NORTH ATLANTIC SALMON CONSERVATION ORGANIZATION ORGANISATION POUR LA CONSERVATION DU SAUMON DE L'ATLANTIQUE NORD



REPORT OF THE FOURTH ANNUAL MEETING OF THE NORTH-EAST ATLANTIC COMMISSION

ster de de d

8-12 June 1987 Edinburgh UK

NEA (87) 11

11 Rutland Square Edhiburgh EH1 2AS Scotland UK Tel: 031 228 2551 Telex 265871 (Ref MMT 076) Fax 031 225 4584 NORTH ATLANTIC SALMON CONSERVATION ORGANIZATION

9

9

9999999999

9

\$

ORGANISATION POUR LA CONSERVATION DU SAUMON DE L'ATLANTIQUE NORD



NORTH-EAST ATLANTIC COMMISSION COMMISSION DE L'ATLANTIQUE DU NORD-EST

CHAIRMAN:	MR	STEFAN DE MARE (SWEDEN)
RAPPORTEUR:	MR	OLE SAMSING (DENMARK IN RESPECT OF THE FAROE ISLANDS AND GREENLAND)
SECRETARY:	DR	MALCOLM WINDSOR

ll Rutland Square Edinburgh EHl 2AS Scotland UK Tel: 031-228 2551 Telex: 265871 (Ref MMU076) Fax: 031-228 4384

CONTENTS

REPORT OF THE FOURTH ANNUAL MEETING OF THE NORTH-EAST ATLANTIC COMMISSION, 8-12 JUNE 1987, EDINBURGH, UK.

ANNEX 1 LIST OF PARTICIPANTS

33333333333333

2 2

9

? ?

マシン

3 3

3

7

シシシ

3

3

ううう

3 > 3)) 3 3)) • • . 3 • . \$) 2 2 2) 4 9 . ANNEX 2 AGENDA, NEA (87)12

ANNEX 3 THE REPORT OF THE ADVISORY COMMITTEE ON FISHERIES MANAGEMENT (ACFM), SECTIONS 1 - 5.2 AND 8-10, CNL (87)3

ANNEX 4 EXPLANATORY EXAMPLE OF EFFORT REGULATION, NEA (87)4

ANNEX 5 PROPOSAL BY THE CHAIR FOR A REGULATORY MEASURE FOR FISHING OF SALMON IN THE FAROE ISLANDS FOR THE CALENDAR YEARS 1987, 1988 AND 1989, NEA (87)10

ANNEX 6 LIST OF NORTH-EAST ATLANTIC COMMISSION PAPERS

26 JUNE 1987 EDINBURGH

2

)))

* * * * * *

* * * * * * *

l

į

•

NORTH ATLANTIC SALMON CONSERVATION ORGANIZATION

NORTH-EAST ATLANTIC COMMISSION

NEA (87)11

REPORT OF THE FOURTH ANNUAL MEETING OF THE NORTH-EAST ATLANTIC COMMISSION

NEA (87)11

REPORT OF THE FOURTH ANNUAL MEETING OF THE NORTH-EAST ATLANTIC COMMISSION OF THE NORTH ATLANTIC SALMON CONSERVATION ORGANIZATION 8-12 JUNE 1987, DRAGONARA HOTEL, EDINBURGH, UK.

1. OPENING OF THE MEETING

99999

9 9

3

3

3

7

3 3

Э

Э

7

3

3

3 3

3 3

3

3

3 3

3 3

3

3

3

3

3

3

3

3

3

3

- 1.1 The meeting opened on 8 June 1987 under the chairmanship of Mr Stefan de Mare (Sweden).
- 1.2 The Commission welcomed the representatives of the USSR as members.
- 1.3 The list of participants is given in Annex 1.

2. ADOPTION OF THE AGENDA

2.1 The Commission adopted its agenda, NEA (87)12, (Annex 2).

3. NOMINATION OF A RAPPORTEUR

3.1 The Commission nominated Mr Ole Samsing (Denmark in respect of the Faroe Islands and Greenland) as rapporteur for the meeting.

4. REVIEW OF THE 1986 FISHERY

- 4.1 The Commission reviewed the 1986 fisheries in the Faroe Islands and in home waters.
- 4.2 A number of specific points were commented on in connection with the Faroese fishery (catches in 1986, discards, tags, escapees, minimum length, power to close areas) and in the home water fisheries (exploitation rates, general conservation efforts, gear used).

5. ACFM REPORT FROM ICES ON SALMON STOCKS

5.1 The Chairman of the ACFM, Professor Oyvind Ulltang, presented the scientific advice from ICES relevant to the North-East Atlantic Commission, CNL (87)3, (Annex 3).

6. <u>REGULATORY MEASURES</u>

The Commission reviewed an explanatory example of effort 6.1 regulation for the Faroese salmon fishery, NEA (87)4, (Annex 4). The representative of Denmark (in respect of the Faroe Islands and Greenland) explained that the intention of the paper was to demonstrate that effort regulations would be controllable in the Faroese fishery because of the limited number of vessels involved and lead to varying catches such regulations would that Questions were raised in dependent on stock abundance. salmon Commission regarding the effects of the the possibility catchability, availability and of increased efficiency of the gear and the enforcement issue.

R. R. R. E. E.

Ē

Ē

€

Ë

Ė

Ê

Ê

Ē

Ċ

Ċ

Ċ,

¢

¢

¢

e

с с

6 6 6

6 6

¢

¢

2 2 2

e e

e e

5 5

C

¢

c c

c c

C

G G

6 6

G

•

- 6.2 The Commission considered that further study might be undertaken to evaluate the feasibility of effort regulation in the Faroese salmon fishery.
- 6.3 The Commission adopted as a regulatory measure a proposal from the chair, NEA (87)10 (Annex 5).

7. RECOMMENDATION TO THE COUNCIL ON SCIENTIFIC RESEARCH

- 7.1 The Commission reviewed and accepted the relevant section of CNL (87)35 (shown in Appendix 2 of Annex 5 of this report) and agreed to recommend it to Council as part of the annual request for scientific advice from ICES.
- 8. OTHER BUSINESS
- 8.1 There was no other business.

9. DATE AND PLACE OF NEXT MEETING

9.1 The Commission agreed to hold its next meeting during the Fifth Annual Meeting of the Council, 13-17 June 1988 in Reykjavik.

10. CONSIDERATION OF THE DRAFT REPORT OF THE MEETING

10.1 The Commission decided that a report of the meeting would be agreed by circulation of a draft after the meeting.

- 2 -

10 JUNE 1987 EDINBURGH

Э

Э

Э Э

Э Э

•

NORTH ATLANTIC SALMON CONSERVATION ORGANIZATION FOURTH ANNUAL MEETING OF THE NORTH-EAST ATLANTIC COMMISSION 8-12 JUNE 1987, DRAGONARA HOTEL, EDINBURGH, UK.

LIST OF PARTICIPANTS

* Denotes Head of Delegation

PARTIES - MEMBERS OF THE COMMISSION:

DENMARK (IN RESPECT OF THE FAROE ISLANDS AND GREENLAND)

*MR K HOYDAL	<u>Representative</u> Foroya Landsstyri, Torshavn, Faroe Islands
MR E LEMCHE	Representative Greenland Home Rule, Nuuk, Greenland
MR O SAMSING	Ministry of Foreign Affairs, Copenhagen
MR A P DAM	Foroya Landsstyri, Torshavn, Faroe Islands
MR A OLAFSSON	Ministry of Foreign Affairs, Copenhagen
MR J MOELLER JENSEN	Greenland Fisheries & Environment Research Institute, Copenhagen
MR S POULSEN	Faroese Commercial Office, Danish Embassy, Aberdeen
MR H JAKUPSSTOVU	Foroya Landsstyri, Torshavn, Faroe Islands
MR J PAULSEN	Greenland Home Rule, Nuuk, Greenland
EEC	
*MR H SCHMIEGELOW	Representative Fisheries Directorate-General, EEC Commission, Brussels
MR J SPENCER	Representative Fisheries Directorate-General, EEC Commission, Brussels
MS E TWOMEY	Department of the Marine, Dublin
DR R SHELTON	Department of Agriculture and Fisheries for Scotland, Pitlochry
MR R WILLIAMSON	Department of Agriculture and Fisheries for Scotland, Edinburgh

MR R JOERDENS	Federal Ministry of Food, Agriculture and Forestry, Bonn
MR T POTTER	Ministry of Agriculture, Fisheries and Food, Lowestoft
MR N BROWN	Ministry of Agriculture, Fisheries and Food, London
MR I WHITELAW	Department of Agriculture and Fisheries for Scotland, Edinburgh
MR W MALCOLM	Department of Agriculture and Fisheries for Scotland, Edinburgh
MR G LEFEBVRE	Belgian Ministry of Foreign Affairs, Brussels
MR B PALLISGAARD	Ministry of Fisheries, Copenhagen
MR S MCDONALD	Permanent Representation of Ireland to the EEC, Brussels
MR D PINEY	Direction des Peches Maritimes, Secretariat d'Etat de la Mer, Paris
MR C PURDOM	Ministry of Agriculture, Fisheries and Food, Lowestoft
MR B NAYLOR	Department of Agriculture and Fisheries for Scotland, Edinburgh
MR A BETTE	Council of the European Communities, Brussels
FINLAND	
*MR P NISKANEN	Representative Ministry of Agriculture and Forestry, Helsinki
MR E NIEMELA	Representative Finnish Game and Fisheries Institute,

ô ê Ę Ê Ē Ę Ē Ē ٤ Ē Ę Ĝ ¢ Ę Ĝ ¢ C C G G G C 2 3 2 5 2 3 8 3 e З S З 3 s г 8 e

ICELAND

MR	А	ISAKSSON	Representative	
			Institute of Freshwater Fish,	Reykjavik

.

Helsinki

- 2 -

Ν	0	R	W	Ά	Y

Mortanii	
*MR S A MEHLI	<u>Representative</u> Directorate for Nature Management, Trondheim
MR D MORK ULNES	Representative Consul General for Norway, Edinburgh
MR L P HANSEN	Directorate for Nature Management, Trondheim
MR G RIEBER-MOHN	Regional Boards of Salmon Fishery, Oslo
SWEDEN	
*MR S DE MARE	Representative Ministry of Agriculture, Stockholm
MR I OLSSON	<u>Representative</u> National Board of Fisheries, Goteburg
USSR	
*MR N KUDRJAVTSEV	<u>Representative</u> Ministry of Fisheries, Moscow
MR V IKRIANNIKOV	<u>Representative</u> Ministry of Fisheries, Department of Foreign Relations, Moscow
MR V CHEVCHENKO	Ministry of Fisheries, Moscow
MR V SOLODOVNIK	Ministry of Fisheries, Moscow
OBSERVERS - PARTIES	
CANADA (++)	
MS L COTE	International Directorate, Department of Fisheries and Oceans, Ottawa, Ontario
<u>USA (+ +)</u>	
DR K FRIEDLAND	National Marine Fisheries Service, Woods Hole, Mass
DR P RAGO	US Fish and Wildlife Service, Kearneysville, WV
DR V C ANTHONY	National Marine Fisheries Service, Woods Hole, Mass
MR D SWANSON	National Marine Fisheries Service, Washington DC

OBSERVERS - NON PARTIES

ICES

DR B B PARRISH	International Council for the of the Sea, Copenhagen	Exploration
PROF O ULLTANG	Institute of Marine Research,	Bergen
DR E ANDERSON	International Council for the of the Sea, Copenhagen	Exploration
SECRETARIAT		
DR M L WINDSOR	Secretary, NASCO	

DR P HUTCHINSON Assistant Secretary, NASCO

(++) Under Article 11, paragraph 2 of the Convention for the Conservation of Salmon in the North Atlantic Ocean, Canada and the United States of America each have the right to submit and vote on proposals for regulatory measures concerning salmon stocks originating in the rivers of Canada or the United States of America, respectively, and occurring off East Greenland.

Ċ e Ę Ċ ¢ ¢ ¢ ¢ ¢ ¢ Ç ¢ Ĝ Ĉ G ¢ G ¢ C e C C C C e C ¢ S e 8 e e \$ C C C C c 0000000000000000000 ۳

いもももも

8 JUNE 1987 EDINBURGH

1.

2.

3.

4.

5.

6.

7.

8.

Э

.....

Э

Э

3

e è

j j

3

a a

> a j

> 3

<u>ر</u> بر

3

э

3

3

ن ن ک

ANNEX 2

NEA (87)12

NORTH ATLANTIC SALMON CONSERVATION ORGANIZATION FOURTH ANNUAL MEETING OF THE NORTH-EAST ATLANTIC COMMISSION 8-12 JUNE 1987, DRAGONARA HOTEL, EDINBURGH, UK.

AGENDA	PAPER NO
Opening of the meeting	
Adoption of the agenda	NEA (87)2
Nomination of a rapporteur	
Review of the 1986 fishery	
ACFM report from ICES on salmon stocks	CNL (87)3
Regulatory measures	
Recommendation to the Council on scientifi research	с
Other business	,

9. Date and place of next meeting

10. Consideration of the draft report of the meeting

5

))))

> é é é

> e e e e

>)

•

>)))

> >))))

۱

NORTH ATLANTIC SALMON CONSERVATION ORGANIZATION

COUNCIL

CNL (87)3

SCIENTIFIC ADVICE FROM ICES

THE REPORT OF

THE ADVISORY COMMITTEE ON FISHERIES MANAGEMENT (ACFM)

(SECTIONS 1 - 5.2 AND 8 - 10)

This paper makes reference to the report of the meeting of the ICES Working Group on North Atlantic Salmon (Copenhagen, 9-20 March 1987). That report is not annexed here but is available on request to the Secretariat.

NORTH ATLANTIC SALMON

1. <u>REQUEST FOR SCIENTIFIC ADVICE</u>

The advice below and the appended report of the Working Group on North Atlantic Salmon respond to questions posed by ICES and the Council of the North Atlantic Salmon Conservation Organization (NASCO). ICES requested consideration of how to set catches within safe biological limits. NASCO posed questions with respect to its three Commission areas as presented in items 5-7 in Appendix 1 of the Working Group report. Every question posed is addressed below. Because the same or closely related questions were posed for more than one NASCO Commission area and because reordering the presentation allowed related questions to be answered together without repetition of background material, responses have been ordered by topic and not in the sequence of questions asked. The heading to each section lists the NASCO questions responded to in the section. All tables and numbered figures referred to are found in the Working Group report.

In recent years, demands for advice from ACFM have increased. ACFM has been able to provide advice by drawing on the extensive data bases of participating member countries. Although these data bases continue to expand, it has proved difficult to provide complete answers to increasingly complex questions posed by NASCO and ICES. Although ACFM is able to provide much descriptive information pertaining to the fisheries and salmon harvest, it has not been able to provide accurate estimates of non-reported catches and fishing effort, nor to designate origins beyond continent of origin in the sea fisheries. Advice has been provided in the form of ranges of estimated impacts of the mixed stock fisheries. Narrowing these ranges is dependent on new information regarding natural mortality, noncatch fishing mortality, and tag reporting rate, which seems attainable only through further extensive and costly research efforts.

In general, ACFM is able to answer questions pertaining to catches and the biology of the different stocks and provide general estimates of yield consequences relative to the mixed stock fisheries. It is not able, however, to advise on appropriate catch levels, nor is it likely to be able to do so without new and detailed information on salmon abundance in the fishing areas and major advances in stock forecasting capabilities. Both the development of appropriate methodologies and their required application will be costly.

2. FRAMEWORK FOR SCIENTIFIC ADVICE ON MANAGEMENT OF SALMON

ICES requested consideration of the concept of safe biological limits for the exploitation of Atlantic salmon in the North Atlantic in 1986 and again in 1987. The issue was explored on a preliminary way in ACFM's 1986 advice to NASCO. Further consideration of this issue confirmed that there exist formidable practical obstacles to conserving salmon stocks by controlling exploitation in relevant fisheries so as to achieve an adequate spawning biomass.

Despite the complicating factors of hundreds of stocks, many or most of which are vulnerable to multiple fisheries which exploit many stocks in unknown and varying proportions, the need for a systematic approach to conservation is evident. Given the complex nature of the problem, a special effort is required to address the framework for scientific advice on the management of North Atlantic salmon. Consequently, ACFM recommends that three days to one week be set aside in 1988 for examination of an appropriate framework for such advice, with thoroughly researched background papers and participation of Working Group members together with other experts. This could be carried out as part of the Working Group meeting or as a special meeting sponsored by ICES. The ability of the Working Group to consider this issue would be improved if a Study Group were established to prepare data relevant to the North American Commission of NASCO and if its workload were reduced in 1988.

- 1 -

i

ŗ

ć

: :

3. NOMINAL CATCHES OF SALMON IN HOME WATERS

フララララ

5

5

3

5

5

3

0 0

5

3

3

2

2

2

2

3

2

2

2

2

2

2

۵

۵

ł

Nominal catches of salmon in home waters (in tonnes round fresh weight) for 1960-1985 are given in Table 1. Figures for 1986 are incomplete. The 1986 catches in home waters, apart from that reported by Finland, are higher than the corresponding 1985 values. ACFM is aware of unreported catches throughout the North Atlantic. Due to the lack of data from some countries, no precise estimates were obtained. However, ACFM considers the unreported catch to be of the order of 3,500 t for all countries.

4. CATCH IN NUMBERS BY SEA AGE FOR RECENT YEARS (NE a)

Reported national salmon catches in numbers and weight for eleven countries are given in Table 2. As in Table 1, catches include both wild and reared salmon.

5. NATURAL MORTALITY IN THE SEA (NR e)

5.1 The Effects of Predation on Natural Mortality (WG, H, NE i)

Predators of salmon from the smolt stage onwards include terrestrial and marine mammals, birds, and fishes. Results of studies presented to the Working Group suggest that birds such as cormorants and fishes such as cod can exert high levels of mortality, particularly during the smolt and post-smolt stages.

5.2 Estimated Natural Mortality Rates (WG k, Ne e)

Published estimates of the marine natural mortality of Atlantic and Pacific salmon were considered, together with some data relevant to the natural mortality of Icelandic ranched salmon. Since the natural mortality in the marine phase has not been precisely estimated, the importance of this factor in assessing the impacts of the West Greenland and Faroese fisheries on home-water stocks was illustrated by using monthly natural mortality rates of 0.01 and 0.02 subsequent to these fisheries.

Assuming a monthly natural mortality rate of 0.01 subsequent to the Faroese fishery, analysis of data for salmon from the Burrishoole River (Ireland) and River Imsa (Norway) gave estimates of 50-80% mortality from leaving fresh water until the mid-point of the Faroese fishery.

8. QUESTIONS OF INTEREST TO THE NORTH-EAST ATLANTIC COMMISSION OF NASCO

8.1 Faroese Salmon Fishery

8.1.1 <u>Composition of catches in the Faroese salmon fishery</u> (NE b,c)

Table 37 gives the catch by calendar year and by fishing season for the Faroese salmon fishery. The 1986 catch was 628 t and the 1985/1986 catch was 625 t.

C

е с

e

G

Ç

Ç

C

କ କ

ସ ସ

Ç

G

Ĝ

G

G G

Ĝ

Ĉ

Ĉ

Ĉ

C

Ĉ

C

¢

¢

C

C

c c

c c

¢

C

¢

Ç

Ç

00000

The catch in number by age group and month in the 1985/1986 Faroese salmon fishery is given in Table 38. Discards were estimated to be 1.9% of the catch in numbers.

8.1.2 Distribution of catches by season and area in the Faroese salmon fishery in relation to country of origin (NE f)

No new data on recoveries of external tags from the Faroese fishery were available since 1985. Previous information on external tag recoveries was presented by ACFM in 1986. It was previously observed that there was no significant difference between centres of distribution of recoveries of tags originating in Norway, Sweden, and the United Kingdom. However, recapture rates for salmon tagged in Norway and Sweden were greater than those from smolts released in the United Kingdom and Ireland which, in turn, were greater than those from smolts released in Iceland.

8.1.3 <u>Contribution of hatchery-reared salmon and fish farm escapees to the Faroese salmon</u> <u>fishery</u> (NE d)

ACFM considered four general approaches to distinguishing reared salmon and fish farm escapees in salmon catches: direct observation, morphometric methods, scale analyses, and biochemical methods. Problems previously identified with the first three approaches were considered not to have been solved. To be effective, a method must distinguish fish which have escaped from fish farms after the smolt stage from reared fish released at or before the smolt stage for river enhancement purposes. This criterion is presently met only by the biochemical approach, and only in a preliminary way. It is known, for example, that eroded or deformed fins occur in salmon released at the smolt stage for stock enhancement purposes. Biochemical analysis of a sample of 219 fish in the Faroese fishery found that at least 3% were of farmed origin. Direct observation suggested that 13% were reared and scale reading suggested 7%.

8.1.4 Minimum size regulations and discards (NE g,k)

Estimated discard rates in the Faroese fishery were 13.5% in 1984/1985 and 1.9% in 1985/1986. The former value is considered to be near the top of the probable range while the latter shows that discards can fall to insignificant levels in some years. It is estimated that 15-20% of discarded fish survive. Consequently, of about 25,000 discarded salmon in 1984/1985, 3,750 - 5,000 would survive, and of about 3,500 discarded in 1985/ 1986, 525 - 700 would survive.

The effect of total compliance with a minimum landing size (MLS) of 63 cm or 68 cm total length rather than the present 60 cm was estimated using the length frequency distributions of landings for the two seasons. The results are shown below:

	Estimated	discard rates	(%) by numbers
Season	MLS 60	cm MLS 63 c	m MLS 68 cm
1984/198	5 13.5	19 6	36 22

If the MLS were abolished, discarding would probably continue. However, the implication of retaining the fish discarded in 1984/1985 was calculated to be:

Age	No. of fish killed	No. of fish returning
class	in fishery	to home waters
1 SW	increased by 3,013	decreased by 2,280
2 SW	decreased by 7,684	increased by 5,235
3 SW	decreased by 739	increased by 2,170

The total weight of salmon returning to home waters would increase by 38 t. If the 1984/ 1985 discard rate is considered maximal, then the effect of retaining all fish caught would vary from a small amount to the calculated value.

Beginning in 1987, the Faroese Fisheries Laboratory has been empowered to close areas to salmon fishing if large numbers of small fish are present in the catch. ACFM noted that this approach may be more effective than a MLS in reducing discard rates. Increasing survival rates of discarded fish is considered impractical.

8.2 <u>Home-Water Fisheries</u>

cccccccccc

2

)

2

)

3

3

)

2

)

٦

1

8.2.1 Catches of salmon in the North-East Atlantic Commission area (NE a)

Catches from home-water fisheries are presented in Table 1. As in 1986, ACFM was unable to report catches in the categories requested. However, catches in home-water fisheries are divided into sea fisheries, estuarine fisheries, and river fisheries in Table 39. Only in the Faroese salmon fishery does the fishing season overlap the end of the year (see Section 8.1).

8.2.2 Description of salmon fisheries in the North-East Atlantic Commission area (NE a, h)

ACFM was asked to describe home-water fisheries and to consider the effects of regulation on the exploitation of home-water stocks. ACFM considered that home-water stocks were conserved by management measures laid down by various regulations and that these same regulations were largely responsible for the present form of the salmon fisheries. Consequently, it was not possible to estimate the incremental impact of the various regulations in force. The evolution of home-water fisheries and regulations is described for Norway, England and Wales, France, Finland, Northern Ireland, Scotland, Iceland, and Ireland in Section 4.2 of the Working Group report.

8.2.3 Effects of conservation measures on exploitation of home-water stocks (Ne j)

A wide range of exploitation rates occurs in home-water fisheries in the North-East Atlantic, ranging from a few percent to over 90%. There is a large body of conservation measures in place including closed seasons, weekly closed times and closed areas, prohibition and definition of gears, and materials and methods of fishing. Size of boats, numbers of licences, and sale of fish caught are also regulated. Evaluation of the effects of present and future conservation measures is subject to several difficulties. Catches do not

- 4 -

necessarily reflect changes in stock abundance which is assessed for few rivers. Marine survival is variable, confounding the effects of changes in management measures. There is also evidence of significant illegal catches in some countries. For these reasons, ACFM was not able to assess the effects of specific measures. ¢.

e

۲ ۲

¢

C

¢

G

C

G

G G

Ĉ

C

G C

C

C

G

C

G

G G

с С

C

¢

C

C

C

C

e e

¢

¢

C

c c

Ç

C

c c

C

Ç

G

......

g U

8.2.4 Evolution of the fishing gear (NE h)

Most home-water fisheries have been controlled for at least 100 years. There has been little change in the gear used except that certain methods have been banned. The introduction of synthetic netting twines in the 1960s and especially monofiliament and monoply twine, however, affected the operation of many netting methods. Gillnets became much more effective and could be operated effectively in daylight and away from shore. This led to increased marine drift netting until it was restricted or banned.

8.3 Exploitation Rates (NE a)

Exploitation rates in various fisheries for some stocks in Norway, Scotland, Ireland, and Northern Ireland are presented in Tables 40 to 44. These rates were estimated from tag recovery data.

9. ACOUSTIC SURVEYS IN THE FAROESE SALMON FISHERY

The Study Group on the Norwegian Sea and Faroese Salmon Fishery recommended that acoustic methods should be used to assess numbers and biomass of salmon in the Faroese area. The ICES Working Group expressed some doubts about the technique, especially concerning accuracy of the estimates, but recommended that a feasibility study be carried out to determine if these acoustic methods can work in high seas Atlantic salmon fisheries. ACFM endorses this recommendation.

10. SPECIAL STUDY GROUPS IN 1987

The results of two Study Groups are included in this report and should be referred to if further clarification is needed. These are the Report on the Study Group on the Norwegian Sea and Faroese Salmon Fishery (ICES Doc. C.M. 1987/M:2) and the Report of the Acid Rain Study Group (ICES Doc. C.M. 1987/M:3). The Working Group and ACFM endorsed the research initiatives recommended by the Study Group on the Norwegian Sea and Faroese Salmon Fishery and generally endorsed those of the Acid Rain Study Group. These are presented below:

The Study Group on the Norwegian Sea and Faroese Salmon Fishery made the following recommendations:

1. <u>Sampling and screening the catches at Faroes</u>

The Study Group considered the current effort put into sampling and screening catches adequate and recommends it be continued at a similar level.

2. Analysis of tag returns

The analysis of tag returns should include total returns to the home-water fisheries divided according to river origin and specifying whether fish are reared or wild.

3. Tagging in the high seas

Tagging using breakable hooks was discussed and the Study Group recommended that this method should be reviewed before the next meeting. In addition, an effort should be made to estimate the hook loss in the Faroese fishery, and the number of fish caught in the home-water fisheries with hooks in their mouth or alimentary canal.

- 5 -

4. Acoustic surveys

5 5

9

2

э Э

2

2

2

9

2

2

9

2

•

2

2

9

2

2

à

3

)

•

3

3

2

3

Work done on Pacific salmon stocks indicates that it is possible to assess numbers and biomass of salmon using acoustic methods. The Study Group considered that, although these results were obtained in restricted areas, they were so encouraging that similar work in the North-East Atlantic was recommended.

5. Separating salmon of wild and reared-origin

The Study Group discussed various methods for separating wild and reared salmon in the Faroese fishery and made a number of recommendations for future work.

The Acid Rain Study Group, as a result of its work, made the following recommendations:

- 1. The major effort in North America should be devoted to the prevention of additional damage to existing Atlantic salmon stocks from acidification of habitat rather than mitigating damage after it occurs. The extensive damage to Atlantic salmon stocks in Scandinavia that has already resulted from acidification necessitates local mitigation measures to preserve and enhance existing stocks. Such damage is presently minimal in North America, but efforts undertaken to prevent such damage should include reduction in emissions of acid-precursors at their sources, if necessary.
- 2. Chemical and biological surveys should be conducted in Atlantic salmon rivers in order to better quantify the extent and degree of risk to the habitat, and long-term monitoring programs should be established on selected index rivers to obtain time-series data from which trends in acidity can be determined. The Study Group found that an estimation of the extent of North American Atlantic salmon habitat that is vulnerable to acidification, and of trends in the acidification of this habitat, was hampered by a lack of data on which to base these estimates.
- 3. Because of the importance of aluminum as a toxic substance to salmonids in acidified Scandinavian streams, further research should be conducted to resolve its importance (or lack thereof) in eastern North American salmon streams.
- 4. Consideration should be given to the advisability of developing programs to protect the genomes of Atlantic salmon stocks at risk from acidification. Protection techniques may include creation of refuges or preservation of male and female gonadal products and other genetic material.
- 5. A study plan should be prepared to determine the feasibility of transferring the existing European river liming technology to North American acidic Atlantic salmon waters. Although such liming practices are technologically and economically feasible in Scandinavia, North American rivers differ with respect to hydrological, chemical, and biological characteristics, and as a result, the technology may not be directly transferable.
- 6. Since it was not possible in the time available to provide complete and definitive answers on Atlantic salmon in relation to acid rain, consideration should be given to reconvening the Study Group in one year's time to complete its assigned tasks. Since the problem of acid rain concerns other anadromous and catadromous species and has an impact on marine biology, consideration should be given to broadening the terms of reference of the Study Group to include the direct and indirect effects of acid rain on the production of diadromous and marine species in the estuarine and coastal environments and to report its findings to both the ANACAT and Marine Environment Quality Committees.
- 7. The North Atlantic Salmon Working Group should undertake the assessment of the loss of production in acid-affected habitat using the two methods proposed in this report, or such other methods as it deems appropriate, because the Study Group judged itself as not having the competence to conduct an assessment with sufficient rigor.

•••••

Э

9 9 9

999

2 9 9)))) •))))))))) ۱))) 1 •

1

•

ANNEX 4

NORTH ATLANTIC SALMON CONSERVATION ORGANIZATION

NORTH-EAST ATLANTIC COMMISSION

NEA (87)4

EXPLANATORY EXAMPLE OF EFFORT REGULATION

NEA (87)4

e

Ē

6 6 6

Ĉ,

¢

4

4 4

9

G G

Ĉ

Ĝ

с с

Ç

C

Ċ

с с

Ĉ

Ĉ

Ĉ C

Ĉ

e e

e

Ĉ

e c

C

C

с с с

¢

¢

¢

EXPLANATORY EXAMPLE OF EFFORT REGULATION FROM THE DELEGATION OF DENMARK (IN RESPECT OF THE FAROE ISLANDS AND GREENLAND)

In a series of bilateral meetings with some members of the North-East Atlantic Commission, representatives from Denmark in respect of the Faroe Islands and Greenland have put forward the idea of effort regulation, rather than catch regulation, of the high sea salmon fishery in the Faroese EEZ.

Faroese authorities believe that effort regulation, if manageable, may very well prove to be of greater significance than catch limitation; certainly if its purpose is to ensure that the harvest in the high seas bears some relation to the output from the rivers to the seas. This is especially the case when effort limitation is combined with additional conservation measures.

For the 1987 calendar year, the Faroese Home Government has already introduced real time closures of areas with salmon measuring less than 60cm in length, and has reduced the catch season by one month, so that the fishery must now end at the latest April 30 instead of May 31.

In order to clarify the idea of effort regulation, an explanatory example is given below, which is based on data sampled from Faroese fishery. Most of these data have been presented in the reports of the Study Group on the Norwegian Sea and the Faroese Salmon Fishery, issued by ICES (ICES, C.M. 1987/M:2). More detailed data are kept in a database in the Faroese Fisheries Laboratory in Torshavn.

For every season from 1980/81 to 1985/86 the average numbers per unit have been calculated. (total catch/total effort over the season.) This figure has been multiplied by the average weight over the season to give the yield in weight per effort.

To show the effect of effort limitation, the calculated catches in these six seasons, assuming a fixed arbitrary effort figure of 3.9 million hooks, are set out in Table 1.

TABLE 1.

Yield per unit effort, YPUE (kilos/1000 hooks) and calculated yields in tonnes in the Faroese salmon fishery, assuming a fixed effort of 3.9 million hooks, for the seasons 1980/81 to 1985/86.

Season	YPUE	Yield (tonnes)
80/81	189	737
81/82	242	944
82/83	194	757
83/84	202	788
84/85	133	519
85/86	205	800

999

9 5 9 2 3 3 Э Э Э Э Э Э Э Э Э Э Э Э

Э

Э 3 Э Э 3 3 € 3 ≩ ¥ } 3 ¥) ¥) ÷ •) , •))))) ÷) 1 1

ī.

In theory it is possible to set more than 3000 hooks per day. In practice, when prevailing weather conditions and the working environment are taken into consideration, the average number of hooks set per fishing day is 2200.

- 2 -

9999

9

~ ~ ~ ~ ~

3

3

Э

9

Э

3

3

3

3

3

¥

3

)

Ş

))

2

è

•

ANNEX 5

NORTH ATLANTIC SALMON CONSERVATION ORGANIZATION

NORTH-EAST ATLANTIC COMMISSION

NEA (87)10

PROPOSAL BY THE CHAIR FOR A REGULATORY MEASURE FOR FISHING OF SALMON IN THE FAROE ISLANDS FOR THE CALENDAR YEARS 1987, 1988 AND 1989

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 years 1987, 1988 and 1989 decides that:

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

During the trial period the fishery shall be monitored by the Commission at its Annual Meetings. For this purpose, account shall be taken of the advice received from ICES pursuant to the questions set out in Appendix 2.

The fishing effort shall be targeted at an average annual catch so that the total nominal catch for the duration of the trial period shall not exceed 1790 tonnes. However, in any given year the annual catch shall not exceed 5% more than the annual average.

-1-

APPENDIX 1 TO NEA (87)10 e

C

6 6 6

Ç

G G

G

Ç

ସ ସ

G

с С

C

C

G

G

Ç C C C C C C C ¢ C e e e ¢ ¢ C C C ¢ ¢ ¢ ¢ ¢ ¢ Ç ¢

¢

000

The following regulatory measures for the fishing of salmon in the fisheries zone of the Faroe Islands for the years 1987, 1988 and 1989 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 26.
- (3) The salmon fishing season will be limited to 15 January to 30 April, and 1 November - 15 December.
- (4) Subject to the maximum annual catch the total allowable number of fishing days for the salmon fishery in the Faroese Islands zone shall be set at 1600 each year.

APPENDIX 2 TO NEA (87)10

REQUEST FOR SCIENTIFIC ADVICE FROM ICES

With respect to Atlantic Salmon in the North-East Atlantic Commission Area:

- 1. Describe events of the 1987 fisheries with respect to gear, effort, exploitation rate, composition and origin of the catch and assess the status of the stocks.
- 2. Evaluate the effectiveness of new, existing or proposed management measures for home waters and interception fisheries on stocks occurring in the Commission area, in particular the effect in the Faroese fishery zone of effort control compared to the control of catches on the level of exploitation.
- 3. Discuss scientifically based approaches for managing salmon in the context of existing fisheries.

4.

99990

5

2

9 9 9

3

3

3

)

3

)))

•

)

1

Specify data deficiencies and research needs.

NORTH ATLANTIC SALMON CONSERVATION ORGANIZATION

ラフフフフ

>

33

3

555

3 3) 3 3 3 3 •)) •)) ; } ;) 3 ; ł ;

FOURTH ANNUAL MEETING OF THE NORTH-EAST ATLANTIC COMMISSION 8-12 JUNE 1987, DRAGONARA HOTEL, EDINBURGH, UK.

LIST OF NORTH-EAST ATLANTIC COMMISSION PAPERS

PAPER NO.	TITLE
NEA (87)1	Provisional Agenda
NEA (87)2	Draft Agenda
NEA (87)3	Draft report of the North-East Atlantic Commission
NEA (87)4	Explanatory example of effort regulation
NEA (87)5	Supplement to table 37 in the report of the Working Group on North Atlantic Salmon
NEA (87)6	Norwegian statement on regulatory measures in the Faroese salmon fishery
NEA (87)7	Draft proposal made by the delegation of Denmark (in respect of the Faroe Islands and Greenland) for regulatory measures for the fishing of salmon in the Faroese fishery zone in 1987 and 1988
NEA (87)8	Proposal made by the Chair for a regulatory measure for the fishing of salmon in the Faroe Islands for the calendar years 1987, 1988 and 1989
NEA (87)9	Proposal by the Chair for a regulatory measure for fishing of salmon in the Faroe Islands for the calendar years 1987, 1988 and 1989
NEA (87)10	Proposal by the Chair for a regulatory measure for fishing of salmon in the Faroe Islands for the calendar years 1987, 1988 and 1989
NEA (87)11	Report of the North-East Atlantic Commission

NEA (87)12

Agenda

CNL (87)3 Scientific Advice from ICES

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

t t

t c

¢

¢ Ç ¢ ç Ç Ç Ç ¢ ¢ Ç ¢ t ¢ ¢ ¢ Ç Ç ¢ ¢ ¢ ¢ ¢ ¢ C e e C C C C C C C

c c

с с

000000000000

ç

Ü