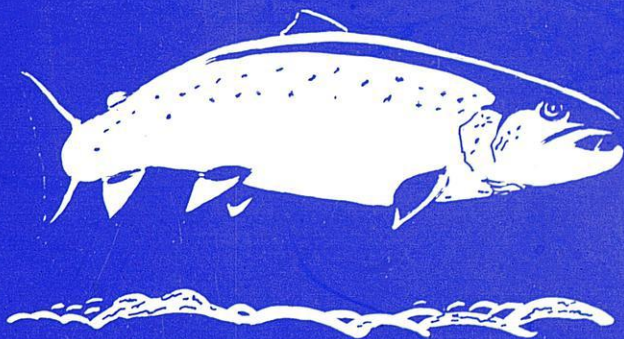




ATLANTIC SALMON TRUST

PROGRESS REPORT

May 1986



The Atlantic Salmon Trust
Moulin, Pitlochry
Perthshire PH16 5JQ
Telephone: Pitlochry (0796) 3439

Patron: HRH The Prince of Wales

GENERAL COUNCIL

President: *The Duke of Wellington
Vice-President: *Vice-Admiral Sir Hugh Mackenzie
Chairman: *Mr. David Clarke
Vice-Chairmen: *Mr. D. W. Nickson
*Sir Ernest Woodroffe

Members: Major The Hon. J. Ashley-Cooper
Ambassador Claude Batault
Mr. John Bennett
The Rt. Hon. The Lord Biddulph
*Mr. Gordon Bielby (representing the
Water Authorities Association)
Mr. R. A. Buck
*Dr. W. M. Carter
Lady Cleminson
Captain A. A. Compton Farquharson
of Invercauld
*The Hon. Mrs. Jean Cormack
Mr. J. F. Cullman 3rd
*The Hon. E. D. G. Davies
Mr. R. J. Deterding
Mr. J. Golding
*Mr. N. W. Graesser
*Mr. G. D. F. Hadoke
Sir Stephen Hammick
Dr. G. Harris
*Mr. S. P. L. Johnson
The Rt. Hon. Lord Keith of Castleacre
Mr. D. Landale
The Rt. Hon. The Viscount Leverhulme
Mr. D. E. Longe
Major Colin Mackenzie
*Mr. M. D. Martin
*Dr. D. H. Mills
*Mr. I. Mitchell
*Lord Moran
*Mr. Moc Morgan
Mr. A. Oglesby
Mr. Cranley D. Onslow
Mr. I. G. Rolland
Mr. J. R. W. Stansfeld
Mr. Philip Tallents
*Mr. W. A. C. Thomson
Mr. Michael G. T. Webster
*A representative of the British Field
Sports Society
A representative of the Spey Fishing Trust

Director: *Rear Admiral D. J. Mackenzie
Deputy Director: *Mr. Alex Prichard
Secretary: *Mr. E. Earl
Treasurer: *Mr. M. O'Brien

*Members of Committee of Management

HONORARY SCIENTIFIC ADVISORY PANEL

Sir Ernest Woodroffe, Ph.D., F.Inst.P., F.I.Chem.E. (Chairman)
Mr. I. R. H. Allan, M.A.
Professor R. W. Edwards, B.Sc., D.Sc., F.I.Biol., F.I.W.P.C.,
F.I.F.M. (University of Wales Institute of Science and
Technology)
Mr. G. D. F. Hadoke, M.A., M.Sc.(Econ.), F.I.F.M.
M. M. Halliday, D.Sc. (Joseph Johnston & Sons Ltd.)
G. Harris, Ph.D. (Welsh Water Authority)
G. J. A. Kennedy, Ph.D. (Department of Agriculture for
Northern Ireland)
Mr. E. D. Le Cren, M.A., M.S., F.I.Biol.
D. H. Mills, Ph.D. (Department of Forestry and
Natural Resources, Edinburgh University)
Mr. I. Mitchell, B.Sc. (Tay Salmon Fisheries Co. Ltd.)
D. J. Piggins, B.Sc., Ph.D. (Salmon Research Trust
of Ireland Inc.)
J. Solbe (Water Research Centre, Marlow)
D. Solomon, Ph.D.
Miss E. Twomey, M.Sc. (Department of Fisheries and Forestry,
Dublin)

Observers: Mr. B. Stott (Ministry of Agriculture, Fisheries
and Food)
Mr. W. Shearer (Department of Agriculture and
Fisheries for Scotland)

INTERNATIONAL CONSERVATION ORGANISATIONS
WITH WHICH THE TRUST IS CONTACT

France: Association Internationale de Defense
du Saumon Atlantique
Belgium: Belgian Anglers Club
Ireland: Irish Game Fish Protection Federation
Norway: Jeger og Fiskerforbund and Laksen of Oslo
Sweden and
Scandinavia: Theodor Dalensson, Scandinavian Atlantic
Salmon Group
Spain: Asturian Fishing Association of Oviedo
U.S.A.: Restoration of Atlantic Salmon in America Inc.
Canada and
U.S.A.: Atlantic Salmon Federation

Index

Council and Honorary Scientific Panel	Front Cover - 1
Index	2
Chairman's Foreword	3
Director's Report	4
Picture of Moulin	5
Deputy Director's Report on Europe	6
The Salmon Bill	6
Drift Netting to Cease in Norway	11
Foodmarked Farmed Scottish Salmon	11
Publications and Videos	12
The Best Worker in Europe	13
The Trust Around the Fairs	14
Third International Symposium - Biarritz	16
A Wild Salmon Chase	21
Fish Farming Statistics	25
Welsh Water - a Report	25
Pollution from Farms in Wales	27
Re-introduction of Salmon into the River Trent	30
High Seas Fisheries	32
Stocks and Catches	32
Statistics 1984	35
Review of Literature	37
Deed of Covenant	42
Banker's Order	43
Accounts	44
	- Back Cover

CHAIRMAN'S FOREWORD

The past few months have been exceptionally busy for the Director and his Deputy. The move to Moulin was made in December and the new offices are warm and spacious. The builder and other tradesmen have done a good job, and the Trust is lucky to have had such a magnificent gift to enable them to purchase the property. An Apricot computer has been installed, and Gillian Hines, the new secretary, is mastering the keyboard. This Report was compiled on a word processor and your addresses are being stored in the computer.

The annual postal auction has been an outstanding success and details are contained in the Report. Alex Prichard, Mrs. Steele his part-time secretary, and his long-suffering wife are all to be congratulated.

The Salmon Bill is well on its way through Parliament, and details of its passage through the Lords are given in an excellent summary by Lord Moran. Although as a Charity the Trust has taken a low profile during the Parliamentary proceedings, much background work has been done and a close liaison exists between the Director and his opposite numbers in the British Field Sports Society and the Salmon and Trout Association. The Trust has strongly emphasised the need to take into account the international scene when considering conservation matters.

The Honorary Scientific Advisory Panel are to be congratulated on the Blue Books that have been produced over the past year. The latest, "The Biology of the Sea Trout", a report of a workshop held by the Trust, has proved a best seller.

The increased amount of money available for public relations as a result of the Hopetoun sale is having its effect and the Trust has had very good coverage in the national and international papers of late.

The financial position is much healthier although it is of concern that a very large number of covenants have or are about to expire. Those whose covenants have expired will be receiving a letter from the Director with this Report. It is much to be hoped that people will be generous enough to renew their covenants.

The Symposium in Biarritz in October is attracting world-wide attention and it is worth remembering this is the third international symposium that the Trust has organised, the previous two jointly with the Atlantic Salmon Federation and this one with the Association Internationale de Defense du Saumon Atlantique and in association with the Atlantic Salmon Federation.

Europe is a very important place in the eyes of the Trust, especially since the UK is represented by the EEC at NASCO. The Trust is very lucky to have such a pro-European as Alex Prichard on the staff. Alex delivered a very good address to the Fisheries Committee of the European Parliament, for which he must be congratulated.

Finally, the accounts for the year ended 30th June, 1985 are included in this Report. From December 1986 the Progress Reports will be issued in December and June, with the accounts appearing in the December issue.

D. Clarke

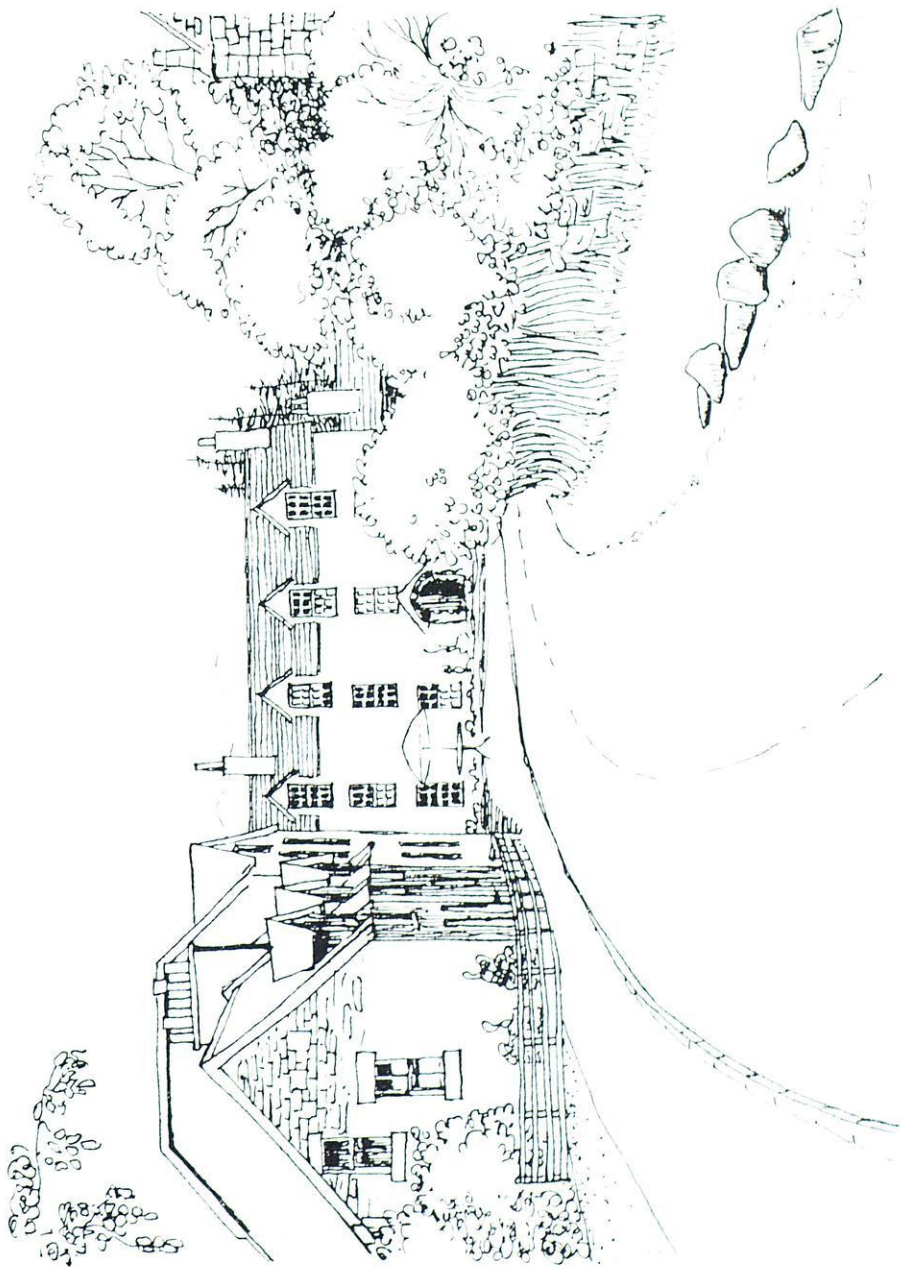
DIRECTOR'S REPORT

There is little more left to me to say after the Chairman's Foreword. The Trust's excellent publications have firmly established themselves a position on fish managers' and scientists' bookshelves. I hope that you will find this Progress Report of interest, and I would welcome any suggestions for the future. There is I think a demand for a more glossy version once a year and any volunteers to help produce such a thing please come forward. Even with our computer getting up a full head of steam, time is in short supply. I would also welcome any articles for inclusion in the Report. An appeal to the Water Authorities has produced two this time, and Tony Hawkins' account of "Harry" is well worth reading.

Our President and Chairman have been asked, and have agreed, to become Trustees of the Thames Salmon Trust, which as you may know is having considerable success in re-introducing salmon into the Thames.

Anyone coming north to fish is welcome to drop in and see the Trust's headquarters. We are the house downhill from the pub, "The Moulin Inn" - see the picture opposite.

D. J. Mackenzie



REPORT ON THE DEPUTY-DIRECTOR'S WORK IN EUROPE
ON BEHALF OF THE TRUST

In the course of the period under review, the Deputy Director has attended meetings in France with the Association Internationale de Defense du Saumon Atlantique (AIDSA) with whom the Trust is co-sponsoring the Third International Atlantic Salmon Symposium. Our French friends are proving extremely active and effective in their support of the arrangements and have obtained the backing of numerous French organisations, both official and semi-official. Mr. Prichard was also invited to address the Fisheries Sub-Committee of the European Parliament, to whom he reported on events since the Hearings which the Trust organised for the Parliament in 1983, and told the MEP's something of the continuing problems in the United Kingdom and of the legislation at present going through Parliament. He also spoke as Vice-President of the AIDSA, and was able to give an account of the measures taken by that body in the field of salmon conservation over the past few years.

Mr. Prichard has maintained contact with those officials in the EEC responsible for representing the Community's interests in NASCO, in which both the Trust and the AIDSA now have Observer status.

THE SALMON BILL

(Lord Moran has sent us the following brief account of the progress of the Salmon Bill through the House of Lords)

The Queen's Speech at the opening of Parliament on 6th November said that a Bill would be introduced for Scotland "to modify and extend the management structure of salmon fisheries, including further measures to combat illegal salmon fishing throughout Great Britain".

The following day the Government announced (a) that they had concluded that a tagging scheme "would not be viable in Great Britain", (b) that the licensing of dealers in salmon in England and Wales would require a larger administrative structure than would be justifiable "in terms of the additional deterrent to illegal fishing", though they planned to bring it in in Scotland, and (c) that there was "no case" for terminating the English North East Coast salmon drift net fishery, though it would be restricted by requiring each licensed fisherman to be present when his net was fished, by closing the fishery at night and by slightly extending the weekend closed periods.

The promised Bill was published just before Christmas. Most of it was concerned with the constitution of Scottish district salmon fishery boards and the regulation of close times and other matters by the Scottish Secretary, and was not very earth-shaking. But the Bill did create new offences for both Scotland and England and Wales of possessing salmon "believing or having reasonable grounds to suspect that it has been illegally taken."

The Bill had a generally critical reception (though the Government was given some credit for introducing a Salmon Bill at all). The Welsh Water Authority, for example, said that "the proposed new offence for handling salmon in suspicious circumstances will not be enforceable in practice unless the person apprehended is required to demonstrate the source of the fish". The "Daily Telegraph" described it as "a timid measure which will need substantial amendment to meet the needs of the 20th century" and added, pertinently: "What the Salmon Bill fails to recognise is that since the advent of salmon farming it makes far better sense for the rural economy to preserve the wild salmon as a sporting resource rather than as a food". Lord Lansdowne described it as "a little mouse", a "wee, timorous beastie". It was clearly an inadequate measure. But those peers interested in salmon realised that it is very seldom that a Government Bill on salmon comes before Parliament, that it might be years before there was another one, and that consequently a real effort must be made to improve this Bill and to extend its scope.

A prodigious effort was made, and at each of its four stages - Second Reading, Committee, Report, and Third Reading - there was a full debate lasting for five or six hours. These debates were of high quality. Anyone who listened to them cannot have failed to learn a good deal about salmon problems. Party politics did not come into them, but there were contributions from all sides of the House, and a number of peers spoke with authority about salmon rivers they knew - for example, Lord Thurso on the Thurso, Lord Kimball on the Naver, Lord Lansdowne on the Tay, Lords Home and Haig on the Tweed. Outside the House the Trust's Chairman and Director were active behind the scenes, as were the Salmon and Trout Association, the British Field Sports Society and other bodies. The Water Authorities, with their large fisheries staffs and their statutory responsibility for salmon fisheries in England and Wales, also played a full part.

While the Bill was going through the House, some of us had a number of private meetings with the three Ministers concerned with the Bill in the Lords - the Lord Advocate, the Minister of State at the Scottish Office, Lord Gray of Contin and the Minister of State at the Ministry of Agriculture, Fisheries and Food, Lord Belstead, who was particularly helpful. We also corresponded with them about various aspects of the Bill. The result of all this is that the Bill has been

widened in scope and changed for the better in some respects, though the Government have not been prepared - so far at any rate - to go as far as many of us wished.

The general discussion at Second Reading took place against the sombre background of ICES figures showing a decline of 50% in the world catch of salmon in just 17 years. No less than ten peers argued that if dealer licensing was to be introduced in Scotland then it was absurd not to introduce it in England and Wales as well. It seemed to come as news to the Government that Berwick-on-Tweed is in England. There were mixed views on tagging but three of us, Lords Tryon, Lansdowne and myself, argued for a national salmon policy. Six or seven of us called for the phasing out or banning of drift netting with monofilament nets off north-east England, pointing out that it had been banned in Scotland 23 years ago and that in Wales salmon drift netters were not allowed to use monofilament nets. Lord Home said that this fishery was taking far too high a toll of the salmon making for Scottish rivers - he thought perhaps between 150,000 and 200,000 fish a year, though a deputation of drift netters who came to a meeting with some of us denied that their catches were anything like this and said that they themselves strongly favoured a national tagging scheme.

Some of us also argued that the clauses about the new handling offence ought to be strengthened and clarified, so that the scourge of the poaching gangs, who are taking great numbers of salmon illegally in England, Scotland and Wales, can be combatted. Lord Kimball pointed out the dangers of increasing afforestation, Lord Clinton described the sad plight of the Torridge, and I drew attention to the loophole between the jurisdictions of Water Authorities and Sea Fisheries Committees, which allowed illegal fishing for salmon in estuaries under the guise of fishing for white fish.

At each of the three subsequent stages a large number of amendments was tabled, and each in turn was argued over, the Government resisting most of them. There was a great deal of discussion of the obscure and unsatisfactory clauses dealing with the new offence. At my invitation, Lord Denning joined the fray on this. Lord Trenchard, too, made a great effort to get better and more effective wording. Other problems came up, for example the need for powers to restrict netting during and immediately after, droughts. And throughout every stage peers reminded the Government of the urgent need for Britain to take conservation measures in home waters so that NASCO can bring real pressure on Greenland and the Faroes to reduce the huge and damaging take of their high seas interceptory fisheries. Lord Lansdowne urged the Government to "look ahead and think bigger" and to take steps to maintain and enhance United Kingdom stocks of salmon.

In response to all this pressure the Government made some notable concessions. They agreed to extend dealer licensing to England and Wales. In response to an amendment I moved at Report stage, they agreed to review the fisheries off north-east England and those in north-east Scotland (as far north as Fraserburgh) in three years' time and to report the results to Parliament. They extended the requirement for the licence holder to be present in person when his net is fished to the whole of Great Britain. They undertook to bear the international implications in mind during the review. They promised to publish statistics of salmon catches more rapidly - in the year following that to which they relate instead of, as now, after two years. They agreed that there was a problem over the loophole in jurisdictions in estuaries and coastal waters and are discussing this with the authorities concerned, with a half promise that a Government amendment will be introduced in the Commons to cover the problem if a solution can be worked out in time. They made a slight improvement to the wording of the clauses dealing with the new offence, and, at Lord Home's request, they agreed to "consider requiring a person", in the early stages, "to give an account as to where the salmon had come from". The law officers in the Commons will be asked to consider this. And they agreed to various changes affecting the Scottish district fishery boards.

But the Government would not agree to phase out the interceptory drift net fishery off Northumbria and Yorkshire, would not agree to conduct their review, as I suggested, "against the background of the need for a national policy of conservation of salmon" (despite Lord Home's support), nor would they agree to any specific mention in the Bill of NASCO or of our international responsibilities for salmon conservation. Nor have they so far agreed to rewrite the clauses on the new offence so as to be clear and unambiguous, not least to magistrates, and to shift the onus of proof of innocence clearly on to the suspect, as is done in respect of salmon out of season in the Salmon and Freshwater Fisheries Act 1975. The Water Authorities, who would need to enforce the clause in England and Wales, are still concerned about its wording. The Government declined to move on drought measures without specific evidence of damage to stocks, which they claimed was lacking, and at Third Reading they themselves introduced an amendment allowing the introduction of fish to fish farms without the consent of the relevant Water Authority, about which the Water Authorities are far from happy. And the Government would not agree to my suggestion that there should be a body to take an overall national look at the whole problem of salmon conservation.

So, though we have achieved quite a lot and changed the Bill, in the words of Lord Perth, "into something which has become a promising youngster covering the whole of the country", there is still plenty of scope for the Commons to improve the Bill further, which I very much hope they will do.

DIRECTOR'S UPDATE ON SALMON BILL

As we go to press (30th April) the Salmon Bill has started its Committee stage through the House of Commons. Estimates as to how long this will take vary considerably. The Committee sits twice a week for two hours on the forenoons of Tuesday and Thursday.

There are many amendments in for consideration. The Trust has restricted its activities in view of its charitable status but it is maintaining very close contact with the British Field Sports Society and the Salmon and Trout Association who have been briefing MP's. The Trust has been stating facts and figures on, for example, the extent of drift netting, and making certain that MP's are aware of the enormous damage being done to salmon stocks by the drift nets off north-east England and the coasts of Ireland. The Trust is pleased to see the restrictions being made on the north-east drift nets and supports the Government's intention to review the situation in three years' time. The Trust remains convinced that the aim remains to ban all drift netting and notes the recent decisions made in Norway, as set out below.

The proposed reconstituted Scottish District Salmon Fisheries Board goes some way towards making the Boards more representative. There are still some amendments down for this section of the Bill. However, the Trust believes that it is now essential for the proprietors, and in particular the upper proprietors, on a river to get their act together and move towards a more equitable management of their river. The Trust welcomes the statement made by Mr. John Selwyn Gummer, Minister of State, Ministry of Agriculture, Fisheries and Food, that he would not rule out the possibility of a salmon sales tagging scheme being introduced in Wales. If this was to come about, it would be a very useful trial and if successful could, the Trust believes, lead the way to a tagging scheme for the whole country. It is understood that the French are about to introduce such a scheme. In spite of all that has been said, the Trust remains in favour of a salmon sales tagging scheme, and the recommendations put forward by the fish farmers in England against tagging should be seen in the light of a press release issued by "Foodmark", which is reprinted below. This appears to accept that in order to have efficient quality control, fish will have to be marked!

The Trust is pleased that common sense has prevailed and that the dealer licensing scheme proposed for Scotland is to be extended to the whole country. How it is actually going to work is not yet clear, but at least it is a step in the right direction to combat sale of illegally caught salmon.

It is a great disappointment that there is no incentive whatever in the Bill for new district salmon fishery boards

to be formed where there are none in existence at present. The Trust had hoped for pump priming finance to be available, but this is not to be.

DRIFT NETTING TO CEASE IN NORWAY

The Trust understands that the following conservation measures are being taken in Norway.

- 1) All drift netting to cease by 1989.
- 2) The use of monofilament or similar nets to cease by 1989.
- 3) The close time for some fiord nets to be extended this year by 15 days.

This is welcome news indeed and will without doubt bring increased pressure from within NASCO for the UK to take more stringent conservation measures.

FOODMARK FARMED SCOTTISH SALMON

(Extract from Press Release)

Foodmark farmed Scottish salmon will be available in time for the SERVE SCOTTISH SALMON promotional period in April. Forty-nine farms and twelve packing stations have been approved by the independent inspection team. Foodmark salmon boxes will be marked with specially designed labels which identify the farm or packing station.

Speaking in Glasgow today (Tuesday, 11th March) to announce the arrival of Foodmark farmed Scottish salmon, Angus Morgan, Scottish Salmon Growers Association said, "As a new and expanding industry, we realised how important it was to establish strict quality standards at an early stage. The considerable investment in new packing stations and re-furbishment that has taken place is just one indication of how seriously the Scottish salmon industry is taking the establishment of quality standards. Food from Britain's Foodmark scheme gave us the opportunity to do this and to promote quality Scottish salmon alongside other quality assured British products within the scheme."

John Hastwell, Marketing Manager, Food from Britain, introducing the Foodmark commented, "The Foodmark scheme provides a means by which consumers can easily identify and purchase home produced, quality assured foods. Farmed Scottish salmon is a welcome addition to the Foodmark, and whilst the scheme initially identifies the product to wholesale level, we look forward to Scottish salmon extending identification to consumer level and participating in National Foodmark advertising and promotion."

(By the Director: Is this the pointer towards a tagging scheme becoming acceptable to fish farmers?)

PUBLICATIONS

The Biology of the Sea Trout (Summary of a Symposium held at Plas Menai, 24-26 October, 1984)	by E.D. Le Cren	£1.50
Salmon Stocks: A Genetic Perspective	by N.P. Wilkins	£1.50
Report of a Workshop on Salmon Stock Enhancement	by E.D. Le Cren	£1.50
Salmonid Enhancement in North America	by D.J. Solomon	£2.00
Salmon in Iceland	by Thor Gudjonsson and Derek Mills	£1.00
A Report on a Visit to the Faroes	by Derek Mills and Noel Smart	£1.00
Problems and Solutions in the Management of Open Seas Fisheries for Atlantic Salmon	by Derek Mills	£1.00
Scotland's King of Fish	by Derek Mills	£1.85
Atlantic Salmon Facts		

FILMS AND VIDEO CASSETTES AVAILABLE FOR HIRE

"Will there be a Salmon Tomorrow"	- 16 mm Film and Video (VHS)
"The Salmon People"	- Video (VHS)
"Irish Salmon Harvest"	- Video (VHS)
"Managing Ireland's Salmon"	- Video (VHS)

Films and videos may be obtained from the Trust for private showing by Clubs, Fishery Managers, etc. A donation to A.S.T. funds is required in return!



(By Courtesy of Charles Jardine)

"THE BEST WORKER IN EUROPE"

Copies of the poem by the Poet Laureate are available price £25 from the Trust's headquarters. The bound editions are individually signed by Ted Hughes and Charles Jardine. One of the illustrations is reproduced above. All proceeds have been generously donated to the Trust's funds.

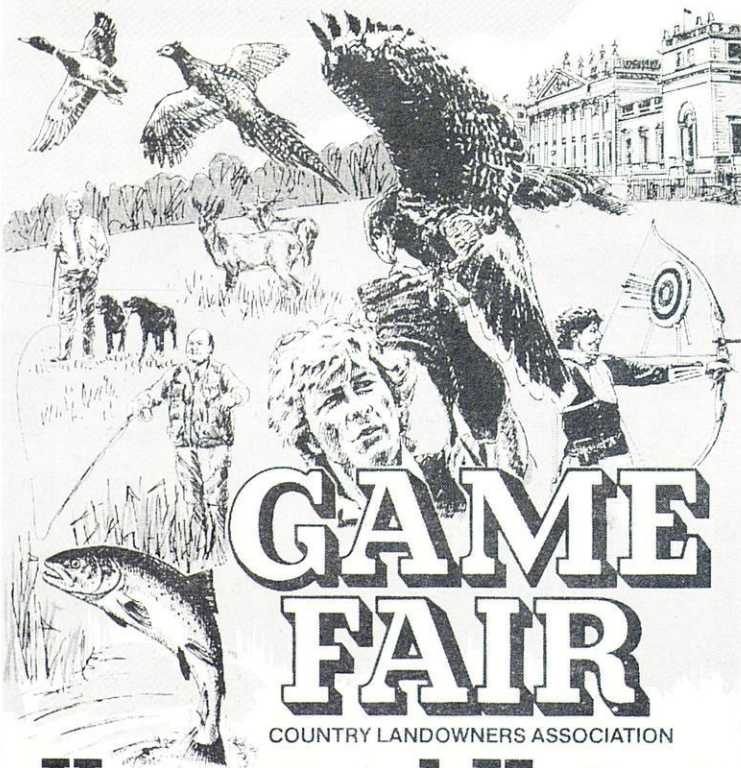
The Trust's caravan will be at the following shows:

The Wellington Fair, Saturday 12th - Sunday 13th July.

The Game Fair, Thursday 31st July - Saturday 2nd August.

The Highland Fair at Moy, Friday 8th - Saturday 9th August.

Any of our friends who would like to visit the caravan will be most welcome. Any volunteers to help with the exhibit will be doubly welcome!



Harewood House

near Leeds Yorkshire

Thurs July 31-Sat Aug 2

Air rifles · Angling · Archery · Clay pigeon shooting
Conservation · Exhibitions · Falconry · Game cookery
Gun dogs · Rural crafts · Sporting dogs · All the fun
of the countryside

ADMISSION
Thurs/Fri £5.50
Saturday £5

REFRESHMENTS
CAR PARK

Bring the family · Accompanied children under 14 admitted FREE



Wellington Country Fair



Sponsored by

COURAGE

By kind permission of the Duke and Duchess of Wellington

STRATFIELD SAYE - HAMPSHIRE JULY 12th & 13th

A full Two Days packed with Country Entertainment and Sport for all the Family:
TRADE STANDS



- | | |
|-------------------------------|---------------------------------------|
| Target Golf | Taxidermy |
| Rural Crafts | Gundog Test |
| Helicopter Rides | Muzzle Loaders |
| Olde Tyme Fair Ground | Ferret Show & Racing |
| Solo Piping Competitions | Clay Pigeon Competitions |
| Pipe Band Competitions (Sun.) | Children's Corner & Inflatable Castle |
| Armed Services Displays | Fly Casting Competitions |
| Highland Dancing | Terrier Show & Racing |
| Catapult Range | Children's Creche |
| Gundog Scurry | Horse Shoeing |
| Stick Making | Rifle Range |
| Fly Tying | Pony Rides |



B.F.S.S. — B.A.S.C. — GAME CONSERVANCY
GUN TRADE ASSOCIATION



- Grand Ring Spectacular All Day including:
- MUSICAL RIDE OF THE HOUSEHOLD CAVALRY
 - REGIMENTAL BAND OF THE COLDSTREAM GUARDS (SATURDAY)
 - REGIMENTAL BAND OF THE SCOTS GUARDS (SUNDAY)
 - FALCONRY FLYING BY JEMIMA PARRY-JONES
 - MASSED PIPE BANDS (SUNDAY)
 - HOT AIR BALLOONS
 - THE CANONS OF LA GARDE IMPERIALE
 - VINTAGE CARS AND HOUND PARADES



OPEN 9.15 a.m. — 7.00 p.m. each day
ENTRANCE £3 per head (£1 Children & O.A.P.)

Licensed Catering All Day
Car Parking — FREE

House & Pleasure Gardens Open — Extra Charge

Further information from:

ANDREW CUTHBERT, THE FORD HOUSE, BINHAM, FAKENHAM, NORFOLK, NR21 0DJ. Telephone Binham (032875) 367



PROFIT TO VARIOUS CHARITIES AND ORGANISATIONS

Pincock Press — HOLT 713638

THIRD INTERNATIONAL ATLANTIC SALMON SYMPOSIUM

The Steering Committee, under the Chairmanship of Dr. Derek Mills, has spent much of its time, since the last Progress Report was drafted, refining the programme for Biarritz and deciding on speakers and extending invitations to them and to the various Chairmen of Sessions. The Steering Committee now has Ambassador Claude Batault of our French co-sponsors, the Association Internationale de Defense du Saumon Atlantique (AIDSA), as a member and he has made a valuable contribution to the proceedings. Our French co-sponsors have made a very great effort to contribute towards the cost of the Symposium and have succeeded in obtaining funds from various sources with the object of keeping the registration costs down. We have finalised the arrangements in Biarritz with our agents there, and we are fortunate in having the wholehearted co-operation of the Mayor and Municipality who are being extremely generous and helpful.

The programme of the Symposium has now been printed, and copies will be circulated worldwide to interested bodies and individuals with a view to attracting the maximum attendance. The programme is a lively one, and we have been fortunate in obtaining the best people in their field to address themselves to the problems which the Steering Committee have identified as most worthy of attention. Although basically a scientific meeting, it will not be aimed at the fisheries biologist alone, and the Trust hopes very much that anglers and fishery managers will attend.

Steering Committee

Dr. D. H. Mills (Chairman)	University of Edinburgh
Mr. A. Prichard (Secretary)	Atlantic Salmon Trust
Mrs. J. Botsford (Publicity Officer)	Botsford Public Relations Ltd.
Ambassador C. Batault	Association Internationale de Defense du Saumon Atlantique
Mr. G. Hadoke	Atlantic Salmon Trust
Dr. G. Harris	Welsh Water Authority Awdurdod Dwr Cymru
Dr. D. Piggins	Salmon Research Trust of Ireland

ATLANTIC SALMON: PLANNING FOR THE FUTURE

Tuesday 21 October

- 09.30 Welcoming Remarks
Dr. R. Vibert, Association Internationale de Defense du
Saumon Atlantique - France
- 09.45 Opening Address
French Minister (to be announced)
- First Session - Salmon in an International Context -
Dr. W. M. Carter, Atlantic Salmon Federation, Canada
- 10.00 International Co-operation
NASCO Representative
- 10.20 Salmon in the EEC
EEC Representative (provisional)
- 10.40 North American Viewpoint
Mr. J. Fenety, Atlantic Salmon Federation, Canada
- 11.00
to Coffee
11.30
- Second Session - Status of Exploitation - Chairman,
Mr. KJ. Hoidal, Director of Fisheries, Føroya
Landsstyri, Faroes
- 11.30 France
Dr. J. Arrignon, Conseil Superieur de la Peche
- 12.00 England and Wales
Dr. G. Harris, Welsh Water Authority
- 12.30 Scotland
Mr. R. B. Williamson, Inspector of Salmon Fisheries for
Scotland
- 13.00
to Lunch
14.30
- Second Session - Chairman, Rear Admiral D. J. Mackenzie,
Director, Atlantic Salmon Trust, United Kingdom
- 14.30 Canada
Dr. L. Marshall, Department of Fisheries and Oceans
- 15.00 Norway
Mr. L. Hansen, Directorate for Wildlife and Freshwater
Fish, Norway

- 15.30 Iceland
Mr. T. Gudjonsson, Institute of Freshwater Fisheries,
Iceland
- 16.00
to Tea
16.30
- Second Session - Chairman, M. M. Martini, President,
Union of Departmental Federations of Fishing and Fish
Farming, France
- 16.30 Spain
Mr. C. G. de Leaniz, University of Aberdeen, Scotland
and Dr. J. A. Martin Ventura, Consejeria de Agricultura
y Pesca, Spain
- 17.00 Ireland
Dr. K. Whitaker, Salmon Research Trust of Ireland
- 17.30 Closing Remarks
Mr. H. Lyman, Saltwater Sportsman, U.S.A.
- 17.45 End of Session

Wednesday 22 October

- Third Session - Science and Management - Chairman,
Dr. B. Chevassus, INRA, France
- 09.00 Catch Records - Facts or Myths?
Dr. G. Power, University of Waterloo, Canada and
Dr. A. Bielak, Atlantic Salmon Federation, Canada
- 09.30 Relating Catch Records to Stocks
Mr. W. M. Shearer, Freshwater Fisheries Laboratory,
Pitlochry, Scotland
- 10.00 Quantification of Sea-Going Juvenile Production
Dr. J. Browne, Department of Fisheries and Forestry,
Dublin, Ireland
- 10.30
to Coffee
11.00
- 11.00 Relationship Between Smolts and Adults
Dr. E. M. P. Chadwick, Department of Fisheries and
Oceans, Canada
- 11.30 Measurement of Spawning Escapement
Dr. P. Prouzet, IFREMER, France

- 12.00 Stock Enhancement
Dr. G. J. Kennedy, Department of Agriculture for
Northern Ireland
- 12.30
to Lunch
14.00
- Third Session Chairman, Dr. D. J. Piggins, Salmon Research
Trust of Ireland
- 14.00 Salmon Enhancement: Problems in the Choice of Source
Material
Dr. J. E. Thorpe, Freshwater Fisheries Laboratory,
Pitlochry, Scotland
- 14.30 Environmental Factors Affecting Salmon Production in
Major Salmon Rivers
Dr. Cuinat, INRA, France
- 15.00 Restoration of the Jacques Cartier River, Quebec
Professor M. Frenette, Comite de Restoration de la
Jacques-Cartier, Quebec, Canada
- 15.30
to Tea
16.00
- Third Session - Chairman, Mr. G. H. Bielby, South-West Water
Authority
- 16.00 Salmon Restoration Scheme on Connecticut River
Mr. R. Jones, Department of Fisheries, U.S.A.
- 16.30 The Anglers' Point of View
Mr. G. O. Edwards, Welsh Water Authority
- 17.0 Closing Remarks
Dr. R. L. Saunders, Department of Fisheries and Oceans,
Canada
- 17.15 End of Session

Thursday 23 October

- Fourth Session - Ocean Life of Salmon - Chairman,
Mr. B. B. Parrish, International Council for the
Exploration of the Sea
- 09.00 Exploitation and Migration of Salmon on the High Seas
(a) Greenland - Dr. J. Møller Jensen, Greenland
Fisheries, Copenhagen, Denmark

- 09.45 Exploitation and Migration of Salmon on the High Seas
(b) Faroes - Dr. H. Jakupsstovu, Fiskirannsoknorstovan,
Torshavn, Faroes
- 10.30
to Coffee
11.00
- 11.00 Oceanic and Climatic Factors Influencing Salmon
Survival - D. Reddin, Department of Fisheries and
Oceans, Canada
- 11.45 Future Investigations on the Ocean Life of Salmon
Dr. S. Horsted, Greenland Fisheries, Copenhagen,
Denmark
- 12.30
to Lunch
14.00
- Fifth Session - Illegal Exploitation - Dr. D. Solomon,
Atlantic Salmon Trust, United Kingdom
- 14.00 The Impact of Illegal Fishing on Salmon Stocks in the
Foyle Area, Northern Area
Mr. W. G. Crawford, Foyle Fisheries Commission, Ireland
- 14.20 Estimating the Effect of Illegal Drift-Net Fishing on
Salmon Stocks in Eastern Scotland
Mr. D. Dunkley, Freshwater Fisheries Laboratory,
Pitlochry, Scotland
- 14.40 Illegal Fishing and the Indian Problems
Dr. K. Brynaert, Canadian Wildlife Federation
- 15.00 Illegal Net Fishing for Salmon in Norway
Mr. S. Mehli, Directorate for Protection and Management
of Nature, Norway
- 15.20 Discussion
- 15.45
to Tea
16.15
- 16.15 Summary and Proposals
Dr. D. H. Mills, University of Edinburgh, Scotland
- 17.15 Closing Remarks
Mr. R. Buck, Restoration of Atlantic Salmon in America,
U.S.A.
- 17.30 End of Symposium

A WILD SALMON CHASE

(by Dr. A. D. Hawkins, DAFS, Marine Laboratory, Aberdeen)

The grisle lay dead, stranded on a bar shingle bank with several other kelts. It was a snowy November morning, very different to the time when I had first seen the fish. It had been captured in midsummer at Victoria Bridge, close to the mouth of the Dee in Aberdeen. It was fresh run then, plump and silvery in the belly of a beach seine, and I had carefully lifted it into a tank, tagged it with a small radio transmitter, and returned it to the river. Now, four and a half months later, it was spent and wasted. A few inches away on the shingle lay the radio transmitter which had allowed me to track the fish upstream, through spawning, and downstream again.

The fish had originally been nicknamed Harry, though officially it was number 03638, one of seven fish tracked upstream through the Dee in the summer of 1985. Radio-tracking is now a well-established technique, mainly through the efforts of an enthusiastic group of scientists at the Lowestoft Fisheries Laboratory. The intricate hand-built transmitters are small enough to fit into the stomach of salmon and sea trout and transmit particular frequencies which can be different for different fish. The main problem of tracking is getting close enough to the river, and then walking long stretches of bank to maintain contact with the moving fish. The signals can be detected with a hand-held aerial several hundred metres away, and from a light aircraft they can be picked up from a height of two thousand feet. Automatic listening stations, hidden along the bank with aerials pinned to a tree can detect fish going by, and register the time that they do so.

Harry, like other fish tracked through the Dee, swam directly upstream after release. He was returned to the water at ten thirty in the morning and by late afternoon had left the city of Aberdeen and the estuary, passing through Banchory Devenick, Cults and Blairs during the evening (Figure 1). By dawn the following day the fish had left Kincausie and the village of Culter and had eventually stopped opposite the Tilbouries Burn, at Altries, some seventeen kilometres from the river mouth. Thereafter the fish moved only short distances at a time. During the evening it lay in the lee of a small island just above the Altires beat, moving the following day to the Island Pool at Tilbouries, a deep channel between a large densely-wooded island and the river bank. Several days later, it moved through the long Boat Pool at Drum to Keith's Pot, just downstream of Park Bridge, and lay in this pool for over forty days.

The initial rush upstream - sixteen kilometres in twenty hours - was typical of most of the fish tracked. Earlier in

the year, fish had continued even further upstream before stopping, swimming straight through to Aboyne and Dinnet, sixty or seventy kilometres upstream, with only occasional halts. A fish caught and released on the same day as Harry, had gone directly to Crathes Bridge, travelling twenty-seven kilometres in only twenty-nine hours, and had carried on to Banchory Lodge before stopping. These rates of progress involve quite high swimming speeds, especially since the fish were almost certainly stemming high rates of water flow at some stages of the journey, though they may have been swimming close to the bottom in almost still water at others. When they did stop for short periods, usually in areas of slack water, during the day, they were probably recovering from their exertions, perhaps paying off an oxygen debt before resuming their upstream dash.

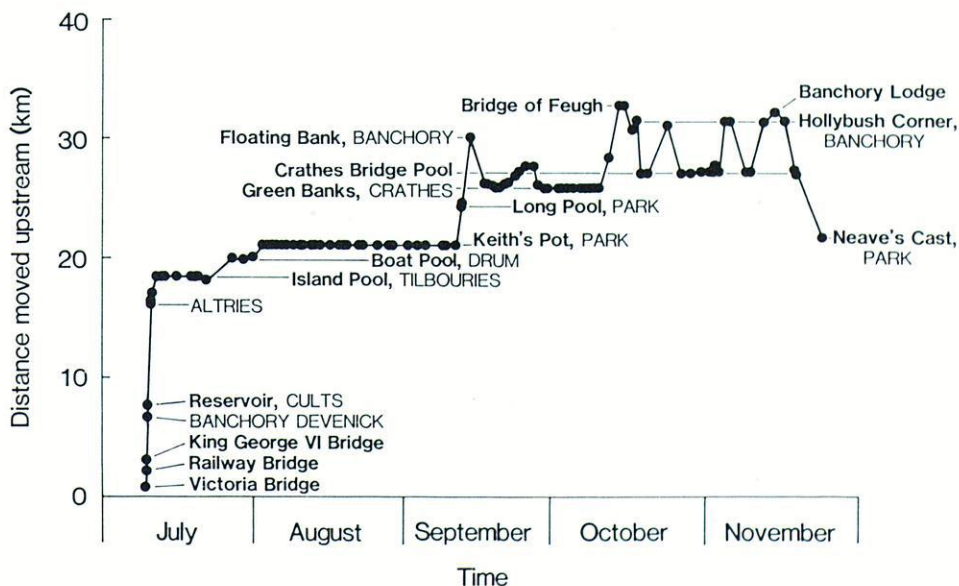
Eventually, most of the fish, like Harry, stopped for longer periods. These long halts did not seem to be triggered by changes in flow conditions. The fish often remained stationary when the river was rising and maintained their chosen locations throughout a wide range of flows. They seemed to enter a state of quiescence, which continued for several months until the autumn. During this time they lost their silver colouration and developed the appearance of mature fish, becoming the "stale" fish of the angler.

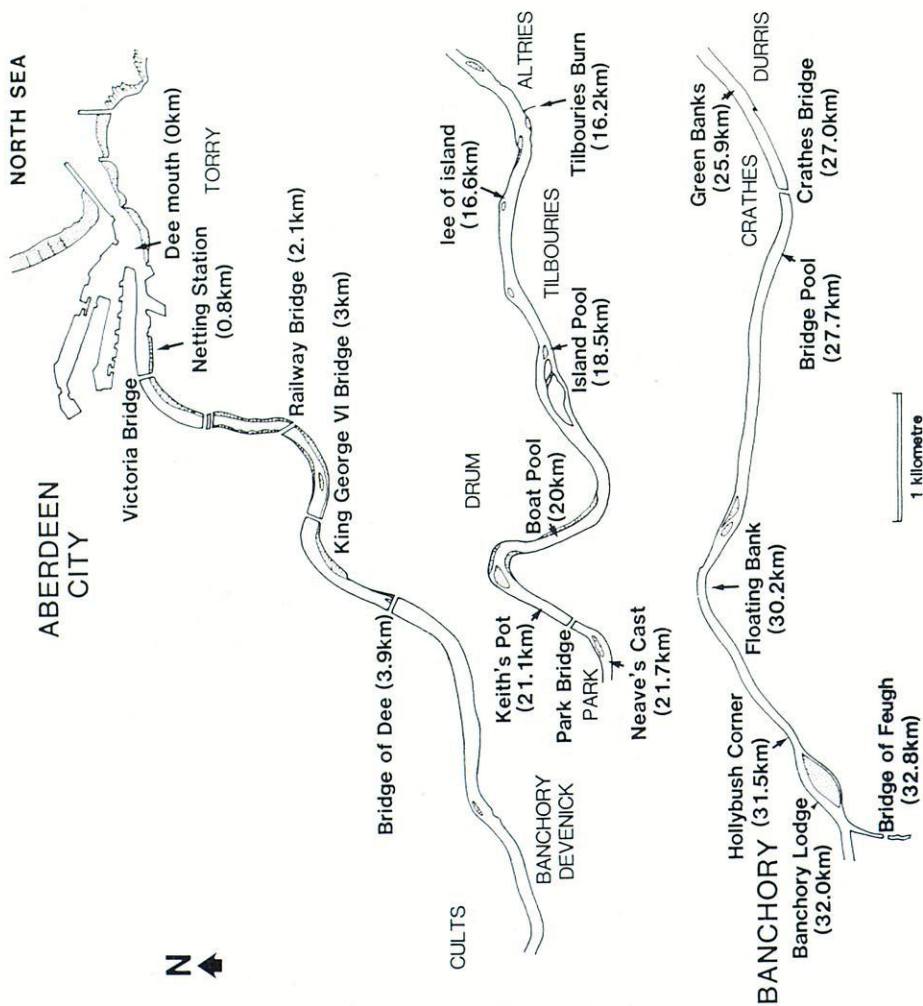
Most of the fish resumed their upstream movements in September, now travelling relatively short distances. Harry moved up to the Floating Bank at Banchory, but then returned downstream again, spending October and early November patrolling up and down between Crathes and Banchory, apparently visiting one group of spawning fish after another between the Green Banks and the Bridge of Feugh, a distance of almost seven kilometres (See Figures 1 and 2). This type of movement seems to be characteristic of cock fish. Hen salmon monitored throughout the same period simply moved upstream to a stretch of spawning gravel and then remained there for several weeks before moving rapidly downstream and out to sea. Cock fish seem to remain on the spawning grounds longer, exerting themselves more actively than hens. Like Harry, many of them die soon after, often stranded in a backwater, on a shingle bar or on the river bank.

Metabolic differences between male and female salmon were remarked upon over a hundred years ago by Dr. Noel Paton, an Edinburgh physician. Paton chemically analysed the carcasses of salmon taken at different times after entry to the river and noted that the bodies of both sexes contained similar quantities of fat. Both showed a considerable decline in fat content over the period leading up to spawning. The hen fish converted much of this fat into large oily eggs, whereas the fat lost by the cock fish simply disappeared. It is likely that this lost tissue is burned up in active movement by the cocks and that they simply dissipate their energy visiting one spawning area after another. It appears that they leave

selection of spawning sites to the hens, devoting their energies to fighting amongst themselves in a hectic competition for the females. We know that mature males can fertilise the eggs from more than one hen, their potential reproductive capacity far exceeding that of the opposite sex. For most cocks, their competitive behaviour and habit of lingering at spawning sites appears to jeopardise their ability to return to sea and make the spawning migration a second time.

In late November, I set off through the snow to locate Harry once more. The fish had been moving downstream, passing through Crathes Bridge a few days earlier, and I hoped he would be one of the few males to survive spawning and return to sea. I eventually detected the characteristic radio signals at Park Bridge and walked along the bank, with every hope for his continued survival. Alas he was dead. Only the sad carcass remained with the transmitter close by, so bringing to an end a study lasting 139 days.





FISH FARMING STATISTICS

1985

Scottish farms	7,000 tonnes
Imports (fresh)	2,000 tonnes
Imports (frozen)	5,116 tonnes
Wild	1,000 tonnes
	<hr/>
	15,116 tonnes
	<hr/>

By 1988 total Scottish farmed salmon production is expected to reach 20,000 tonnes. In 1985 3,403 tonnes fresh, chilled and frozen Scottish salmon was exported, mainly to France and the U.S.A.

WELSH WATER

(Report by Dr. Alan Winstone, Senior Fisheries Scientist, Welsh Water)

Microtagging In 1985 Welsh Water in conjunction with MAFF commenced a regional salmon microtagging programme to obtain information on the contribution of wild and hatchery stocks to the various high seas commercial and homewater commercial and recreational fisheries.

In 1984 and 1985, 9,545 and 7,871 salmon parr (1+) were microtagged and released into the River Usk. Also attempts were made to capture wild salmon smolts on the River Wye, and although results were disappointing with only 430 fish tagged, valuable experience for future attempts was gained. In 1985 a tag recovery programme was implemented in the Usk commercial and sport fisheries. A single tag was recovered from a fish taken by drift net which was found to be from a smolt released into the Usk in March 1984.

The programme is continuing into 1986, with 10,00 and 4,700 tagged salmon pre-smolts released into the Rivers Usk and Taff respectively. A further 18,000 one year old parr will be tagged and released into the River Dee and the trapping of wild smolts on the River Wye will be repeated. Greater efforts will also be made to screen the various fisheries to recover microtagged adults and a second microtagger unit has been purchased to increase the use and flexibility of this technique.

Fish Counters In 1985 an assessment of the performance of a NSHEB Mk. 10 fish counter was carried out at Trostrey Weir on the River Usk using remote TV video time-lapse and infra red light source surveillance equipment. The results so far have been inconclusive and further validation trials are to be carried out during 1986.

General The rehabilitation of industrial river fisheries has continued on both the Rivers Taff and Tawe in South Wales. Baseline fisheries surveys have been carried out to assess their present status and the factors constraining further development. On both catchments the presence of obstructions to upstream passage, both natural and man-made, and the suitability of spawning and nursery areas have major effects on the fisheries. Studies on both catchments are continuing in 1986.

In 1985 Welsh Water produced a biannual fisheries and conservation newsletter entitled "Glas-y-Dorlan" (Kingfisher) aimed at informing the angling public about the work carried out by Welsh Water.

In October 1985 a working group produced its report on Welsh Salmon and Sea Trout Fisheries following extensive evidence gathering from both anglers and official catch statistics and other technical data. The 130 page report makes 65 proposals and recommendations and will form the basis of future management of migratory salmonid stocks.

The proceedings of a joint Welsh Water/Welsh Salmon and Trout Angling Association Symposium entitled "Poaching and Protection" held in March 1985 have recently been produced. Contributions were received from 12 speakers on a variety of topics related to illegal fishing and protection activities and the ways in which these problems can be tackled.

The 1984 salmon and sea trout catch statistics for both rods and nets have recently been published. The total declared salmon and sea trout catch was 3,802 and 18,380 respectively for anglers and 3,947 and 10,935 respectively for commercial instruments. A breakdown of catches by month and method including both numbers and weights of fish is given for each river together with a historical analysis of fish catches.

POLLUTION FROM FARMS IN WALES

(A report from Mr. G. T. James, Agricultural Liaison Officer, Directorate of Scientific Services, Welsh Water)

Welsh Water has been concerned for some years about the effects of farm waste discharges into streams and rivers in its area, affecting not only fisheries and public and private potable supplies, but also river water for stock. The problems have been most severe in the predominantly dairying areas of Wales.

Fish mortalities attributable to farm waste have increased dramatically since the mid 1970's, affecting major rivers and numerous tributaries, with losses of adult salmon, sea trout, brown trout and thousands of juveniles.

In 1982 one slurry discharge affected 12 km of river, killing an estimated 5,100 juvenile salmon, 120 adult sewin and 17,000 trout.

The most disastrous quantifiable effects on fisheries were experienced in 1983 when the loss of over 110,000 fish was estimated from the effects of farm discharges in West Wales alone. Twenty-two incidents affected a total of 71.6 km of river, killing about 2,500 adult salmon and sea trout, 47,300 juveniles, 281,800 brown trout and 38,000 fry or other fish. Tributaries of all main fishing rivers were affected.

Further fish mortalities from farm waste sources occurred in 1984 and 1985, and although not so spectacular in numerical terms, still exerted an appreciable toll on some of the same rivers.

In 1984 the River Ystwyth, in which the water quality and the fishery was recovering from the long-term effects of disused lead and zinc mines, suffered a 5,000 fish kill from a discharge of farm slurry.

In 1985 a tributary of the River Teifi suffered a fish kill along a 4.5 km stretch at the height of the salmon/sea trout spawning season, caused by a discharge of the fungicide sodium penta chlorophenate, inadequately stored at a disused mushroom farm.

There is no doubt that salmonid spawning areas have been seriously affected, if not by background pollution, then by sporadic larger discharges of shorter duration. Some tributaries of major rivers do not support salmonids whilst others sustain reduced stocks. Lower levels of pollution, whilst not causing fish mortalities, can affect a stream's plant and animal life and render it unsuitable for fish to thrive.

Although there are 29,000 farms in Wales, the worst problems are experienced in West Wales, where dairying is one of the major industries. Fifty-five percent (4,410) of Welsh dairy farms are located in the county of Dyfed. Changes in patterns of agriculture, internification and specialization of dairy farming have seen the average dairy herd size increase from 22 in 1970 to 52 in 1984.

The major causes of farm pollution are animal slurry, arising principally from dairy farming and, to a lesser extent, beef rearing, and silage liquor generated from increasing silage production needed to support larger herds, reduce concentrate feed and replace hay as fodder. The wastes are highly polluting in terms of both oxygen demand and ammoniacal content, slurry being 80 times stronger than crude sewage whilst silage liquor is 200 times more polluting.

Contributory causes of such pollution have been variously ascribed to faulty design and construction of waste storage systems, inadequate storage capacity, inadequate separation of roof water and clear surface water from slurry, and poor management. Problems are often compounded by a combination of topography and high annual rainfall, which is of the order of 60 inches in the heart of the area, leading to requirements of greater storage capacity and limiting suitable periods for manure application to land.

Vulnerable catchments have been identified and visits by water quality staff to all farms in these catchments have been made to appraise waste collection and disposal systems. Recommendations for remedial measures to reduce risks and improve performance were made during the visits and were followed up by further visits to review modifications. Also, a large number of farms have been visited following pollution complaints and remedial measures discussed where problems have not yet caused serious pollution.

Last October MAFF and the Welsh Office Agriculture Department (WOAD) implemented the EEC Farm Structures Regulations with the allocation of increased capital grant aid for waste disposal systems. Also, the new scheme advises the farmer to approach the Water Authority for approval from the water pollution viewpoint for developments involving water storage or generation, e.g. slurry storage and silage storage systems, sheep dips, etc., otherwise eligibility for grant aid may be affected. Although it is not a statutory requirement to approach the Authority before commencement of such work, it must be said that the WOAD have been extremely co-operative in their approach to the operation of the new scheme, and it is hoped that the initiation of this scheme will lead to a gradual permanent improvement in reducing risks of pollution from farm sources.

Welsh Water have undertaken publicity campaigns to highlight the impact of pollution from agricultural activities.

Advisory articles have appeared in farming union journals and in ADAS's regional technical bulletins. TV and radio interviews have been conducted, together with articles in local newspapers and the "Western Mail". Also, farmers' unions branches and farming groups have been addressed.

In 1984 a programme of intense publicity commenced with the production of a "Cartoon Calendar", with captions, illustrating the effects of farm pollution and ways of minimising risks. Also, a series of six bilingual "Advice to Farmers" leaflets were produced, dealing with management, storage and disposal of slurry, silage liquor and sheep dip liquor. These leaflets are distributed to farmers planning improvements, requesting advice at meetings, demonstrations, open days and agricultural shows. The major event of the year was the organisation of "Muck 84" at Haverfordwest by Welsh Water and ADAS, with the full co-operation of the National Farmers Union, the Farmers Union of Wales and the Country Landowners Association. The main theme of the demonstration was to highlight the problems of dealing with slurry and the need to prevent pollution of watercourses. The event was successful in drawing the attention of farmers to problems posed by farm pollution in West Wales in particular, at that time.

It has been consistently emphasised that it is a preference of the Authority to co-operate whenever possible with farmers faced with problems, rather than instigate legal proceedings.

This approach has been accentuated by the appointment in 1984 of an Agricultural Liaison Officer in the South Western District of Welsh Water, whose duties are to liaise closely and advise all farming bodies, interests and farmers themselves.

Silage pollution has substantially increased in Wales, with over 120 incidents recorded in 1985. This has necessitated Welsh Water announcing a new tough policy in respect of discharges of silage liquor to watercourses in 1986.

In addition, a glossy advisory pamphlet on silage pollution will be circulated to farmers, advising on methods of minimising risks of pollution, in consultation with the two farming unions and the Country Landowners Association.

RE-INTRODUCTION OF SALMON INTO THE RIVER TRENT

(Report by P. E. Bottomley, Department of Leisure Services, Severn-Trent Water Authority)

The reduction in the level of pollution in the River Trent over the past two decades has been dramatic as a result of the dedicated manner in which the Severn-Trent Water Authority and its predecessors have pursued a policy of cleaning up the Trent and some of its more polluted tributaries. This improvement has been sufficient to permit a small number of salmon to reach the impassable barrier at Holme Sluices near Nottingham, though not yet every year.

The Nottinghamshire County Council, aided by a substantial Sports Council grant, are now building a canoe slalom course to international competition standards, which will utilise the head generated by these flood control sluices to obtain the turbulent "white water" needed for this sport. This course, and the water flow pattern it will contain, should provide salmon with a good fishway round the obstruction.

In 1982, because of these two factors, the Trent District Anglers' Consultative Association thought that the Authority ought to investigate the feasibility of a programme for development of the salmon fishery. As a result of that request, a review was carried out of the physical and chemical requirements for salmon as related to past and present conditions in the Trent catchment and a report was submitted to the Authority's Fisheries Advisory Committee last October. In terms of water quality, the annual mean biochemical oxygen fell from around 14 mg/l in the 1950's and 1960's to around 3.0 mg/l in 1984. Over the same period, total ammonia (as N) had fallen from just under 5 mg/l to 0.3 mg/l. Unfortunately no records of water quality existed prior to 1950, so that this important matter could not be related to the salmon catches recorded, albeit not very well, in the annual reports of the Board of Conservators of the Trent Fisheries District. These reports showed that catches of over 3,000 fish occurred in the 1880's, but that they declined rapidly thereafter. There was a slight recovery in the 1930's when catches around 200 fish were recorded, but thereafter only a few distressed or dead fish were seen in the tidal reach. 1982, however, yielded a small run involving only 22 authenticated catches.

Current data of water quality suggested that only the Rivers Dove and Derwent (down to Derby) were suitable as salmon spawning and nursery areas, but that the Trent would be suitable as a migratory route, apart from the summer period when enhanced river temperatures would be too high. Autumn and spring runs would be a possibility. However, 100 obstructions to the passage of fish were examined and approximate costings were given for overcoming them. The

Dove and Derwent systems were surveyed to establish the areas physically suitable for spawning and as nursery areas. From these data it was calculated that, on the assumption that all necessary obstructions could be overcome, the systems were capable of supporting a minimum home run of 1,000 adults to the Dove and 500 to the Derwent without exploitation. The small figure for the Derwent is due to the large number of weirs associated with mills, resulting in long impounded reaches, thus severely limiting the availability of spawning gravels and nursery areas.

The report concluded by putting forward a series of options for consideration, which ranged from taking no action to full development by providing fish passes at all difficult, as well as impassable barriers, combined with an annual stocking programme using salmon fry. The option favoured in the report was to provide a fish pass at the first impassable barrier on the Dove (Tutbury weir), to allow spawning adults onto a limited amount of spawning gravel, combined with an annual stocking programme. The report suggested that this would open up about 30 km of angling water together with some spawning potential. It would provide a reasonably low investment "halfway house" and would provide the Water Authority with early results to enable it to decide whether to extend the development.

As a first stage, the Authority decided to carry out extensive consultation with fishing interests on the Dove and with the Anglers' Consultative Association covering the Trent catchment. The Authority now awaits the outcome of this consultation with interest, being conscious that it has a duty to maintain, improve and develop the salmon fisheries in its area (Sect. 28(1)(a) Salmon and Freshwater Fisheries Act 1975), but also being aware that any money spent on this project must be adequately justified and receive the support of fishing licence holders in the area.

HIGH SEAS FISHERIES

Two graphs obtained from NASCO and derived from figures published by ICES (International Council for the Exploration of the Sea) show the total North Atlantic catches and the percentage of the total catch attributed to the high seas fisheries. The Greenland fisheries quota was reduced in 1984 to 870 tonnes in order to afford some protection to multi sea winter stock. The agreed quota has not been caught off Greenland during the years 1979-83. In 1983 the shortfall amounted to some 980 tonnes. The quota for 1985 was set at 852 tonnes and it is reported that it has been obtained. It has been estimated that none of the fish taken would have returned as grisle to "home waters". The average stock composition, as determined by scale analysis, is of 40% North American and of 60% European origin.

The Faroes long line fishery has developed about 112 kilometres north of the Faroes, with catches up to 40 tonnes in 1977. This rose to 1,000 tonnes in 1980. Until the late 1970's most of the fish caught in this fishery were grisle. The fishery has recently moved further north and this has resulted in the exploitation of salmon with a higher sea age. In 1982/83 and 1983/84 about 90% of the catch landed was of two or more sea winter fish. The quota was reduced to 625 tonnes in 1983/84.

Is it a coincidence that the multi sea winter fish have shown most decline in our rivers?

STOCKS AND CATCHES

There is considerable confusion in people's minds regarding stocks and catches. There is growing evidence that salmon run into rivers in every month of the year. The spawning escapement, i.e. the proportion of returning salmon that are not taken by nets or rods cannot be estimated directly from the numbers of fish caught because a large number may migrate after the end of the fishing season, having made no contribution to the catches. Moreover, exploitation rates can vary for a variety of reasons.

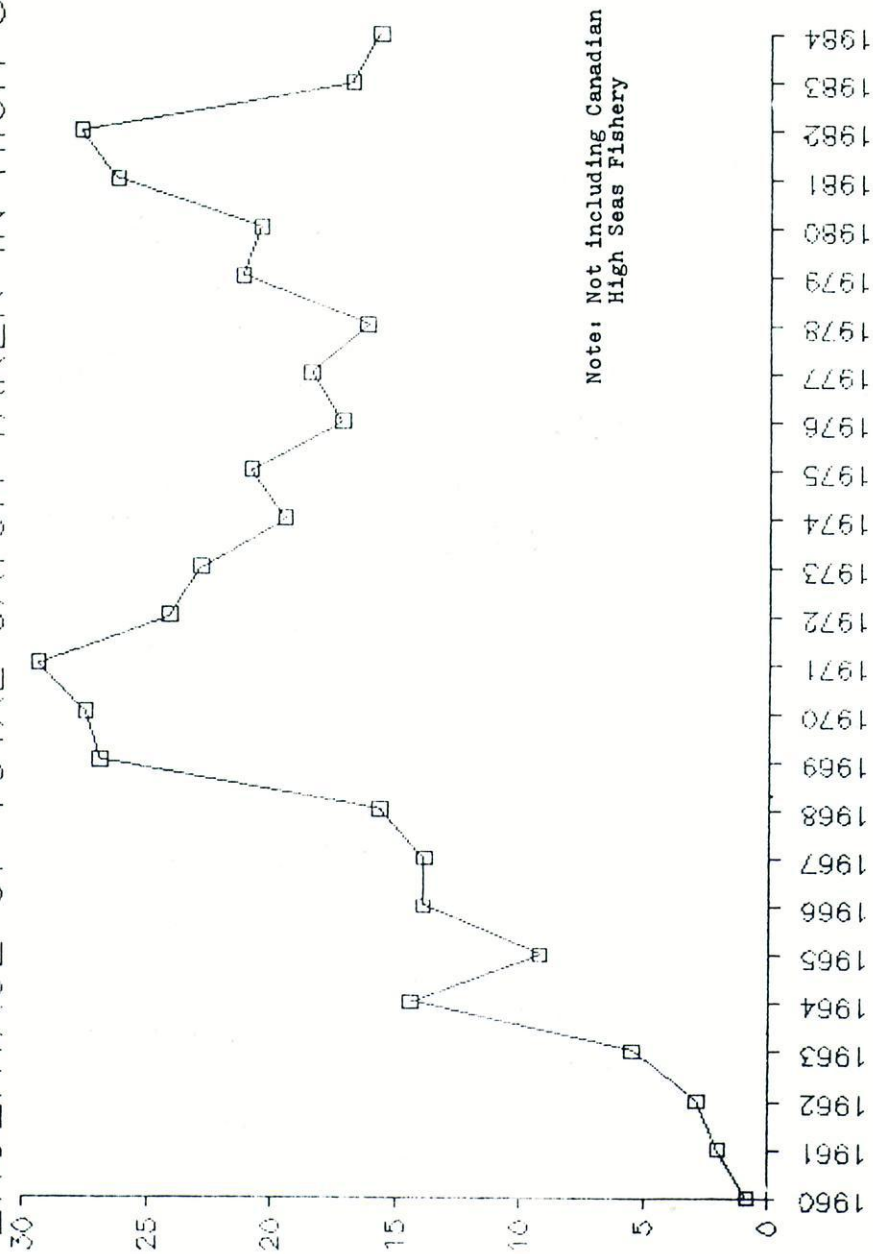
The recent paper on the influence of sea temperature upon the numbers of grisle and multi sea winter fish caught in the vicinity of the Aberdeenshire Dee (J.A.H. Martin and K.A. Mitchell) suggests that sea temperature in the sub-Arctic does influence the sea age of fish returning to the Dee. There is still much work to be done before the mysteries of the salmon at sea are revealed. Perhaps we should not probe too deeply in case further damaging exploitation occurs.

TOTAL NORTH ATLANTIC CATCH (tonnes)



YEARS

PERCENTAGE OF TOTAL CATCH TAKEN IN HIGH SEAS



STATISTICS - 1984

UK

The catch figures for 1984 have been produced by DAFS and MAFFS. A summary of these figures is shown below.

SCOTLAND

Total number of salmon and grisle caught 320,292

Comment This was about average for the five years 1979-83. The proportion of salmon (as opposed to grisle) was the lowest since records began in 1952. Net and coble catches lowest on record (-26% on 1983); fixed engine catches slightly up (+5% on 1983); rod and line catches 11% down on 1983 and 15% down on average 1979-83.

Sea Trout were up by 20% on 1983 figure and about average for the previous five years 156,618

SUMMARY FIGURES

Numbers and Weight of Salmon and Grilse

	5 year average 1979-83	Numbers (thousands)		Percentage change 1984 on 1983
		1983	1984	
Rod and line	69.2	66.1	58.7	-11.2
Net and coble	119.1	136.3	101.4	-25.6
Fixed engine	138.0	153.2	160.2	4.6
All methods	326.4	355.6	320.3	- 9.9

Numbers and Weight of Sea Trout

	5 year average 1979-83	Numbers (thousands)		Percentage change 1984 on 1983
		1983	1984	
Rod and line	39.8	40.2	42.1	4.7
Net and coble	85.8	58.0	77.6	33.8
Fixed engine	36.5	22.7	36.9	62.6
All methods	162.1	120.8	156.6	29.6

ENGLAND AND WALES

Salmon and Grilse

	Numbers (thousands)
Caught by rod and line	11.0
Commercial catch	83.2
	94.2
<u>(of which N.E. Coast drift nets caught</u>	59.3)

Sea Trout

Caught by rod and line	30.5
Commercial catch	95.7
	126.2
<u>(of which N.E. Coast drift nets caught</u>	64.1)

IRELAND

Total reported catch 264.9

74% taken by drift nets

21% taken by fixed engine and other nets

5% taken by rod and line

REVIEW OF CURRENT LITERATURE
ON SALMON RESEARCH AND DEVELOPMENT

(By Dr. D. H. Mills, Department of Forestry and Natural Resources, Edinburgh University)

Applications for any ICES papers listed below should be made to The General Secretary, ICES, Palaegade 2-4, DK/1261, Copenhagen K., Denmark. Photocopies of articles from other journals cited are available at cost from the British Library, Lending Division, Boston Spa, Wetherby, West Yorkshire.

A. Stock Recruitment

- (i) "Salmon (Salmo salar) parr densities in the Teno River (Finland)." E. Niemela, R.L. McComas and M. Niemela, 1985. International Council for the Exploration of the Sea. C.M. 1985/M:23.

Alevins do not emerge from the gravel until mid-July. The estimated densities of young salmon in the Teno River have been 21.3 - 63.3/100 m. In two other rivers, the Vtsjoki and Inari, the densities have been 30.9 - 97.9 and 18.9 - 55.4 fish/100 m.

- (ii) "The relationship between annual Atlantic juvenile salmon population estimates of subsequent smolt runs (1980-84) in the Corrib system, Ireland." J. Browne and P. Gallagher, 1985. International Council for the Exploration of the Sea. C.M. 1985/M:3.

Annual juvenile salmon population estimates are carried out on the River Corrib. These estimates are used to calculate the potential number of smolts in the year following. These predicted figures are compared with estimates of the smolt run obtained by tagging. The results suggest that annual population estimates will not be useful in predicting the size of smolt runs.

- (iii) "Fishing and natural mortality rates for 1SW (one sea-winter). Atlantic salmon (Salmo salar L.)." E.M.P. Chadwick, D. Reddin and R.F. Burfitt, 1985. International Council for the Exploration of the Sea. C.M. 1985/M:18.

Fishing and natural mortality rates were calculated for a 1SW Atlantic salmon stock in Newfoundland. Total mortality was estimated from smolts counted in Western Arm Brook in 1976 and the total returns to the river in 1977. Mortality in homewater fisheries was estimated from adults tagged in 1977. Mortality in distant fisheries was estimated from a five-year

tagging study of kelts. It was found that 16.5% of smolts survived to return as 1SW adults; of these, 65% were harvested in distant and homewater fisheries.

B. Behaviour

- (i) "The effect of anosmia (loss of sense of smell) on the migration of Atlantic salmon smolts (Salmo salar L.) in freshwater." K. Døving, B. Jonsson and L. Hansen, 1984. Aquaculture 38: 383-386.

Wild and hatchery-reared salmon smolts of the Norwegian Imsa strain were divided into two groups. One group was made anosmic by cutting the olfactory (nose) nerves, the other served as a control. The smolts were released at three different sites in the Ims-Lutsi water course and recaptured in a fish trap 100 m above the river estuary. The recapture rates in the trap decreased with increasing migratory distance for the smolts. The authors concluded that the olfactory sense is not essential for smolt navigation through rivers and lakes.

- (ii) "Water temperature as the primary influence on timing of seaward migrations of Atlantic salmon (Salmo salar) smolts." B. Jonsson and J. Ruud-Hansen, 1985. Canadian Journal of Fisheries and Aquatic Sciences 42: 593-595.

The start of the yearly smolt run was not triggered by a specific water temperature or a specific number of degree days, but was controlled by a combination of temperature increase and temperature level in the river during the spring. There was no significant correlation between smolt descent and water flow, turbidity and lunar cycle.

- (iii) "Migration of wild and hatchery-reared smolts of Atlantic salmon (Salmo salar L.) through lakes." L. Hansen, B. Jonsson and K. Døving, 1984. Journal of Fish Biology 25: 617-623.

In 1982 and 1983 descending wild Atlantic salmon smolts, Salmo salar L., were caught in a fish-trap at the mouth of the River Imsa (Norway). Together with hatchery-reared smolts of the River Imsa strain they were tagged and released at three different sites on the Imsa-Lutsi watercourse: in the Imsa River 1 km above the trap, and in two lakes, 3 and 11 km upstream of the trap. The recapture rate in the fish trap decreased with migration distance. The hatchery-reared smolts migrated downstream faster than wild smolts. Lake-released smolts were considerably delayed in their downstream migration compared to the river-released smolts. It was found that delayed downstream migration of smolts in the River Imsa resulted in decreased survival to adults.

- (iv) "Mating of anadromous Atlantic salmon, Salmo salar L., with mature male parr." R.A. Myers and J.A. Hutchings, 1985. International Council for the Exploration of the Sea. C.M. 1985/M:8

Sexually mature male parr will successfully fertilise eggs of female anadromous Atlantic salmon, Salmo salar, in the absence of anadromous males. No significant differences occurred in the proportion of eggs fertilised by mature male parr and anadromous males. One of the demographic consequences of these observations is the that increased fishery could eventually completely eliminate anadromous migration in males.

C. Food

- (i) "The food of Atlantic salmon, Salmo salar L., caught by long-line in Norwegian waters. L.P. Hansen and P. Pethon, 1985. Journal of Fish Biology 26: 553-562.

The most important food items found in fish caught in the Helgeland/Trondelag area were euphausiids* and hyperiid amphipods* (*free floating small crustaceans), while myctophids (lantern fish), squid and euphausiids were found most frequently in salmon caught off Andenes. Most salmon had preyed upon only one species, and few stomachs contained three or more prey species. The type of food did not appear to be related to the length of fish.

- (ii) "Food composition of post smolts (Salmo salar L.) in the northern part of the Gulf of Bothnia." E. Juttila and J. Toivonen, 1985. International Council for the Exploration of the Sea. C.M. 1985/M:21.

In the beginning of their sea migration, salmon post smolts fed mainly on insects of terrestrial origin (88% of food volume in 1982 and 76% in 1983) and three-spined sticklebacks.

D. Ocean Life

- (i) "Biological data and preliminary observations on the spatial distribution of salmon within the Faroese fishing zone in February, 1985." S.H. Jakupsstovu, P.T. Jorgensen, R. Mouritsen and A. Nicolajsen, 1985. International Council for the Exploration of the Sea. C.M. 1985/M:30.

During an experimental fishery with a hired salmon longliner in February-March, 1985 salmon were caught throughout the Faroese fishing zone. The older salmon (two and more sea winters) were found in the colder northern part of the area while the younger salmon were found further south.

- (ii) "Contribution of North American salmon to the Faroese Fishery." D.G. Reddin, 1985. International Council for the Exploration of the Sea. C.M. 1985/M:11.

Scale analysis was used to assess the extent that North American origin salmon are caught in the Faroese fishery. The results from samples of two sea winter salmon caught in the 1981-82 fishery indicate that it consisted of 98.8% European and 1.2% North American origin. The possibility exists that North American salmon of sea ages other than two sea winters are caught in the Faroese fishery.

E. Predation

- (i) "Predation of birds on salmon and sea trout smolts and post smolts." E. Valle, 1985. International Council for the Exploration of the Sea. C.M. 1985/M:22.

The study consisted of fish tags recovered since 1970 from birds in the areas of Finnish salmon and sea trout stockings in the Baltic Sea; as well as fish tags found in gull pellets at two rivers in northern Finland, in connection with the marking of wild salmon smolts. In addition, 15 gulls, four mergansers and one red-throated diver were shot for stomach analysis. Of the 653 fish tags recovered from birds in the Baltic Sea, 87% were found in the nests or pellets of the Caspian Tern, and 4% in the nests or pellets of gulls. The bird species were unidentified in the remaining 9%. On the rivers, not only gulls but also mergansers and red-throated divers had preyed on salmon smolts.

F. Scale Reading

- (i) "Atlantic Salmon Scale Reading." 1985. Report of the Atlantic Salmon Scale Reading Workshop, Aberdeen, Scotland. 23-28 April, 1984. International Council for the Exploration of the Sea.

This is a comprehensive guide to the collection and interpretation of Atlantic salmon scales.

G. Rearing of Young Salmon in Lakes

- (i) "Evaluation of an experiment in lacustrine (lake) rearing of juvenile anadromous Atlantic salmon." V.A. Pepper, N.P. Oliver and R. Blundon, 1985. North American Journal of Fisheries Management 5, 4: 507-.

As part of the salmon enhancement research in Newfoundland a three-year anadromous Atlantic salmon stocking programme is described in which swim-up fry were planted into inlet streams immediately above natural ponds and also directly into lacustrine habitats. Fry-to-smolt survival ranged from a high of 20% to a low of 0.9% and was influenced possibly by

water nutrient levels and associated secondary productivity. Minimum survival from smolt to adult stages was estimated to be 4-15%. Most of the lacustrine parr smoltified at age 3.

H. Tagging

- (i) "Overwinter post-tagging mortality and tag loss among autumn emigrating juvenile Atlantic salmon (Salmo salar L.) held overwinter in tanks." D.W. Hay, 1985. International Council for the Exploration of the Sea. C.M. 1985/M:13.

Eight hundred and ninety one juvenile salmon which had migrated downstream into a fish trap in October and November 1978 were transferred in equal numbers to each of four identical tanks. Half of the fish in each tank were tagged with modified Carlin tags. The fish in two of the tanks were fed with salmon eggs on one occasion. By the following April there was no evidence of tag loss but the mortality rate among the tagged fish was 2-7 times greater than that among the untagged fish.

- (ii) "Use of coded wire microtags on juvenile Atlantic salmon (Salmo salar L.)." E.C. Potter and J. Browne, 1985. International Council for the Exploration of the Sea. C.M. 1985/M:27.

No serious difficulties have been experienced with the use of coded wire microtags on wild and hatchery-reared juvenile Atlantic salmon in England and Ireland, and results have confirmed findings elsewhere that microtags offer a number of major advantages over conventional external tags.

1984

ACCUMULATED FUND

168,720 At 30 June 1984

Add:

Covenanted and pledged donations:

Covenanted donations, including tax recoverable

Pledged donations not under covenant

Deduct:

Appeal expenses

51,824

6,423

58,247

7,937

50,310

8,374

20,567247,971

Net gains on disposal of shares and securities

Excess of income over expenditure for the year

At 30 June 1985SPECIAL RESERVE50,000

Dulverton Trust: Scottish Headquarters

£297,971TOTAL CAPITAL EMPLOYED

Represented by the employment of funds, as follows:

QUOTED INVESTMENTS

229,952

At cost (market value at 28 June 1985 £342,000)

BANK AND CASH BALANCES

41,309

-

22,500

572

50

64,431

Schroders Investment Management Limited: special deposit

Bank of Scotland: special deposit account: Hopetoun Auction

Midland Bank plc:

Ordinary deposit account

Current account

Petty cash balance

NET CURRENT ASSETS

1,859

1,987

3,236

7,082

Stock of prints at cost

Income tax recoverable on covenants and investment income

Sundry debtors and prepayments

Deduct:

Covenanted donations received in advance

Accountancy fee: accrual

Sundry creditors and accrued expenses

3,4943,588£297,971Note:Deeds of covenant and pledges spread over 4 to 10 years

Subject to any future cancellations by covenantors and pledged donors and to changes in the basic rate of income tax (presently 30%),

the gross amounts of covenanted donations and other pledged donations as at 30 June 1985 receivable in future years were as follows:

D. Clarke, Chairman
D. J. Mackenzie, Director
M. O'Brien, Treasurer

BALANCE SHEET AT 30 JUNE 1985

247,971

47,863

4,928

52,791

-

52,791

2,454

28,055

331,271

50,000

£381,271

320,095

22,620

22,547

12,000

2,664

14,664

19

59,850

-

6,844

2,921

9,765

1,292

2,000

5,147

8,439

1,326

£381,271

175,000

8,000

£183,000

Covenanted donations
Pledged donations

1984

GENERAL INCOME

Income from investments:

12,098
3,416On quoted shares and securities, including income tax recovered
Interest on deposit accounts

15,514

Income from other activities:

2,681
2,000
146Postal Fishing Auction: net proceeds
Proceeds from lottery: Salmon and Trout Association
Profit on sale of prints

4,827

£20,341Total general incomeEXPENDITURE

18,421

Direct costs of promoting fishery conservation and enhancement

11,980

General and administration expenses: Scottish Headquarters
Accountancy chargesLess:

Contribution from Fishmongers Company

-

Projects:

Bessinger-Liddell Fellowship
Review of scientific literature: Dr. D.H. Mills
Symposium Planning Group
Other projects

3,439

-

Publication of salmon "Blue Books" and Progress Report: net cost

-

Painting reproductions written off

-

Office move to Scotland

2,500

Donations and grants

£36,340Total expenditure

(15,999)

DEFICIT FOR THE YEAR BEFORE EXTRANEIOUS INCOMEEXTRANEIOUS INCOME

36,566

General charitable donations and sponsorships

-

Hopetoun Auction: net proceeds

36,566£20,567EXCESS OF INCOME OVER EXPENDITURE FOR THE YEAR TO ACCUMULATED FUND

INCOME AND EXPENDITURE ACCOUNT: YEAR ENDED 30 JUNE 1985

21,067	
<u>5,126</u>	
	26,193
5,265	
<u>2,382</u>	
8	
	<u>7,655</u>
	<u>£33,848</u>
	31,098
	16,743
3,333	
3,333	
	-
753	
500	
426	
<u>886</u>	
	2,565
	3,449
	1,928
	1,265
	<u>544</u>
	<u>£57,592</u>
	(23,744)
28,961	
<u>22,838</u>	
	<u>51,799</u>
	<u>£28,055</u>

THE ATLANTIC SALMON TRUST LIMITED

30 JUNE 1985

SOURCE AND APPLICATION OF FUNDS STATEMENT

<u>SOURCE OF FUNDS</u>	<u>1985</u>	<u>1984</u>
Increase in Accumulated Fund	83,300	79,251
Funds placed to Special Reserve	-	50,000
<u>Net funds from activities</u>	<u>£83,300</u>	<u>£129,251</u>

APPLICATION OF FUNDS

Increase in quoted investments at cost	90,143	109,398
Increase (decrease) in net current assets (below)	(6,843)	19,853
<u>Utilisation of funds</u>	<u>£83,300</u>	<u>£129,251</u>

NET CURRENT ASSETS

	<u>Increase</u>	<u>Decrease</u>
Stock of prints and figurines		1,859 (39)
Income tax recoverable	4,857	(2,516)
Sundry debtors and prepayments		315 1,961
Sundry creditors and accruals		4,945 2,218
Cash and bank balances		<u>4,581</u> 18,229
	<u>4,857</u>	11,700
		<u>4,857</u>
		<u>£ 6,843</u> <u>£19,853</u>

REPORT OF THE AUDITORS

TO THE MEMBERS OF THE ATLANTIC SALMON TRUST LIMITED

(A COMPANY LIMITED BY GUARANTEE)

We have audited the financial statements on pages 1 to 3 in accordance with approved auditing standards.

In our opinion, the financial statements, which have been prepared under the historical cost convention, give a true and fair view of the state of affairs of the company at 30 June 1985 and of the surplus and source and application of funds for the year then ended and comply with the Companies' Acts 1948 to 1981.

A handwritten signature in cursive script, appearing to read "Mitchell Curran & Co". The signature is written in dark ink and is positioned centrally on the page.

Mitchell, Curran & Co
167 King Street
London W6 9JT

12 November 1985

THE ATLANTIC SALMON TRUST LTD.

DEED OF COVENANT

Please insert
full name and
address in
BLOCK LETTERS

I,.....
of.....
.....

HEREBY COVENANT with THE ATLANTIC SALMON TRUST LTD. that for a period of

(i) years from the date hereof or during my lifetime whichever period shall be the shorter, I will pay ANNUALLY to the said Trust for such charitable purposes of or connected with the Trust as the Trust shall think fit such a sum as will after deduction of Income Tax at the basic rate for the time being in force leave in the hands of

the Trust a sum equivalent to (ii) £.....

(..... pounds) such sum to be paid from my general fund of taxed income so that I shall receive no personal or private benefit in either of the said periods from the said sum or any part thereof.

IN WITNESS WHEREOF I have hereunto set my hand and seal this

.....day of19..

SIGNED SEALED AND DELIVERED by the said

.....

in the presence of Witness

Address

Occupation

- (i) Insert number of years. A covenant must run for a minimum of four years.
- (ii) Enter the ANNUAL amount you wish to subscribe, in figures and words.
- (iii) This date must be the same as or later than the date on which the Deed is signed.

The most convenient method of payment is by Banker's Order. Please complete the form overleaf and send it with your Deed of Covenant to The Atlantic Salmon Trust, Moulin, Pitlochry, Perthshire PH16 5JQ

THE ATLANTIC SALMON TRUST LTD.

BANKER'S ORDER

Subscriber's
Bank

ToBank Limited
 Address & Branch

 PLEASE PAY to MIDLAND BANK plc, 20 Eastcheap, London
 EC3M 1ED (40-02-31) for the credit of THE ATLANTIC
 SALMON TRUST LTD. A/C No. 41013874 the sum of
 £ (.....pounds)
 on the (i) day of19..
 and a like amount on the same day each (ii) month/
 quarter/half year/year for a total period of
 (iii) years. Total number of payments

Signed Date

Name in Block Letters

A/C No.

Address

.....

-
- (i) This date must be the same as or later than the date on which the Deed is signed.
 - (ii) Please delete and initial the inappropriate words.
 - (iii) Insert number of years. A covenant must run for a minimum of four years.
-

PLEASE DO NOT send the Banker's Order direct to your Bank.

