*	0.7	333	333
	St. Croix	29,260	6.7	29,260	*	3.9	1,951	1,951
	Boyden Str.	85	0	85	*	0	6	6
	Pennamaquaun	85	0	85	*	0	6	6
	Dennys	2,415	0.6	2,415		0.3	161	161
	Hobart Str.	85	0	85	*	0	6	6
	Orange	20	0	20	*	0	1	1
	East Machias	2,145	0.5	2,145		0.3	143	143
	Machias	6,685	1.5	6,685	*	0.9	446	446
	Chandler	85	0	85	*	0	6	6
	Indian	85	0	85	*	0	6	6
	Pleasant	1,085	0.2	1,085	*	0.1	72	72
	Narraguagus	6,015	1.4	6,015		0.8	401	401
	Tunk Str.	585	0.1	585	*	0.1	39	39
	Union	8,360	1.9	8,360	*	1.1	557	557
	Orland River	165	0	165	*	0	11	11
	Penobscot	102,575	23.4	102,575	*	13.8	6,838	6,838
	Passaga'wa'kg	165	0	165	*	0	11	11
	Little	0	0	0	*	0	0	0
	Ducktrap	585	0.1	585	*	0.1	39	39
	St. George	250	0.1	250	*	0	17	17
	Medomak	0	0	0	*	0	0	0
	Pemaquid River	85	0	85	*	0	6	6
	Sheepscot River	2,845	0.7	2,845		0.4	190	190
	Kennebec River(4)	1,005	0.2	114,300	*	15.4	67	7,620
	Androscoggin River(	3,175	0.7	47,900	*	6.5	212	3,193
	Royal River	420	0.1	420	*	0.1	28	28
	Presumpscot River	85	0	85	*	0	6	6
	Saco River	12,540	2.9	25,080		3.4	836	1,672
	Mousam River	0	0	0	*	0	0	0
	Kennebunk River	85	0	85	*	0	6	6
	Salmon Falls River	0	0	0	*	0	0	0
	Total Maine	247,585	56.5	418,145	*	56.3	16,506	27,876
USA	**Grand Total**	437,835	100	741,980	*	100	29,198	49,474

[1] Based upon: 240 eggs/unit; 7,200 eggs/female; 50-50 sex ratio

* indicates not all habitat has been inventoried and some inventories are outdated/incomplete.

Figure 1.1.1 Nominal catches of salmon in four North Atlantic regions 1960–94.

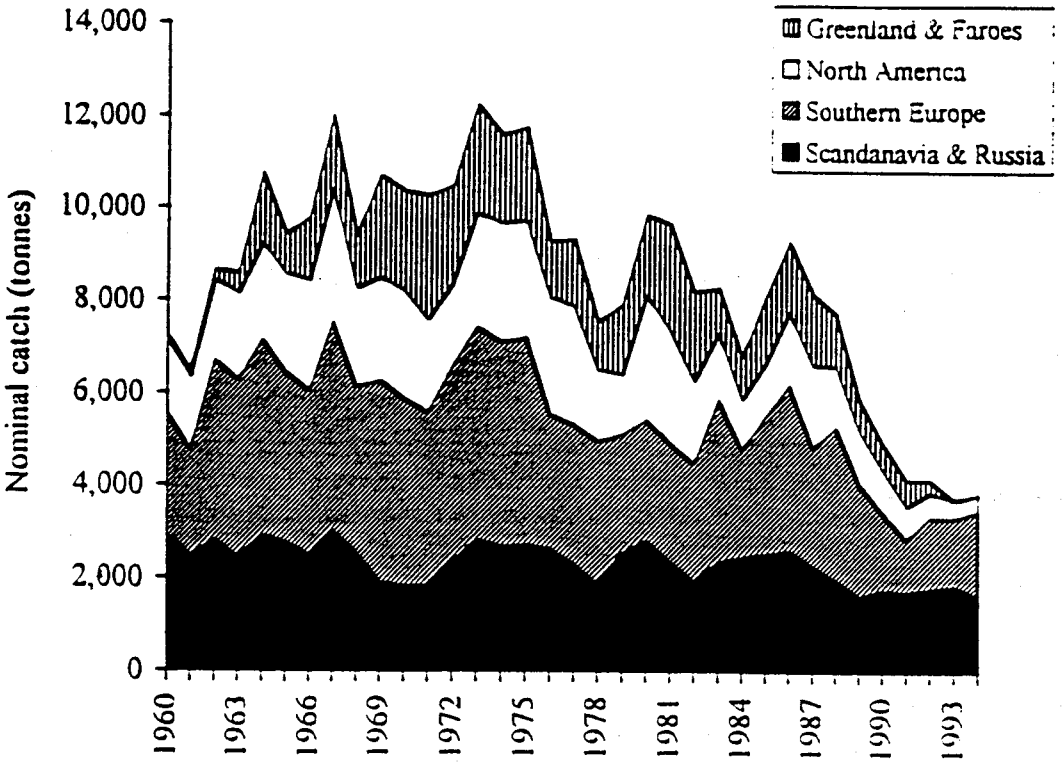


Figure 1.1.2 Production of farmed salmon (tonnes round fresh weight) in the North Atlantic, 1980–1994.

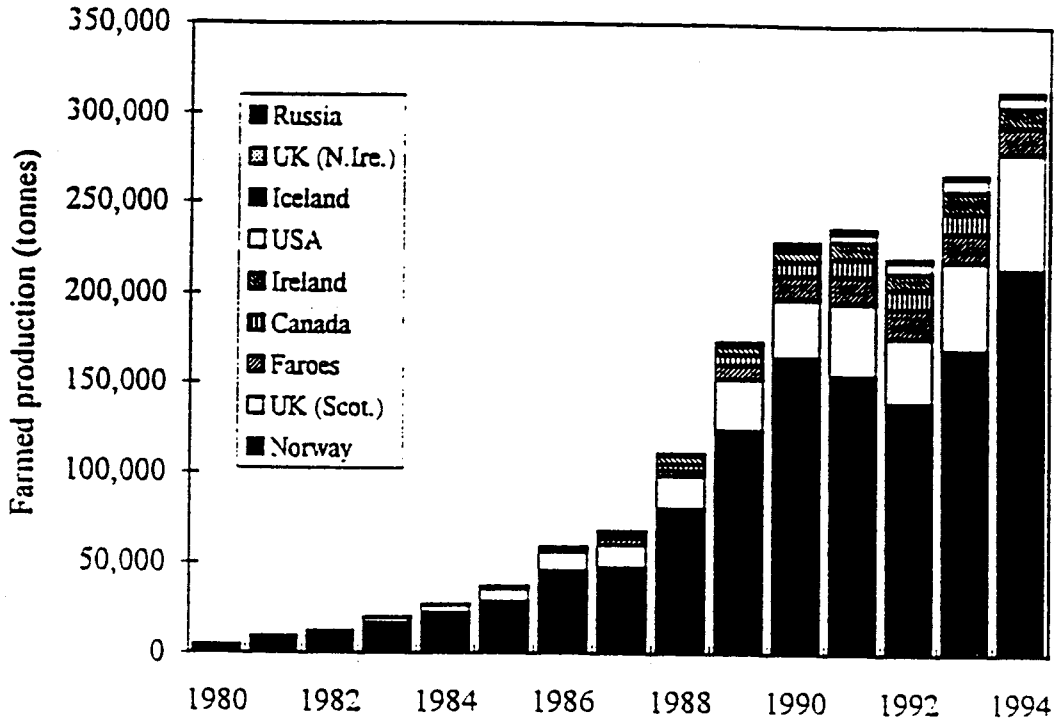


Figure 1.2.1 Catch per unit of effort (1000 hooks) inside the Faroes EEZ for the fishing seasons 1981/1982 to 1993/1994

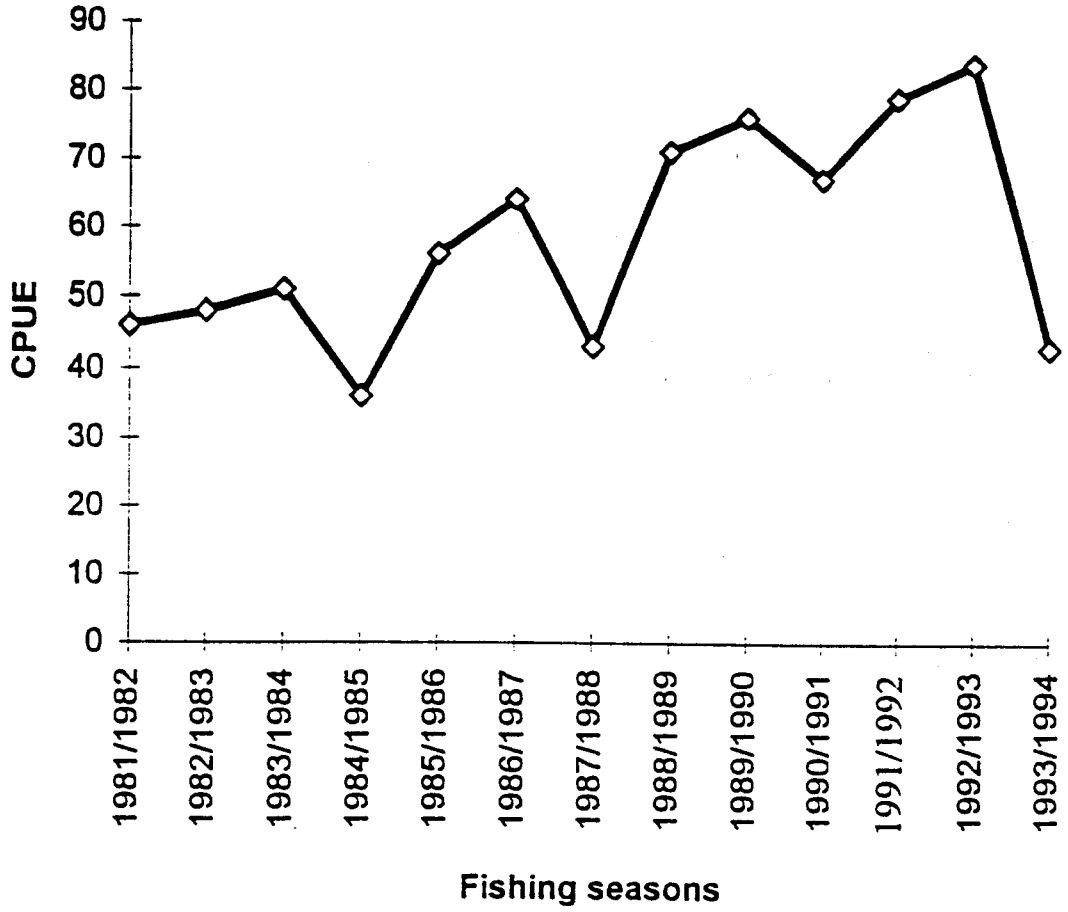


Figure 1.2.2 Catch per 1000 hooks (CPUE) in the Faroese fishery inside the EEZ since the 1982/83 fishing season. The catch is broken into wild and farmed fish. The seasons 1981/1982, 1983/1984 and 1984/1985 are not analysed yet.

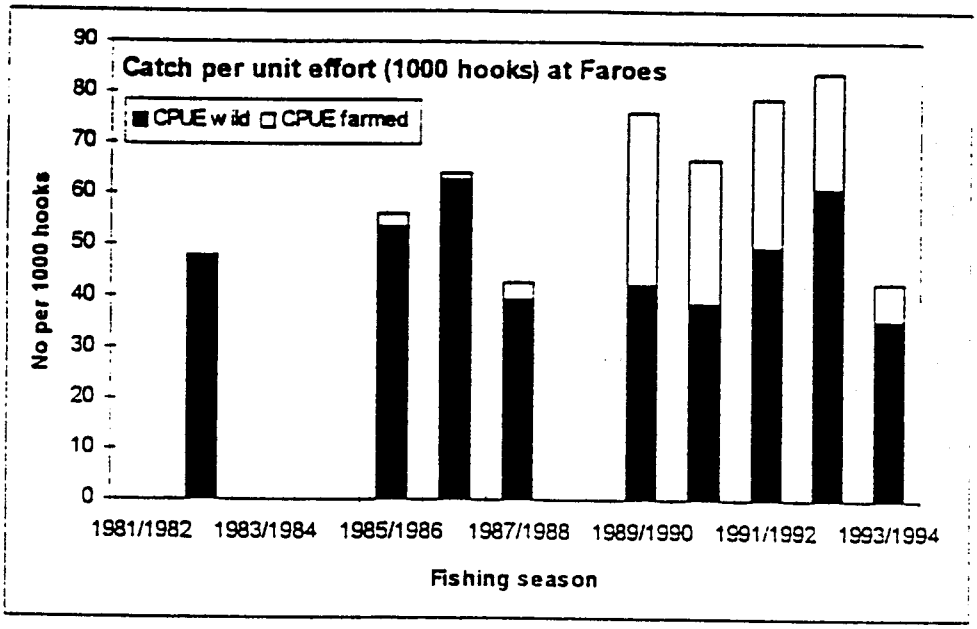


Figure 1.4.1 Extant exploitation of North American 2SW salmon stocks in Newfoundland-Labrador and Greenland commercial fisheries.

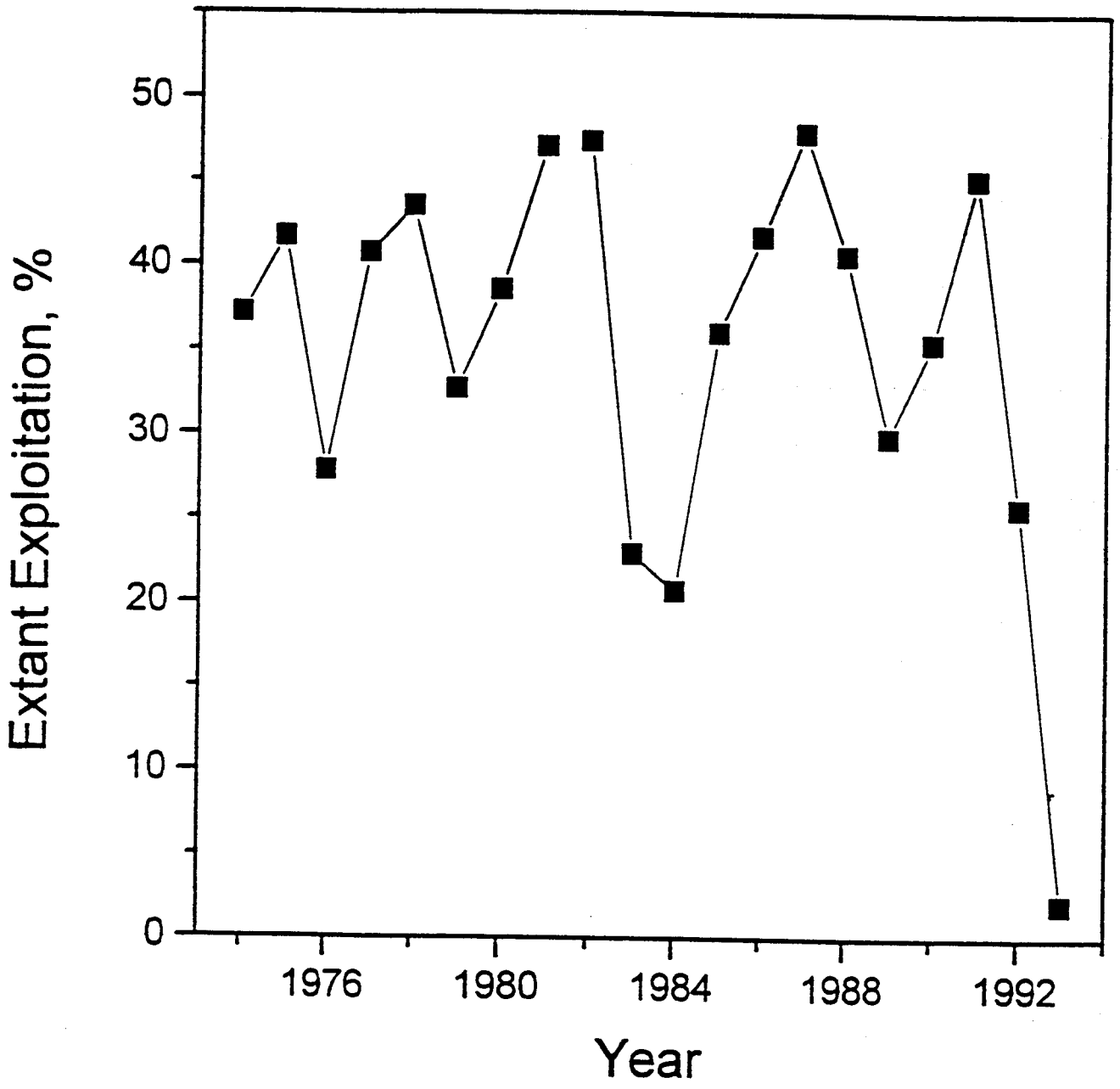


Figure 3.1.1 Pre-fishery abundance estimates of North American salmon, 1974-1993. Box plots show 5, 25, 50, 75, and 95% ranges of 200 stochastic realizations.

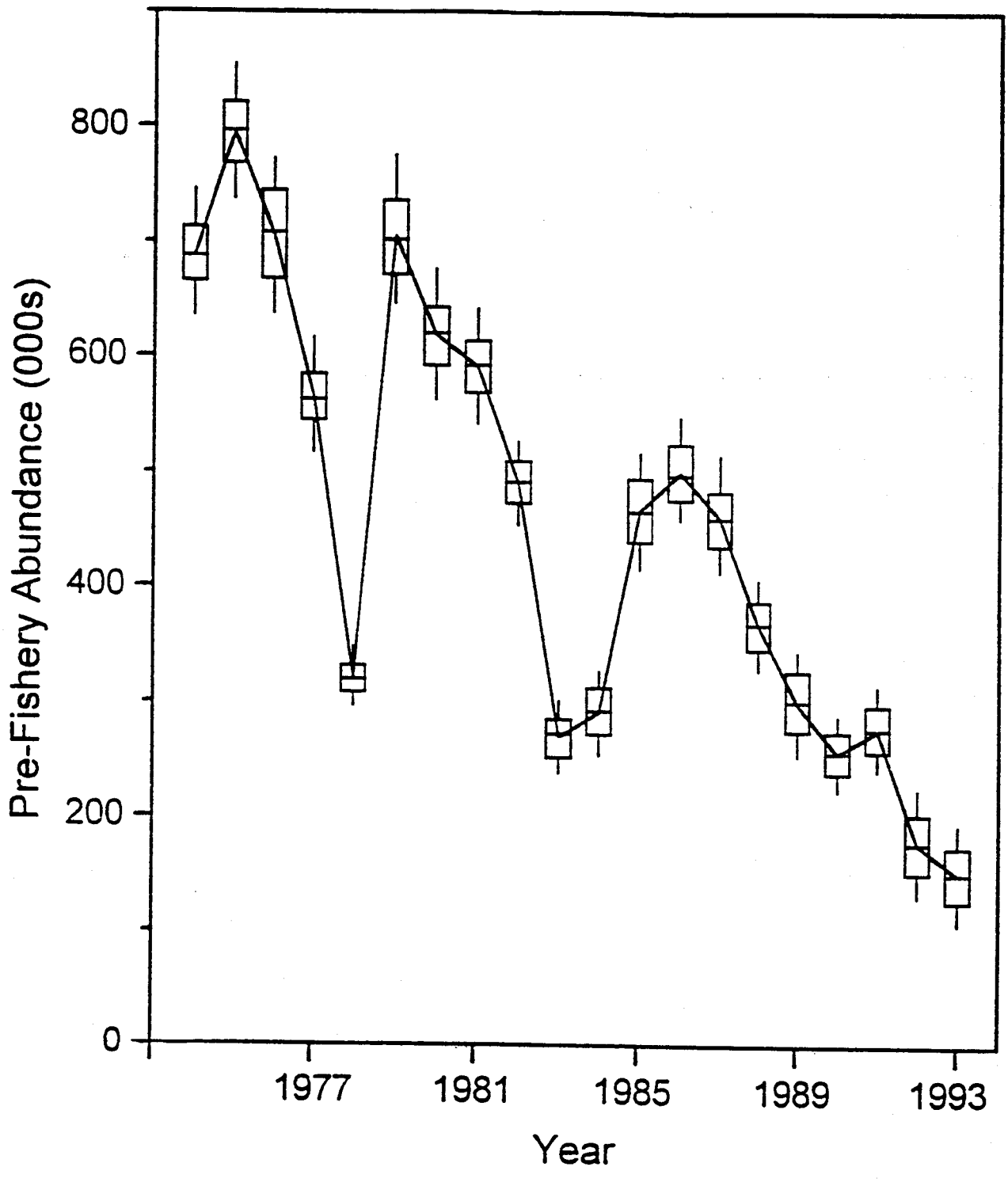


Figure 3.1.2 Residual analysis of the pre-fishery abundance regression estimate. A: Residual time series; B: Observed abundance versus residual.

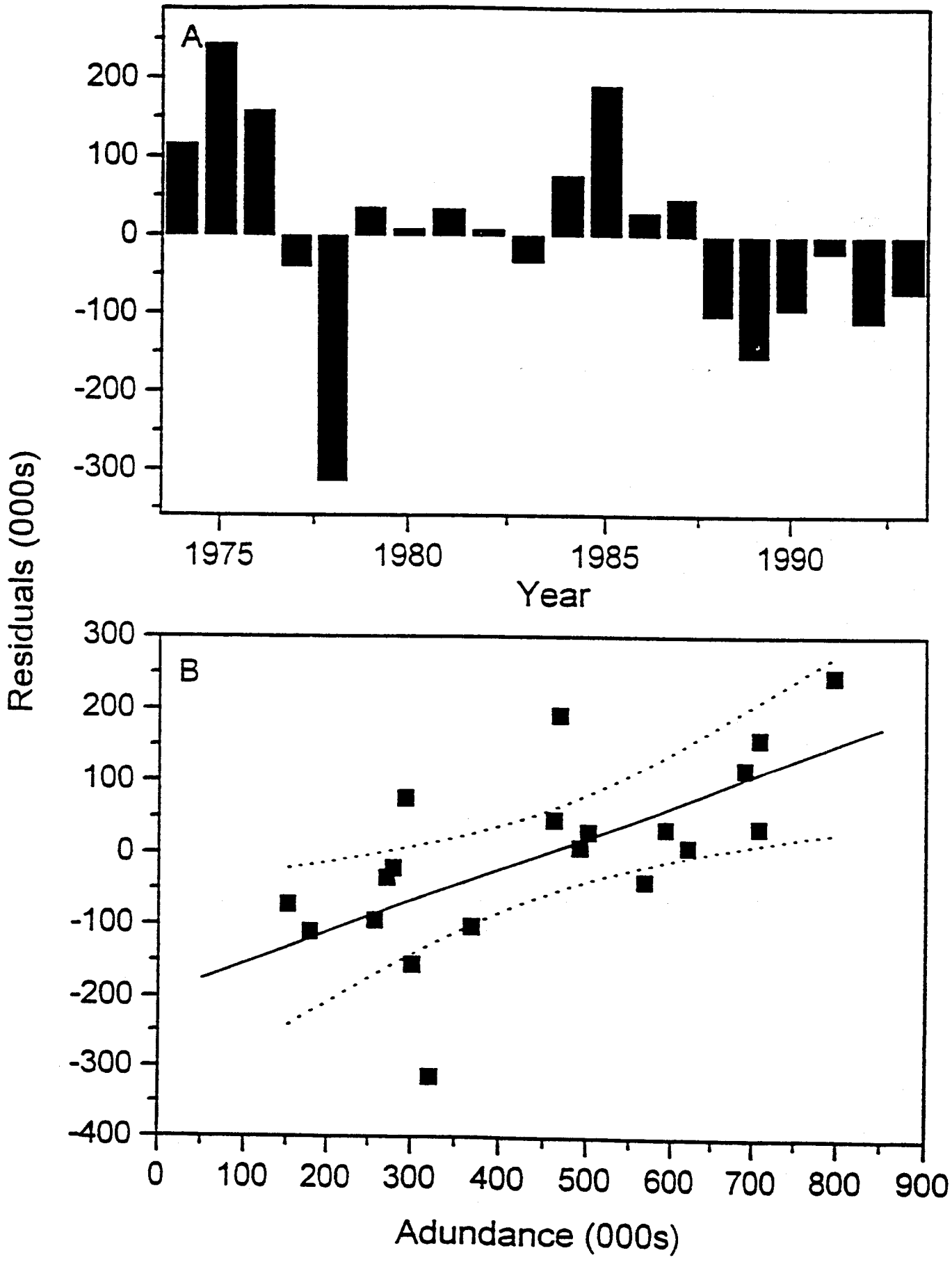


Figure 3.1.3 Comparison of the actual, predicted and unbiased predicted pre-fishery abundance values.

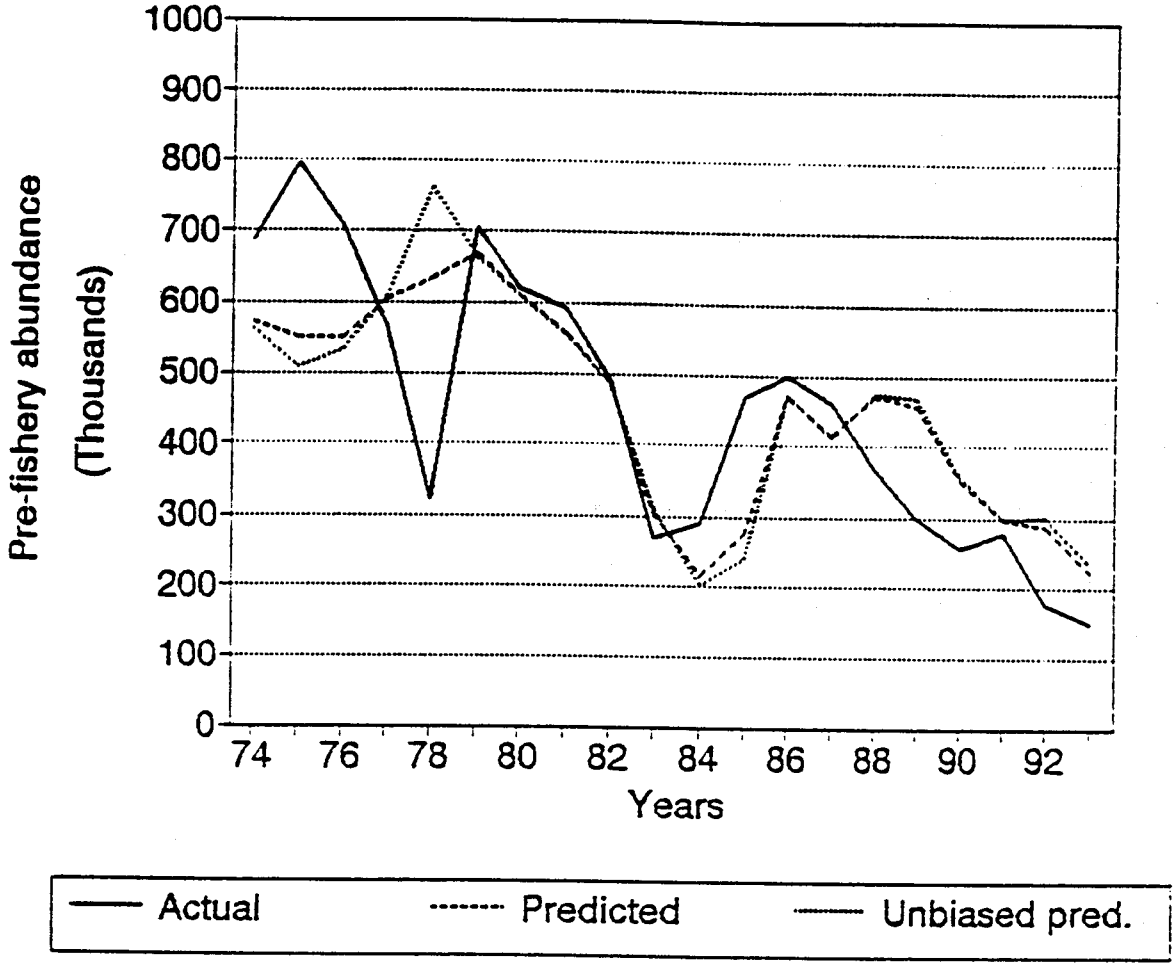


Figure 3.1.4 **Pre-fishery Abundance and returns to North America**

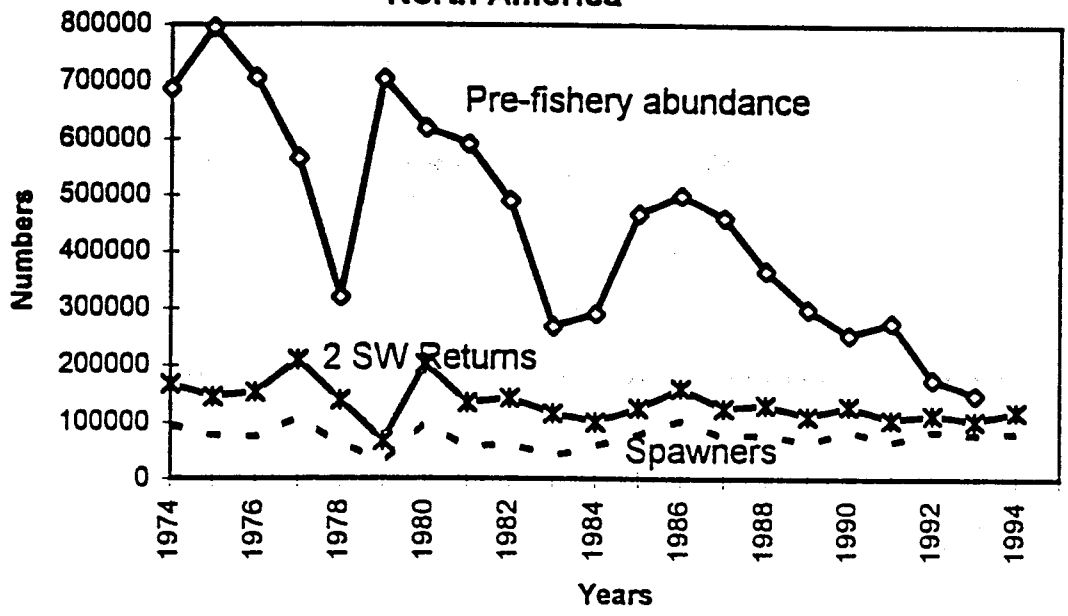
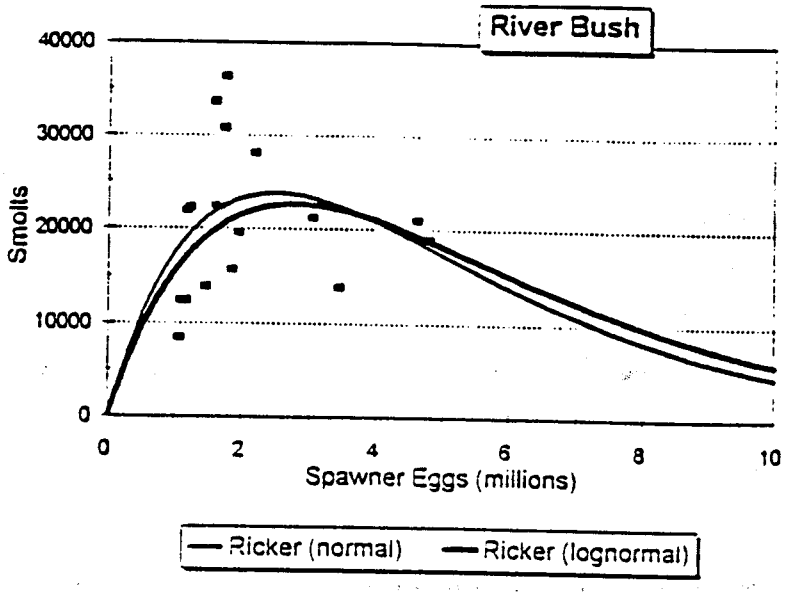
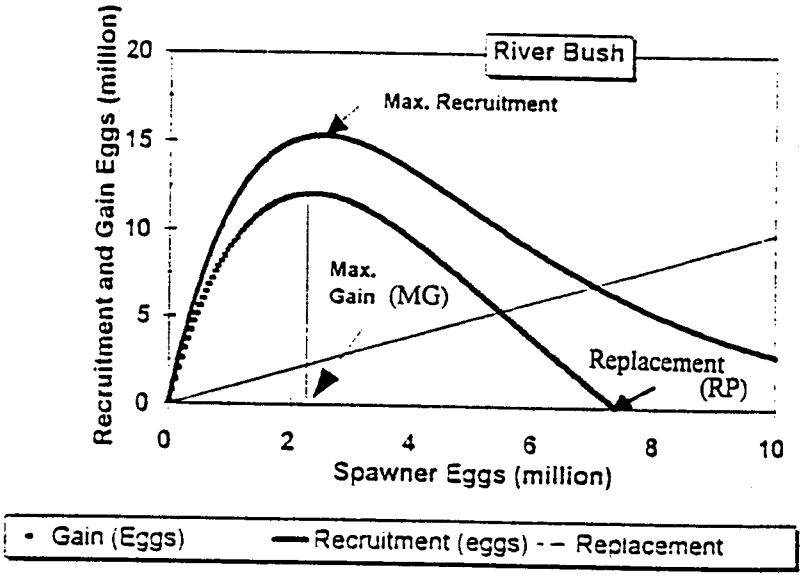


Figure 4.1.1 **Analysis of stock-recruitment data for River Bush UK(N.Ireland).**





Ricker model: Recruitment = alpha*Spawners*exp(-beta*Spawners)

Results assuming lognormal error structure

alpha	0.024	
beta	0.364	* E-06

Reference Points	Eggs (million)
Max. Gain (millions)	2.310
90% Max. Gain (millions)	3.385
Max. Recruitment	2.760
Replacement (millions)	7.335

Figure 4.2.1 **Maximum and minimum of recruitment of maturing (solid lines) and non-maturing (dotted lines) 1SW salmon in Southern European stock complex.**

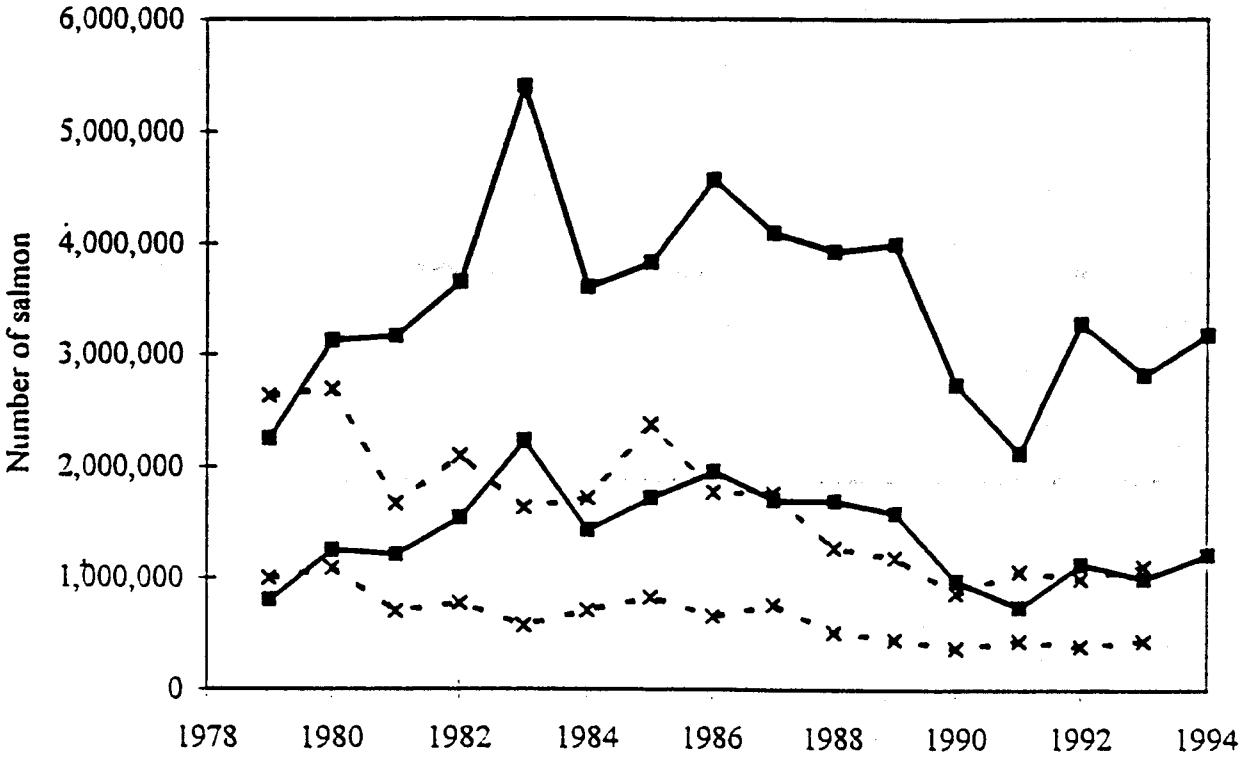
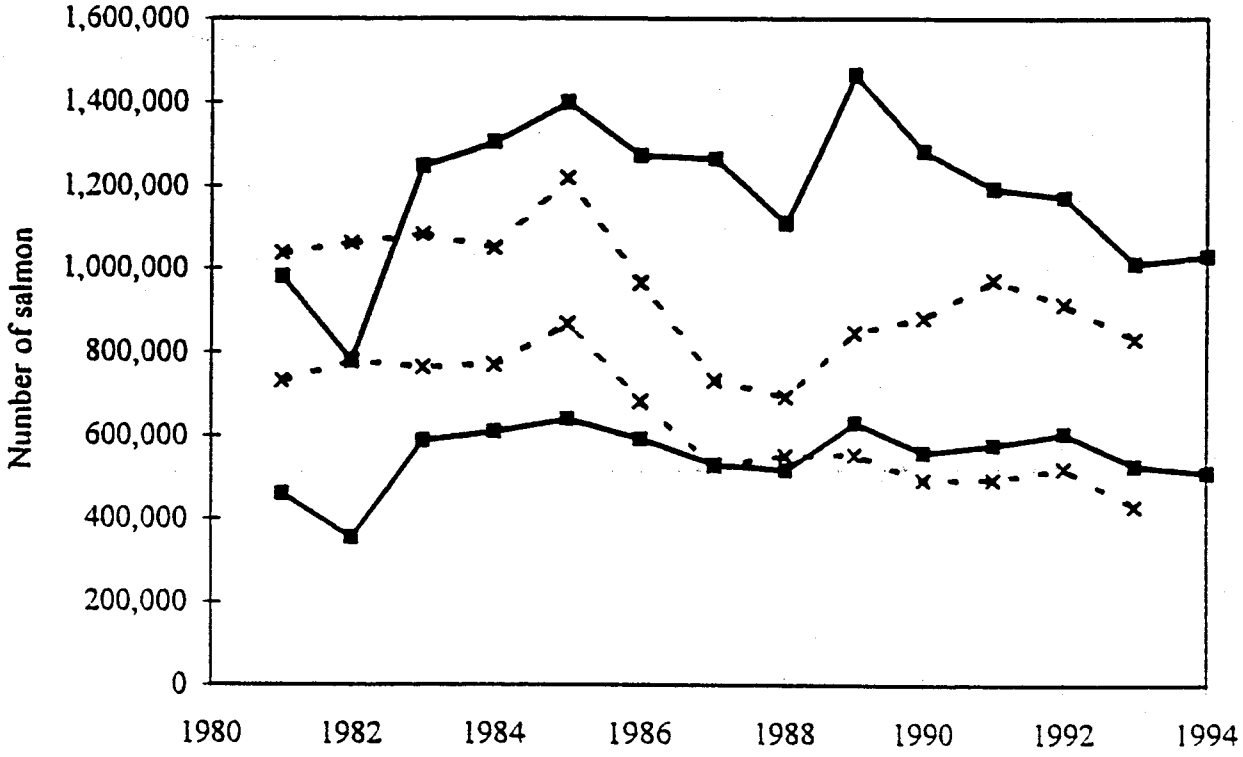


Figure 4.2.2 **Maximum and minimum estimates of recruitment of maturing (solid lines) and non-maturing (dotted lines) 1SW salmon in Northern European stock complex.**



APPENDIX 1

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.

APPENDIX 2

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.