Atlantic Salmon Trust

Winter Journal 2006/2007

40th Anniversary
Special Edition

Research
Restore
Sustain

WHAT IS THE TRUST?

- Founded in 1967, the Trust is an Atlantic-wide UK based organisation which champions the wild salmon and sea trout – it does not represent any body, only the fish themselves
- Works for the conservation and restoration of wild salmon and sea trout stocks to a level which allows sustainable exploitation
- Is an independent, registered Charity, with a small staff, which receives no Government funding

WHAT DOES THE TRUST DO?

- Conducts and supports marine and freshwater research
- Gives practical advice on the management of fisheries and rivers
- Gives independent advice to governments, international and national authorities and to commercial enterprises
- Co-ordinates activities with other conservation, environmental, fishery, heritage and wildlife agencies and organisations
- Holds and supports seminars and workshops to investigate specific issues
- Publishes high quality reports and booklets to inform and educate

WHAT ARE THE TRUST'S CURRENT ACTIVITIES AND PRIORITIES?

Promoting, taking part in or supporting:

- Research into the survival of salmon at sea
- Restoration of wild salmon and sea trout stocks, especially on the West Coast of Scotland and the Islands
- Reduction of interceptory nets
- Implementation of fish farming codes of practice
- Reduction of mammal and bird predation
- Improving river habitats and water quality

Improving all aspects of our education, information and communications roles.

Playing a proactive part in all management committees and legislative fora.

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Registered Charity No. 252742

40th ANNIVERSARY YEAR – PROGRAMME

JANUARY
16 Seminar, Kenmore: "More to the Tay than meets the eye"

FEBRUARY
5 Postal Auction Day

MARCH
15 Board Meeting – Edinburgh

APRIL
4 Honorary Scientific Advisory Panel Meeting – Edinburgh

MAY

JUNE
4-8 NASCO Conference
16 Cheffins' Auction Day (AST/GCT) – Perth
19 Members' Meeting and Board Meeting – Edinburgh
29-1 July GCT Scottish Fair, Scone

JULY
27-29 CLA Game Fair, Harewood

AUGUST
3-4 Highland Field Sports Fair, Moy

SEPTEMBER
18-21 AST/GCT Conference, Southampton: "Freshwater Habitat Management for Salmonid Fisheries"

OCTOBER
3 Board Meeting – Edinburgh
17 AST/NASCO Marine Presentations – Edinburgh

NOVEMBER
20 Anniversary Dinner – Fishmongers' Hall

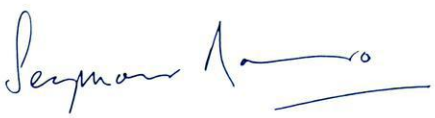
DECEMBER
11 AGM & Members Meeting – Fishmongers' Hall

This is the first of two special editions of the Journal to celebrate the founding of the Trust in 1967. Amongst the excellent articles, there is the story of the Trust's early years, references to what it has achieved – often in close cooperation with others, and what its activities and aspirations are today.

The 40th Anniversary is being marked in a number of ways; our outline programme is inside the front cover. The quest for information and the passing on of knowledge and advice is fundamental to what we do. So I highlight the seminar at Kenmore on the Tay; the conference in association with the Game Conservancy Trust on freshwater habitats from 18th-21st September in Southampton; and the presentations in conjunction with NASCO on research at sea on 17th October in Edinburgh.

There will also be a special dinner at Fishmongers' Hall on 20th November.

We start 2007 in good spirits: Irish drift-netting is behind us and a healthy list of ongoing and potential projects is ahead of us. We will be moving the main office from Pitlochry to Perth in March. There is much to be done and we look forward to seeing many of you during the course of the year.



Seymour Monro, Editor

Please note that articles do not necessarily reflect the Trust's views. Advice and guidance is always available from the Trust's staff.

Contents

JOURNAL DATES

Summer Edition: (special 40 Anniversary issue)
Contributions by 1st May
Published late June

Winter Edition:
Contributions by 1st November
Published mid January

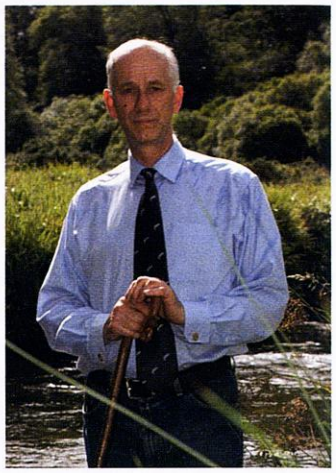
Photographs:

Covers:
Front cover: River Brora – Andrew Graham-Stewart
Back cover: *FPV Nornia* battles into heavy seas (SFPA)

Other photographs:
Andrew Graham-Stewart, David Hay, Malcolm Hay, Angela Monro, Russell Poole, Andrew Semple, Robert Shields and the SFPA.

From the Chairman

Talk given at the S & T A Dinner on 7 December, 2006



Robert Clerk

Chairman, in the Autumn edition of the S & T A's magazine *Gamefisher* you outlined your vision for the future and quite rightly mentioned the need to co-operate with other organisations working in the 'environmental world'. You referred to the theme of co-operation as one of the key issues for your term of chairmanship. The fact that I have been invited to speak to the Association's members and guests this evening demonstrates that theme being put into action and, although a long-term member of the S & T A myself, I am greatly honoured to be standing here tonight and to be speaking as Chairman of the Atlantic Salmon Trust.

The sport of fishing generally, and salmon angling in particular, has a remarkable capacity to spawn a plethora of well intended trusts, associations and the like, often cross fertilised with directors or trustees who serve on several of these bodies. It is important that we work together to establish the particular strengths of these organisations and to agree between us how best to address the issues that confront all of us whilst avoiding wasteful duplication of time and resources. I would like to think that we are getting better at doing this and that the main players in the field now have an excellent track record of working closely together and supporting each other when necessary. There is evidence of this at the summer round of Game Fairs where traditionally the S & T A and the Atlantic Salmon Trust have often been close bedfellows or at least have occupied adjoining stands. How good it would be if all the organisations promoting the welfare of fish and of angling could be found together in one enormous marquee at such events.

If salmon angling has the capacity to generate trusts and associations, that is nothing by comparison with its ability to produce self appointed experts who pontificate on almost every aspect of the management, regulation and catching of salmon. Often unchallenged, their views which are not always correct are accepted and repeated up and down the river and then regarded as fact. You know, we have all heard that on such and such a river there are no fish to be caught this year because a Japanese trawler was seen to net vast quantities of salmon at sea a week or two ago.

This kind of expertise is dangerous. We need to deal in real facts and this is where the Atlantic Salmon Trust comes in. I hope that all of you here this evening know of AST and of our underlying objectives to promote scientific research and the adoption of best practice in the management of salmon and sea trout fisheries, objectives that we have pursued for the last 40 years. I would further like to think that the Atlantic Salmon Trust is stronger and more effective now than it has ever been.

Memories, especially those of anglers, are extraordinarily selective and so as the Trust moves into its 41st year – we are young and lean in number of members by comparison with S & T A – I make no apology for looking back to the foundation of what was then called the Atlantic Salmon Research Trust in 1967 and to remind myself and you of just how much the world of the salmon has changed in these past 40 years.

In the mid 1960s salmon and sea trout were abundant by comparison with today's populations of wild fish. Anglers caught greater numbers of salmon than grilse (or at least they thought they did) for in those days with plenty of food at sea, grilse were larger then than they are now – especially true in this past season – and many grilse were recorded by proud anglers as being salmon and so distorted the annual catch statistics. Furthermore, 40 years ago, commercial netsmen accounted for more than twice the total number of salmon and grilse taken by rod and line.

40 years ago monofilament drift nets, so deadly that their use was banned in Scottish coastal waters in 1962, were used extensively off the West coast of Greenland where at its peak in 1971 over 3/4 million salmon were taken in this fishery; salmon that included many that would otherwise have returned to the rivers of Great Britain and Ireland. There were other problems confronting salmon at that time, in particular many of you will remember the way UDN spread throughout the country and poaching was prevalent often by means of poisoning of rivers and causing untold damage to both adult and juvenile fish and to invertebrates.

Surprisingly, in the 60s relatively little salmonid research was being undertaken and it became apparent that more had to be done to safeguard the future of salmon and sea trout. Interestingly it was at the 1966 Annual Conference of this Association that it was proposed that an independent trust should be set up to raise funds to promote research, education and the management of salmon stocks – and a year later the Atlantic Salmon Research Trust came into being.

Over the past 40 years the Trust, now just the Atlantic Salmon Trust, has sponsored a wide range of research projects and fellowships, organised scientific workshops and published a series of handbooks. It has provided support and training for fishery managers and through its biologist has undertaken research and fieldwork on its own account. Often with counterpart organisations overseas, notably in America, the Trust has run a series of International Symposia. Of particular note was the Symposium held in Edinburgh in 1978 which led to the establishment of NASCO and the international agreement to ban fishing for salmon at sea beyond 12 mile limits.

Coming up to the present date we now find that many of the features of the 1960s have been turned upside down. Grilse are more plentiful in our rivers than salmon and many more fish are now being taken by anglers than by commercial netsmen. Catch and release is being practised widely but far fewer fish are now returning to home waters than 40 years ago, especially the early running fish and the big ones of 3 and 4 sea winters. In simple terms, nowadays if you are a salmon the sea is a dangerous place and the longer you stay there the more you are at risk of coming to grief instead of returning to your native river and finding the love of your life.

Farming of salmon, which was unheard of in the mid 1960s, has become a big and important

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industry but one that has brought many problems for wild salmon and seat trout in its wake.

On the positive side however, today a much greater intensity of salmon research is conducted than in the mid 1960s and the quality of management of our salmon rivers is vastly superior to the standard of those days. In many rivers water quality has been greatly improved for the benefit of salmon and wildlife generally. One only has to look to the likes of the River Clyde for evidence of this where good runs of salmon and sea trout are now firmly re-established. Coming further south, we in the Trust are excited at the prospect of supporting initiatives to restore salmon to the Mersey and we all celebrate the announcement of the closure of the Irish Drift Net fishery and the great benefits that will come from this bold decision.

We now know a great deal about the freshwater phase of the salmon's lifecycle and we have been able to put that knowledge to good use through habitat improvement, intelligent use of hatcheries and a range of other positive measures. We have even made some discoveries about salmon in the marine phase of their lifecycle, notable amongst these being the very successful development of a trawl equipped with CCTV, part sponsored by the Atlantic Salmon Trust, which was used for the first time last year as a non-lethal method to find post smolts and adult salmon at sea and to see them on camera.

However, it is ironic that we know so little about the fate of salmon at sea, because it is largely due to their much higher level of marine mortality in recent years compared with that of the 1960s that far fewer adult fish are now returning to our rivers today.

So much for the past, what about the future. Where will the Atlantic Salmon Trust be going in the next 40 years and where will we be likely to concentrate our resources?

Unquestionably we need to discover much more about the life of salmon and sea trout at sea. We need to know where and when human intervention might reduce marine mortality, for example by controlling predation or by avoiding pelagic fishing in critical areas of the ocean at certain times of the year. This is particularly true when we can exert no influence at all on the many natural and no doubt dominant factors that influence the marine survival of salmon such as changes in oceanic currents and the supply of crustaceans and young fish upon which they feed. However, the sea is a big place, and research involving sea-going vessels is enormously expensive.

Promoted by NASCO the Salmon at Sea or SALSEA initiative is a bold endeavour that we in the Trust are keen to support and encourage. Set up as a multi-million pound marine research project and co-ordinating different aspects of research into the life of salmon at sea this appears to us to be the only way that meaningful research on the scale required can be tackled. Disappointingly it seems that only slow progress is being made towards getting this off the ground with some Member States showing little commitment to it. The Atlantic Salmon Trust will continue to campaign and lobby on behalf of this initiative and will make funds available for marine research projects.

At a more mundane but no less important level the Trust will continue to support initiatives to restore and sustain fragile salmon and sea trout fisheries, notably in North West Scotland. We will continue funding research and training of biologists offering sound advice whenever called for and we will use our influence in the corridors of power to ensure that the legislators and those who control the public purse are not allowed to forget the value of having salmon and sea trout in clean and healthy rivers and lochs.

If I have to admit to concerns for the future they are threefold.

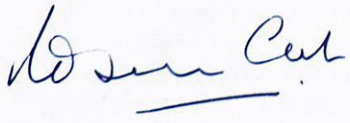
First, the dreadful spectre of Gs arriving in this country and the untold damage that this would cause. We must make every effort to see that this does not happen since all the good work of the past 40 years would immediately be put into reverse if Gs were to reach our rivers.

Secondly, the impact of climate change. Obviously changes in sea surface temperature and oceanic currents may adversely affect the availability of food for salmon at sea and in turn their marine survival. I suggest, however, of equal concern is the prospect of the starvation of cash and resources for continuing research and management of salmon fisheries, especially in England and Wales, if money and scientific expertise are focused upon the wider implications of global warming.

Finally, there is the question of water abstraction and the obvious threat that this can pose, in particular to the habitat of juvenile fish.

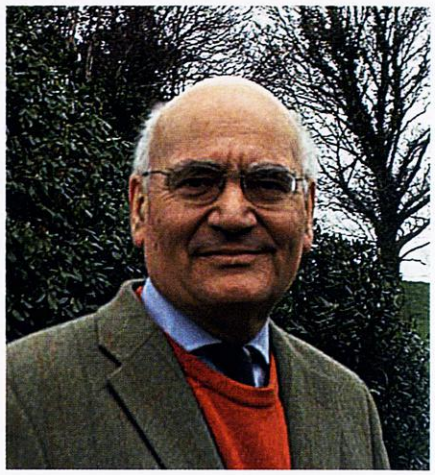
These, however, are negative thoughts and I would like to end on a more positive note.

We have come a long way in the past 40 years and we now have a much better idea of what we need to do to ensure the future of salmon and sea trout. With the challenges that lie ahead and that threaten these wonderful fish it is more important than ever that we work together, contributing each in his own way towards the common goal. With the current strength of organisations like the S & T A and the AST and the huge number of anglers who enjoy both game and coarse fishing we have an enormously powerful lobby and I am confident that we can and will rise to the challenges that confront us and that our grandchildren and theirs will be able to enjoy the sport that we love and share our respect for the fish that we pursue.



England and Wales

AST welcomes new legislative proposals.



Ivor Llewelyn, Deputy Director, England and Wales

Future Legislation

It is now nearly seven years since the report of the Salmon and Freshwater Fisheries Review Group – the Warren Report – was published, and six years since the Government undertook to update the relevant primary legislation. We are therefore delighted that the Government has now announced that it will be introducing the necessary legislative proposals. The announcement was made on 14 December, and in a debate on fisheries on the same day Ben Bradshaw, the Minister for Fisheries, confirmed that the new measures will implement the key recommendations in the Warren Report. He also said that they would be introduced via regulations as secondary rather than primary legislation. This will be done using the new powers available under the Legislative and Regulatory Reform Act 2006 and the regulations that will be needed to implement the Water Framework Directive.

The timing of the announcement was somewhat of a surprise. We were aware that DEFRA was looking for alternative ways of implementing the Warren Report, given its failure to gain a place for a Bill in the Government legislative programme, but did not expect Ministers to reach conclusions so quickly. We have been told that the first set of draft regulations (there will be at least three sets) could be issued for consultation in the Spring.

The AST has been actively involved in pressing the Government to introduce new legislation. Together with the Salmon and Trout Association we produced a briefing document for MPs and others explaining why new legislation was urgently needed. Our role was specifically mentioned in the Commons debate on 14 December by Martin Salter, who drew on our briefing note in his speech. In his response Ben Bradshaw gave an assurance that all the issues identified in our note, including new powers to reduce exploitation of salmon and sea trout and to deal with poaching, would be addressed in the new measures.

Although the AST would have preferred a comprehensive new Salmon and Freshwater Fisheries Bill, we realise that, with its other preoccupations, the Government is unlikely to make Parliamentary time available for such a Bill in the foreseeable future. We therefore very much welcome the Government's announcement, and will be working with other fisheries organisations to ensure that the regulations deal fully with our concerns.

Review of the Environment Agency's Salmon Strategy

The Environment Agency is undertaking a review of its salmon strategy, which dates from 1996. Although in most respects the strategy has worn well, it now needs updating. In November the Trust attended a workshop arranged by the Salmon and Trout Association and the Agency to discuss how it might be revised. There was widespread agreement that the strategy should:

- cover sea trout as well as salmon;
- be based on partnership working between the Agency and others, including riparian owners, clubs and rivers trusts;
- allow greater scope for management at the local level to take account of local factors.

The Agency hopes to issue a draft revised strategy for consultation in the New Year and to finalise the new strategy later in 2007.

Sheep Dip

In the summer edition of the Journal we reported that the Veterinary Medicines Directorate (VMD) had suspended the marketing authorisation for Cypermethrin. As we said, this was not the end of the story.

The VMD and the Environment Agency have now set up a stakeholder group, involving fisheries, conservation and farming interests, to help take forward a pollution reduction programme for sheep dip; the Trust attended the first meeting of the group. The programme involves further monitoring of and research into the impact of sheep dips on the environment, as well as raising farmers' awareness of the risks to the environment posed by sheep dips. The Government has said that once all the new information being sought is available it will review the suspension of the marketing authorisation for Cypermethrin and consider whether it should be allowed back on the market.

The Trust believes that there is already overwhelming evidence of the dangers of Cypermethrin to the aquatic environment, and that its use in sheep dips should be permanently banned. We also support the call by other environmental and fisheries organisations (including the Salmon and Trout Association, the RSPB, WWF and the Anglers Conservation Association) for the Government to publish a timetable in 2007 for the withdrawal of **all** sheep dips.

FACT

The Trust is a member of the Fisheries and Angling Conservation Trust (FACT), which was established in 2005 to provide a unified voice for the major angling and fisheries organisations in England. FACT should ensure that all those lobbying on behalf of salmon and other freshwater fisheries convey the same message and increase the effectiveness of our representations to the Government. FACT now has its own website www.thesportslife.com/fact/index.asp

Scotland, Ireland and International

Irish mixed stock netting ends.

AST Tent, Scone: Neil McKerrow, John Webb, Seymour Monro and the AST's rotary screw trap

Seymour Monro, Executive Director and Neil McKerrow, Deputy Director (Finance and Scotland)

SCOTLAND

Legislation and Fisheries Forum

The Aquaculture and Freshwater Fisheries Bill has been through its initial committee stage and was debated on the floor of the House for the first time on 20th December. Progress has been satisfactory on all provisions though there is concern that some of the aquaculture proposals have been watered down. Nevertheless once the Bill becomes an Act in the Spring it will help to enforce the farming industry's own Code of Good Practice.

Meanwhile the Fisheries Forum Steering Group is now working on a freshwater strategy for Scotland. The Steering Group is currently discussing a framework which covers the environmental, economic and management areas. The future management structures are a key issue and there will be full debate and consultation on this in good time.

Aquaculture

The Tripartite Working Group (TWG) process and staff will be funded by the Scottish Executive (SE) for the next three years. The SE has given added impetus to improve the working of the Area Management Agreements and to encourage joint restoration and conservation projects. The AST is helping to produce some practical restoration guides and, through John Webb, continues to give significant practical advice and support to West Coast fishery proprietors, managers and biologists. Sea lice and escapes are continuing problems.

Gs

The Task Force report recommending preventative measures and a contingency plan has now been published. There is to be an 'exercise' of the plan in February.

IRELAND

Drift Netting

The Irish government has taken the decision to adopt the Independent Salmon Group's report to end mixed stock fisheries with effect from the 2007 season. A compensation fund for €30 million has been set up for the commercial netsmen. Many wild fishery bodies have been involved in pressing for this decision – as too have many scientists and biologists in Ireland. We would particularly like to congratulate Niall Greene, an AST member and Chairman of the "Stop Salmon Drift Nets Now!" campaign. With this decision comes the responsibility for those managing fisheries and those who fish to ensure that the benefits of more fish returning to the rivers is translated into policies which enhance stocks to sustainable levels.

This decision is extremely good news not only for Irish rivers but also for English, Welsh, Scottish and other European rivers too.

We must now all aim to ensure that the final mixed stock nets around the UK are closed and as the Journal goes to press, it is good to hear that the SE has terminated the lease for commercial netting at Strathy Point. The intention is to maintain a research capability.

INTERNATIONAL

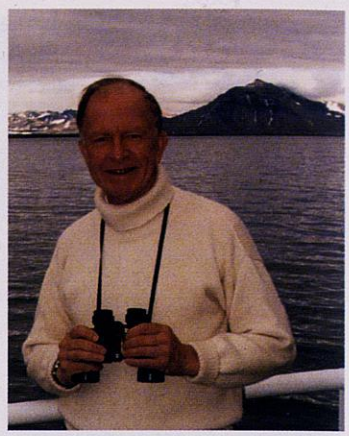
NASCO Conference – Ivalo, Finland 5-10 June 2006

The 23rd annual meeting of the North Atlantic Salmon Conservation (NASCO) was an historic one in many ways. Multi-annual measures for the fisheries at Greenland and Faroes were agreed for the first time, with continuation of the measures to limit West Greenland's mixed stock salmon fishery to internal consumption, estimated at 20 tons, and the Faroe Islands mixed stock fishery according to precautionary scientific advice, which has meant no fishing. Funding was committed to the SALSEA programme with the aim of conducting the major marine research phase in 2008/09, and the final recommendations of NASCO's "Next Steps" process were implemented. NGO's obtained full participation in the meeting, and the NASCO governments presented drafts of their new salmon implementation plans, which will be reviewed for their content by a "compliance" committee including NGO's early in 2007. With the EU's commitment to addressing the Irish government's compliance with conservation directives, confidence that the Irish Mixed Stocks Fisheries would soon be terminated was well founded, as reported above.

The most important outcome was, however, the clear priority given to solving the mystery of salmon sea mortality, in which the AST will continue to play a supportive and proactive part.

Research

A high level of financial support has been given to a wide variety of projects.



Dr. Richard Shelton, Research Director

Targeted Electro-Fishing on the Cumberland Eden – 3rd year £2,000/pa

The purpose of this award was to assist the Eden Rivers Trust to focus their habitat restoration efforts on current 'bottlenecks' to juvenile production and on the effects of the 2005 flood event, both objectives were met.

Survey of Sea Trout Burns in Orkney – 2nd year £2,500/pa

An excellent start has been made on this project by SULA with surveys of 27 burns completed of which only 5 were found to contain juvenile trout. A further 25 burns remain to be surveyed.

Impact of Seals on Sea Trout Smolts (2nd year, expenditure complete)

This FRS project was supported by the purchase of a screw trap for smolts and by helping to pay for the development of a PIT tag detector for fitting to seals. The screw trap worked well and a prototype PIT tag detection system has been tested successfully at the Sea Mammal Research Unit.

Enhancing the River Frome (PWDRA) – £1,000

The Frome is a chalk stream with a number of special problems, including concretion and silting of spawning gravels. This small grant is designed to assist PWDRA to put a comprehensive habitat restoration programme in hand.

Importance of Sexual Selection and Sperm Competition for Salmonid Stock (Universities of Wales and St. Andrews) £6,424

During natural spawning there is considerable competition among sperm to achieve successful fertilisation, mainly because fresh water is lethal to salmon sperm. In artificial spawning the degree of competition is reduced with possible deleterious long term effects on progeny. This project investigates this issue.

The Abundance of Juvenile Salmon and Sea Trout in Existing Fenced, Shaded and Unshaded Areas of Rain-fed Streams in England and Wales (GCT) £1,800

This work is directly related to the forthcoming joint GCT/AST conference on this topic which forms part of the Trust's 40th Anniversary commemorations.

Fish Pass Feasibility Study in River Mersey Catchment (EA) £5,000

The River Mersey is periodically clean enough to permit the passage of salmon and sea trout. The purpose of this award is to evaluate the scope for easing obstructions to their passage.

Installation of Counter on River Slaney, Co. Carlow (Slaney Rivers Trust) £5,000

The purpose of this award is to assist the Slaney Rivers Trust with the management of the river and to monitor the expected recovery of systems like the Slaney following the closure of the Irish drift net fishery.

Loch Feochan Genetics Project (FRS and ART) £6,000

The purpose of this award is to evaluate stock structuring in a west coast river system. Results so far indicate that clear distinctions are apparent, even between grilse-dominated populations following apparently similar marine life history trajectories.

Donation to 15th International Salmonid Conference, Gateshead – £2,000

ART Science Award – £1,000

The 2006 ART Science Award went to Ian Davidson and Richard Cove for their research and monitoring work on the Welsh Dee.

Moray Firth Seal Project (SMRU) £500

The purpose of this small award is to help the SMRU to identify the times and places when grey and harbour seals pose particular dangers to salmon and sea trout.

Marine Research

£25,000 has been allocated during the current year to support research on the lives of salmon at sea. The AST will play an active part in exploratory fishing for salmon entering the Shelf Edge Current to the west of Ireland. This latter work will mark the practical start of NASCO's SALSEA Programme.

Atlantic Salmon Trust 40th Anniversary Conference

in association with The Game Conservancy Trust and the University of Southampton

International Conference on Freshwater Habitat Management for Salmonid Fisheries

To be held on 18-21 September 2007, University of Southampton, UK

www.salmonidhabitat.com

In recent years there has been a considerable amount of habitat management and remedial work undertaken on streams and rivers with the aim of benefiting stocks of salmon and trout, and the fisheries dependent upon them. Techniques used have been very varied and include both in-channel work and bankside and wider catchment management. While many of the approaches used have been very successful and cost effective, other actions have been disappointing or have even had detrimental impacts. Problems have arisen from the lack of definition of the exact aims of the management activity, failure to work in sympathy with the natural environmental conditions and a lack of sufficient monitoring of effectiveness and sustainability.

The aim of this conference is to bring together fishery and environmental managers, scientists, and policy makers to consider the range of activities that have been deployed, to assess their effectiveness and applicability, and to develop recommendations for future work and R&D. Keynote speakers are being invited from the UK, Europe and North America to set the scene for each session. However, there will also be plenty of time planned for offered papers and discussion; active participation of all attendees will be encouraged. Sessions planned are:

- Habitat requirements for salmonids – science and assessment, to include a consideration of the ideal environment for various life-history stages, interactions between species, and habitat assessment tools such as Habscore and PHabSim.
- Catchment management: theory and practice, including liming of the catchment, addressing diffuse pollution, and sustainable policies for agriculture and forestry.
- Riparian zone management: theory and practice, including the concept of buffer zones, bankside fencing, removal of trees and coppicing, provision of tree cover.
- Within-channel habitat management including channel engineering, provision of cover, use of weirs and deflectors, gravel cleaning, and removal or easing of obstructions to free movement.
- Organisation, funding and execution of management work. The roles of riparian owners, owners' associations, government agencies; legal aspects.
- Monitoring and evaluation, including the importance of effective evaluation, techniques for monitoring, cost-benefit analysis and definitions of success.
- Conclusions; recommendations and direction of future research and development.

There will be facilities for poster papers and trade stands. Two afternoon field trips are proposed to a range of sites to see both problems and solutions associated with salmonid habitat management including an opportunity to see some of the contrasting habitats of the famous chalk streams of Southern England, and the flashy streams of the New Forest National Park.

The proceedings will be published with all contributions peer reviewed; all attendees will receive a copy.

Southampton is a thriving city with excellent communications including an international airport with direct flights from Amsterdam, Brussels, Paris and throughout the British Isles. By rail it is just one hour from London, and it is well served by motorway.

An evening trip is being planned to have dinner and a guided tour on HMS Warrior, a restored 1860's warship, at nearby Portsmouth.

Full details are available on the conference website **www.salmonidhabitat.com**

For offers of papers or to receive further details by mail contact Dr Nick Sotherton, The Game Conservancy Trust, Fordingbridge, Hampshire SP6 1EF, UK.
Email **admin@salmonidhabitat.com**

In the beginning

. . . at the 1966 Annual Conference of the S & T A a proposal was put forward that an independent Trust should be set up to solicit funds for research, education and management of salmon stocks.

Dr. Derek Mills, Member AST and former Chairman of the Honorary Scientific Advisory Panel

In the 1950s and '60s the salmon populations were beginning to be under threat from various directions. Some of Scotland's best salmon rivers were being harnessed for hydro-electric power; poaching gangs, using the rabbit poison Cymag, were killing indiscriminately large numbers of fish; illegal drift-netting was gradually becoming widespread around the Scottish coast and then, to cap it all, the outbreak of the disease UDN spread throughout the country in the late '60s. Throughout this period the open sea drift-net salmon fishery off West Greenland was escalating, with foreign vessels entering, and no control on catch level existed. The Greenland capture of fish tagged as smolts in home waters raised the concern over the size of future runs of returning fish.

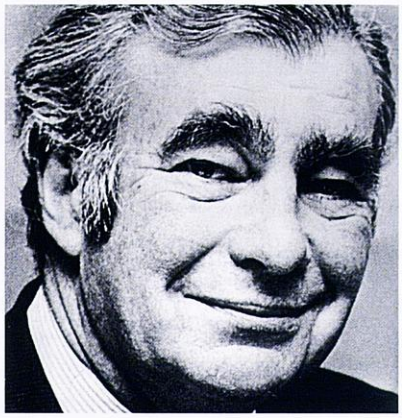
At this time salmon research was at a very low level. River Board fishery officers in England and Wales could not devote all their time to salmon and the Ministry of Agriculture, Fisheries and Food staff engaged full-time in salmon work amounted to about seven men working from offices in Whitehall. However, in 1965 River Boards became River Authorities and their fisheries staff was increased.

In Scotland the position was not much better. District Salmon Fishery Boards, which did not cover the whole of the country, had a superintendent and a number of bailiffs whose main task was the policing of their territory and, in some areas, hatchery work. The Brown Trout Research Laboratory in Pitlochry had, until 1957, only one member of staff working full-time on salmon. Then, in that year the unit became the Freshwater Fisheries Laboratory with out-stations at Contin and Montrose. Only slowly did the number of workers engaged in salmon research increase, reaching a complement of about a dozen or so scientists in the early '60s. Over this period little salmon work was being done in the universities.

The work of the long-established Salmon and Trout Association, with offices at Fishmongers' Hall in London, was concerned mainly with providing advice to fishery owners through their consultant biologist and water engineer and bringing topical issues to the attention of government. Salmon problems were discussed at its Migratory Fish Committee and its Annual London Conference was a valuable forum for the dissemination of the results of work being undertaken by salmon biologists both at home and abroad. The proceedings, and many other pertinent articles, were published in the now defunct *Salmon and Trout Magazine*.

Internationally, salmon work in progress was presented and discussed by government scientists at the Annual Meeting of the International Council for the Exploration of the Sea whose offices are in Copenhagen.

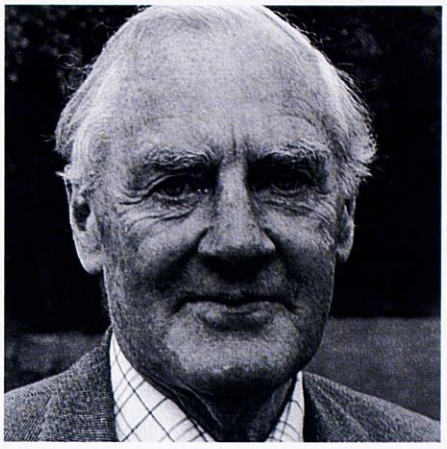
With so many threats to the future well being of our salmon it was obvious that more had to be done to safeguard their future. So at the 1966 Annual Conference of the S & T A a proposal was put forward that an independent Trust should be set up to solicit funds for research, education and management of salmon stocks. The Trust was the idea of a group of salmon "enthusiasts", namely Sir Richard Levinge, Sir Edward Chadwyck-Healey and Vice-Admiral Sir Hugh Mackenzie of the Salmon and Trout Association, Peter Liddell, Chairman of the Association of River



Peter Liddell

Authorities and other like-minded men. A year later, in 1967, the Trust was born and named the Atlantic Salmon Research Trust. The Chairman of its General Council was Sir Edward Chadwyck-Healey who headed a team of eminent men in the salmon world including John Ashley Cooper, Neil Graesser, Stevie Johnson, Jonathan Stansfeld of the netting firm Joseph Johnston, and Jack Jones of Liverpool University. The first Director was Vice-Admiral Sir Hugh "Rufus" Mackenzie. In addition to the formation of a General Council, there was set up an Honorary Scientific Advisory Panel (HSAP), chaired by Jack Jones, and, in 1972, an International Advisory Board with representatives from most of the salmon producing countries.

It was obvious that a need for funds was most necessary if the aims of the Trust were to be met and an Appeals Secretary was duly appointed in the form of Capt. Challis RN. There was a great upsurge of financial support as this young organisation showed that it had a real and valuable role to play. Unlike government departments, it was not restricted by current departmental or ministerial policy but could liaise freely across international boundaries unfettered



Vice-Admiral Sir Hugh Mackenzie, First Executive Director

Sir Edward Chadwyck-Healey, First Chairman of the General Council

by administrative restrictions. Naturally the Trust, and its North American counterpart, the then International Atlantic Salmon Foundation, were in constant touch with their government departments, but often took the initiative on major salmon problems. For example, it was the Trust that initially drew attention to the facts of the escalating Greenland offshore salmon drift-net fishery by foreign vessels. Furthermore, it was the international conference which the Trust held in 1969 which eventually resulted in a phasing out of this offshore fishery in 1975 and left a restricted inshore fishery by Greenlanders only.

In the first few years of its existence the Trust, as its title suggests, sponsored research into the various aspects of the salmon's life history and provided grants to universities for this purpose, proposals for research being 'vetted' by the Trust's scientific advisory panel. Such studies included various aspects of disease, fish culture and ecology. In addition, the Trust supported a training programme in salmon hatchery management and rearing techniques, and the management of a salmon fishery at the laboratory of the Salmon Research Trust for Ireland in Co. Mayo, run by its director Dr. David Piggins. (See the Burrishoole article on page 22.) It also provided support for the River Thames salmon rehabilitation programme and contributed a significant amount to the capital cost of a new laboratory at the Salmon Research Trust of Ireland's research station.

In 1972, the Trust and the International Atlantic Salmon Foundation (IASF) organised the First International Atlantic Salmon Symposium. This was held in St. Andrews, New Brunswick. It was a tremendous success with a good mix of salmon anglers, scientists and commercial fishermen and set a precedent for the holding of future symposia. These symposia would come to be held over the years in Scotland, France, Ireland and Canada. The 1972 Symposium heralded a new beginning in international co-operation to conserve Atlantic salmon.

An inspection of the Trust's early Progress Reports shows that there was always a need for more funds to maintain the support for research. With the death of Capt. Challis in 1977, Jean Cormack filled the position of Appeals Secretary and David Clarke became its chairman. The Trust continued to grow and the next significant step was the Second International Atlantic Salmon Symposium held in Edinburgh in 1978 and opened by HRH the Prince of Wales. On the final day of the conference a call was made for an international convention with provisions to ban fishing for Atlantic salmon beyond 12 miles; to provide co-operation among all countries in conservation, regulation and enforcement measures, and to provide a forum for international co-operation in research and exchange of data on Atlantic salmon. As a result, in 1982 the North Atlantic Salmon Conservation Organisation (NASCO) was established under the Reykjavik Salmon Convention. Two years later, in 1984, NASCO held its inaugural meeting at the old Royal High School buildings in Edinburgh and the Atlantic Salmon Trust, as it had now become, held a reception for its delegates at Archers' Hall – a christening celebration for its baby!

But, to go back a few years – In 1979 Gerry Hadoke, who had worked with the Foyle Fisheries Commission, was appointed Director of the Trust and Sir Hugh Mackenzie became its chairman. At this time the Trust's offices were in Farnham in Surrey which, it was felt, were rather a long way from the action and there were rumblings over a possible move north. In 1980, there was a further landmark in the Trust's life. Two of its members were sent to Greenland with representatives from the International Atlantic Salmon Foundation. The purpose of the visit was to assess the efficiency of the quota regulations, which the Trust had been instrumental in putting in place, and to play a conciliatory role and to establish links with the Greenland fishermen. One result of this trip was a visit by Greenland fishermen to the UK in 1983.

In the same year, the Working Group on Fisheries in the European Parliament held a special meeting on salmon in Brussels at which the Trust presented its views on the problems facing salmon conservation. Later that year Gerry Hadoke achieved NGO status for the Trust at the International Council for the Exploration of the Seas (ICES). We have benefited immensely from the interchange of scientific information at the annual meetings of ICES and have made many useful and influential contacts.

In 1984 the Honorary Scientific Advisory Panel (HSAP) ran one of its first Workshops. These have become regular and well attended events. The proceedings usually being published in the Blue Book series, publications that have achieved international status. This series, which now amounts to 34 publications, also includes the reports of recipients of the Bensinger-Liddell Fellowship and fact-finding visits to other countries.

Over 40 years the Trust has grown in strength and is now fully-fledged, with considerable influence in the field of international Atlantic salmon conservation. May its success continue in the next 40 years.

Salmon at Buchanty

Mention should be made of the Bensinger-Liddell Fellowship. This honours the memory of two outstanding salmon conservationists from both sides of the Atlantic. It was established by the International Atlantic Salmon Foundation (which became the Atlantic Salmon Federation on amalgamating with the North American Atlantic Salmon Association) and the Atlantic Salmon Trust. The fellowship was to encourage the exchange of expertise in Atlantic Salmon research, management and conservation in the United Kingdom, North America and elsewhere throughout the North Atlantic. The Fellowship has not been awarded in recent years.

By now the Trust had assumed an international role and had achieved some clout in government circles. This was to develop further with the Inaugural Meeting of NASCO in January, 1984, in Edinburgh when it became one of its first NGOs. It was becoming more apparent that it would be a big advantage to have a greater presence in Scotland, particularly with the newly formed NASCO having its headquarters in Edinburgh. Therefore, in December, 1984, Rear-Admiral John Mackenzie was appointed the Trust's Scottish representative and offices were opened in Killiecrankie. A few months later John Mackenzie became Trust Director on Gerry Hadoke's retirement and the Scottish office moved to Pitlochry and the Farnham office was closed. An English presence was maintained through Alex Prichard who had been appointed Deputy Director in 1982 and worked from his office in Berkshire. Through his close ties with the French during the Second World War, Alex was a valuable link with our French counterpart, l'Association de Défense du Saumon Atlantique (AIDSA).

The Trust's influence continued to grow with further unofficial meetings with the EEC Fisheries Working Group in Brussels. Contact was also made with the Council of Europe and in 1986 it was represented at a meeting of its European Committee for the Protection of Nature and Natural Resources in Strasbourg.

By now the Trust had established a strong position and was a recognised organisation whose opinion was sought both nationally and internationally. It also had its own biologist, John Webb, who, among many other duties, dealt with fisheries management enquiries and provided valuable advice. The impetus has been maintained through the strength of subsequent directors after the retiral of John Mackenzie, namely Capt. Jeremy Read RN, who had become deputy director after the death of Alex Prichard in 1987, and Major General Seymour Monro. Furthermore, the influence of a succession of eminent chairmen, namely David Clark, Lord Nickson, Colonel Bill Bewsher and Sir Robert Clerk, has kept the Trust up-to-date on matters of policy. The Honorary Scientific Advisory Panel, too, has grown in strength with additional members being recruited from a range of research institutes to consider applications for a wide range of projects.

The strength of the Trust in negotiations at official gatherings is its ability to assume a less formal approach through not being tied to the constraints of government and political protocol. Much of its power has come through its ability to influence in the less rigid environment of the halls and corridors away from meeting-room formality. This has arisen through Trust diplomacy gained partly from the experience of its chairmen and directors in other spheres and through the impartiality of many of its HSAP scientists. Furthermore, meeting many delegates on overseas visits, such as those to Greenland, the Faroes and Iceland, in either a quasi-official role or informal capacity has reinforced this.

Over 40 years the Trust has grown in strength and is now fully-fledged, with considerable influence in the field of international Atlantic salmon conservation. May its success continue in the next 40 years.

(Editor's Note: More on the Trust's achievements and other anecdotes will appear in the Special Edition of the Summer Journal.)

Go wild.

New Shooting Star Salmon Rods.

Balance and power in equal measure.

Photographer:
Thomas Wolfe

In the quest for wild silver salmon, the perfect double-handed rod needs balance and power in equal measure. Balance to make a long hard day's casting bearable, and power to subdue a 30-lb bar of pure ocean-hardened silver. The new Shooting Star salmon rods have both attributes to the core. Designed with the help of ghillies and guides from Scotland and Scandinavia, these rods will throw Spey and shooting head lines with ease, and help you play your quarry with authority. The high modulus 4-piece blanks come in an elegant olive/brown colour, with lined stripping guides and titanium nitride snakes. The grip is fine quality cork and the reel seat is hard anodized aluminium with double down-locking rings. A cordura covered travelling tube is included, and your investment is protected by the Orvis 25-Year guarantee. Go Wild.

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One would never consider breeding corgis into a strain of prime Labradors with the aim of maintaining the traits for which the stock was selected.

Parr at feeding station

The effects of predators on production of smolt-sized salmon are complex. On one hand, feeding and growth of salmon parr can be impaired in the presence of predators. On the other hand, cropping by predators may allow those fish that survive to grow rapidly to a size at which they have a high chance of surviving over the winter. This cropping effect is analogous to the practice of thinning out vegetable seedlings to prevent stunting and to maximise the crop of harvestable individuals. The problem for fisheries managers is that whether thinning by predators is advantageous probably varies depending on local densities of salmon. In consequence, making an assessment of their overall impact on smolt production is particularly difficult. However, it is likely that the effects of predators are particularly serious from the winter before smolting and through the smolt migration, and it is here that any protection of the fish is best targeted in the first instance.

During winter, spates increase in frequency and droughts may occur as water freezes and ice encroaches into the salmon's feeding and sheltering areas. As waters cool, so salmon growth slows or ceases and fish may depend on energy reserves accrued during summer months. From autumn through winter, shelters within the gravel are at a premium and are competed for intensely. In some streams there is an extensive movement of salmon parr in autumn as they redistribute from favoured summer feeding sites to winter survival sites. Interestingly, salmon tend not to share shelters with close family members, perhaps to spread risk of loss to the family from local catastrophies. Large size is an advantage for parr in competition for shelters. However, salmon are no match for the invasive American signal crayfish, which is heavily armoured and takes the best of the shelters with ease.

During spring, those salmon that are sufficiently large prepare to migrate to sea as smolts. The smolting process involves the fish becoming longer, leaner and silvery in colour ready for a life primarily in the ocean surface zone. The chemical constitution of the fish also changes as it prepares for the marine environment in which it faces the physiological challenge of maintaining its body fluids less salty than the water in which it swims. Salmon smolts start their seaward migration alone, but soon aggregate into shoals as they move downriver.

It seems that upper tributary salmon are genetically programmed to leave first as smolts, to return first as adults from the sea and to spawn earliest. These traits appear to be adaptive features that have evolved to suit the particular location where the fish grow. Spawning at the correct time is crucial for fry to emerge when food is most abundant and the worst of the winter weather has passed. The time at which smolts depart appears to be tuned to their distance from the sea

Migrating parr

Despite these concerns, there is a place for stocking salmon.

Salmon at Shin.

such that those fish from upper tributaries leave first. In consequence, smolts from throughout the river are likely to enter the sea within a narrow time window and so swamp marine coastal predators in much the way that fry synchronise their emergence from gravel earlier in life. Smolting at the correct time is crucial for the fish to arrive at the estuary in synchrony with smolts from lower in the river catchment. Upper tributary salmon are particularly prized fishery stock because they tend to return from sea early in the fishing season, often as large fish. This early return means that the adults must stay in the river for many months before they spawn. Indeed, compared with salmon from the lower river, upper tributary fish have longer runs through the river as smolts and as adults returning from the sea. It follows that they may be most vulnerable to specialist smolt predators and may have a longer exposure to diffuse pollutants during the period when they imprint to home waters.

Consideration of the biology of salmon leads to a number of beneficial management options. Where possible, for example, in rivers subject to generation of hydro electricity, regulation of flow regimes to ensure good availability of low flow areas in riffles immediately after fry emergence is good practice. However, any such regulation should ensure that there is sufficient flushing to remove excess fine sediment material and so retain good sheltering habitat within the gravel. Clearly, access for spawning adults must be maintained, and consideration might also be given to facilitating access to parr seeking to move between areas of preferred summer and winter habitat.

Use of land around the stream influences food supplies for fish, temperature of the water and determines extremes of river flows. For example, trees may stabilise banks and introduce a degree of additional food organisms, but may also shade the water, reducing temperature and ultimately reducing growth rates of parr and production of smolts. There is concern that land management practices in upland regions over recent centuries have served to reduce the amount of nutrients entering rivers, resulting in decreased salmon production. The possibility of re-nutrifying upland catchments to regain their previous status is an interesting and challenging issue to address. However, careful consideration is appropriate before any modifications in land-use or bank-side vegetation are attempted and it is wise to monitor the effects of any such changes carefully and to be prepared to reverse decisions if necessary. Such "adaptive management" is a pragmatic approach for dealing positively in the face of the uncertainties that remain regarding the ecology of salmon streams.

Stocking of salmon can have serious negative effects. If a stream is already supporting juvenile salmon, then the addition of stocked fish may serve only to reduce growth rates with the risk of producing stunted parr, many of which may have insufficient energy reserves to survive winter conditions. If stocked fish originate from a non-native spawning population then they may well introduce, by breeding, biological features that have a prolonged negative effect on the stock. For example, introduction of lower tributary salmon to upper tributary populations is likely to cause many smolts in subsequent generations to migrate too late in spring, to miss the main smolt run, and to provide easy pickings for predators in the estuary. One would never consider breeding corgis into a strain of prime Labradors with the aim of maintaining the traits for which the stock was selected; yet because salmon generally all look alike to the human eye, it has been all too easy for managers to overlook differences that make each strain of salmon particularly well adapted to its home location.

Despite these concerns, there is a place for stocking salmon; for example, in supporting fisheries above impassable hydro-schemes. Furthermore, when populations of spring salmon are at seriously low levels, stocking the progeny of native spawners can overcome the limited dispersal from localised redd areas and so increase the use of the stream's resources. Such intervention carries risks of handling and storing eggs safely and should be conducted only with expert oversight and advice.

For all we know, the recent decline in salmon may be part of a long-term natural recurring cycle. However, man's influence on the planet is now so profound at local and global scales, that intervention to conserve spring salmon, whether in securing biodiversity or seeking to maximise the economic value of Scotland's fisheries, seems unquestionably important. Biologists have provided a remarkably valuable body of knowledge to assist the fisheries manager. The challenge now is to apply this resource wisely in the face of the continuing decline in stocks of salmon.

The birth and development of Rivers Trusts in England and Wales

Michael Martin M.B.E., Chairman of the Westcountry Rivers Trust and former AST Board Member

In the last two decades of the 20th Century there was a growing unease about the state of rivers in the United Kingdom. To lean over a bridge and see a trout was becoming a rare privilege, indeed all fish populations were in alarming decline. The National Rivers Authority, shortly to be subsumed in the Environment Agency, seemed to be stultified by bureaucracy and short of resources. A number of people became seriously anxious about this state of affairs and felt strongly it was time for some DIY.

It is pleasing to recall that the Atlantic Salmon Trust through their Annual Fishing Auction played a fundamental part in the formation of Rivers Trusts in England and Wales. In 1988 I had taken in the auction Lower Dryburgh on Tweed, belonging to Ian Gregg and his syndicate partners. I went to visit Ian in May of that year to reconnoitre the water. He sent me up the river for an hour or two of fishing and I immediately landed a fine eight pound salmon – thus commenced a long and fruitful association with Ian and the Tweed. He told me about his plans to form the Tweed Foundation which fired me with the ambition to do something similar in the West of England.

The Committee Members of the South West Rivers Association were extremely interested and enthusiastic but our first attempt to obtain charitable status for the Taw Rivers Trust failed. It was then decided to form the Westcountry Rivers Trust and we were immensely fortunate to be introduced to Arlin Rickard. At the interview it took about ten minutes for us to decide that Arlin was the man to become the first Director of the Trust. How right we were proved to be, as Arlin, over a period of ten years, led and developed the Trust in an extraordinarily successful manner.

Ted Hughes, the Poet Laureate, was hugely supportive and introduced us to Nicholas Grant, Chairman of Duncan Lawrie Bank, who was prepared to finance the Trust on the security of the guarantees provided by a number of Trustees. Lord Clinton paid for the legal advice we needed to obtain Charitable Status and Anne Voss Bark provided excellent shelter and sustenance at the Arundell Arms Hotel, Lifton. Our Barrister, Francesca Quint, wrote the Trust Deed which enabled Arlin Rickard to persuade the Charity Commissioners that we were worthy of Charitable Status – a first. A large corporate body was able to give us a working loan which enabled us to start operations and raise charitable and matched funding for projects from individuals who were interested in fishery management and also from Charitable Trusts who wished to support good environmental practice and education. I believe Rivers Trusts should never overlook the enthusiasm and funding provided by anglers, fishery managers and owners.

Fortunately, it also became apparent that European structural funds might be available to us initially under Objective 5b and later Objective One in Cornwall. We were able, therefore, to put forward a bid to fund major works on the head waters of the Tamar system and a salmon egg box scheme to enhance stocks. The basis for the project, and succeeding projects, was farm visits followed up by farm plans which educated farmers and landowners about the fragility and also the value of watercourses as an added attraction to their bed and breakfast businesses. The possibility of catching sight of an otter, or a kingfisher, not to speak of salmon leaping and brown trout rising, is obviously an attraction to visitors.

The farm plans encouraged proper management of water courses and drainage, the fencing of streams from cattle, coppicing over hanging trees to let in light, storage of slurry and many other environmentally helpful aspects. The benefits to farmers were the ability to obtain grant aid for their work and saving money by optimising inputs including managing fertilizer in a way which avoids run off and environmental damage.

Since those early days the Westcountry Rivers Trust has conducted a similar project for the North Devon Rivers and recently completed the Cornwall Rivers Project Phases 1 & 2. Amazingly from such small beginnings we have invested some £9.5 million in the restoration of rivers and streams in Devon and Cornwall in the last eleven years. To give some idea of the size and scope of these operations the Cornwall projects provided 871 farm visits, 179 kilometres of river bank fencing, 89 obstructive debris in river areas cleared and 20 new angling waters opened towards to the Angling 2000 scheme. There was also an average annual cost saving to farms of £1369.

Ted Hughes always posed the question: "does it put more fins in the water?" We believe in the short and the long term it has and it will. For instance the River Fal once had good runs of salmon and sea trout but for the last 25 years no salmon have run the river. After three years working on the Fal in Cornwall wild salmon parr are now present.

We are currently leading the Atlantic Salmon Arc Project in which many European partners are involved using DNA to track the origins and destinations of salmon, a rural enterprise scheme on several Devon Rivers, the Indicang Eel project and projects targeted on the once

. . . the Trusts may be able to deliver river management more cheaply and, possibly more effectively, in a public partnership than the huge government departments do at present.

immensely prolific rivers of Exmoor. Our educational "Wet Feet" project for primary school children is well supported by a number of large charities, as is our Foundation Degree in River Basin Management with Duchy College which will hopefully produce the water resources managers of the future.

Financing the Trust between major grant aided projects is obviously a problem but we are very optimistic that our consulting company Tamar Consulting which runs in parallel to the charity will produce profits to smooth out cash flow. There appears to be plenty of business particularly in ecological survey work available.

The Angling 2000 passport scheme is thriving and giving Anglers the opportunity to fish very economically by buying tickets and putting them in a box for the landowner or farmer to collect and exchange for cash from the Trust. Again this promotes the value of clean rivers, provides great fishing not only in the West of England but also in Wales and Cumbria – maybe in the future in France and Spain at a very modest outlay.

Scientific research is vitally important if unsung, and it is pleasing to report that Dr Dylan Bright, Director of WRT is a member of Dick Shelton's AST Honorary Scientific Advisory Panel.

We were, of course, sorry to lose Arlin Rickard who in 2004 moved to become Director of the Association of Rivers Trusts (ART); the umbrella body of the Rivers Trust movement. This excellent organisation helps new Rivers Trusts to form and represents this exciting grass roots movement at Government and European level, linking with other major environmental NGO's while providing general governance and support for all the Trusts and rivers improvement groups in England and Wales. There are now over 30 such bodies including Thames 21 in London and a smaller Trust operating on its tributaries such as the Wandle in the very heart of the capital. Supermarket trolleys form a considerable part of their trash dam clearance! We must be extremely grateful to Ian Gregg the Chairman of ART for his imaginative foresight and leadership of this extraordinary environmental movement and its national success.

To be a full member of ART a Trust is required to be well established and to have Charitable Status. Of the 30 or so groups in England and Wales 10 are now full members with more new Trusts forming and joining each year. At present there is no Charity Commission in Scotland and Scottish Trusts only need to negotiate with the Inland Revenue to gain the financial benefits of charitable status. Following the success of the Galloway Trust and the Tweed Foundation, Rivers or Fisheries Trusts now operate over most of Scotland under ART's Scottish counterpart 'Rivers and Fisheries Trusts of Scotland' (RAFTS).

Does this really put more salmon and sea trout fins in the water? I believe it does, although in nature the return to abundance of stricken species takes time and persistence. The combination of the Atlantic Salmon Trust, the North Atlantic Salmon Fund and the Rivers Trusts, providing science, population management and fish friendly environments is beginning to bear fruit if the excellent and improved spring runs of salmon in 2006 can be sustained. There is still much to do and fishermen will need to contribute to all these organisations if they want their quarry and its clean environments to return to their former abundance.

What of the future? It would seem that the Environment Agency and Scottish Environmental Protection Agency, even with the need to meet "good ecological status" required by the EU Water Framework Directive are likely to have less funding for *hands on* river and fishery management.

As the Rivers Trust movement becomes stronger and more diverse they may be able to undertake more of the community engagement and practical environmental improvement works so badly needed in partnership with the government's agencies. Trusts have already demonstrated they are more than able to deliver these works in a most cost effective way. To assist with funding the agencies should also consider outsourcing more of their current contracts and responsibilities to motivated and enthusiastic local Trusts, who also recognise the need to work closely with the water companies. Funding is always a going to be a problem but the Trusts may be able to deliver river management more cheaply and, possibly more effectively, in a public partnership than the huge government departments do at present. After all, Trusts do have the benefit of substantial voluntary input, and if a transfer from the government agencies to the private sector does occur, it could have the advantage that fisheries management could be more suited to local and regional areas rather than subject to inflexible national regulation, treating all rivers in exactly the same way.

One can find out more about the Rivers Trust movement by accessing the following websites:
www.associationofriverstrusts.org.uk
www.rafts.org.uk
www.wrt.org.uk

The River Deveron

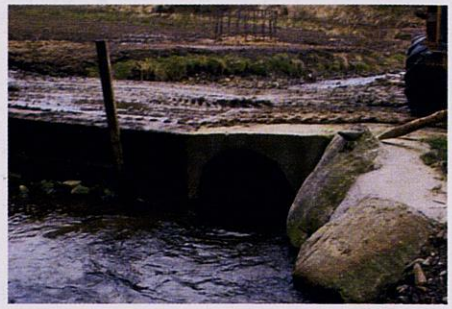


Figure 1

Malcolm Hay and Robert Shields (Deveron, Bogie & Isla Rivers Trust)

The Deveron, Scotland's hidden gem, travels a 60 mile course, rising from open heather moor land in the Cabrach, on the edge of the picturesque Grampian Mountains, meandering through the rolling farmland of Banffshire, and finally discharging into the North Sea at Banff.

Much of its middle reaches are contained within a picturesque landscape which Walter Scott pronounced to be the very best of our Scottish scenery, "at the junction, namely, of the rougher uplands with the softer plains, where the mountains guarding the infant stream have sunk down to hills less stern and commanding, allowing a fringe of birches and hazels to soften their shaggy sides, while every now and then numerous affluents called "burns" come gurgling in through the hollows that stretch away in the recesses of the diverging glens."

The Deveron, including its principal tributaries the Bogie and the Isla, produces some of the highest rod catches of salmon and sea trout in Scotland outside the top four rivers of the Tweed, Spey, Tay and Dee. It holds the record for the largest salmon ever caught on a fly in a Scottish river – Miss "Tiny" Morison's 61.5lb monster taken on the Mountblairy beat just above Banff.

The river is noted for its large sea trout – fish of 5lbs or even 6lbs are not uncommon, and the quality of its wild brown trout fishing is unsurpassed – a brown trout of 11lbs having been taken recently on the Isla.

Importantly, the river is one of the most open in the country with in excess of 50% of the total angling resource managed by the public angling associations of Huntly, Turriff and Banff. In addition, most of the privately owned beats on the river offer fishing permits by the day or week at very reasonable prices. These can be obtained either directly via the **www.deveron.org** website or from Frank Henderson's tackle shop in Turriff or via his own website **www.fishingthedeveron.co.uk**.

The parlous state of wild Atlantic salmon and sea trout stocks will be well known to readers. In common with many other rivers in Scotland, the Deveron Board formed, in 2001, its own Trust, whose mission is to improve the riparian habitat for the benefit of all wildlife in the catchment, not least its stocks of juvenile salmonids.

The Trust also fulfils a vital educational role in teaching Primary school children from within the catchment the life cycle of the migratory fish which run up our rivers.

The Deveron, Bogie & Isla Rivers Charitable Trust is regulated by the Office of the Scottish Charity Regulator (OSCR) and was a founding member of the recently constituted Rivers & Fisheries Trusts of Scotland (RAFTS), an umbrella body set up to disseminate training, advice and best practice guidelines across fisheries management throughout Scotland.

The Trust has set about its task with gusto. A Fisheries' status report was commissioned from Colin Carnie, building on earlier survey work completed by Karen Hall and culminating in a plan of action – the Fishery Management Plan. High on the list of priorities was the opening up of many miles of sterile areas, cut off from the main river by a variety of distillery weirs, redundant hydro dams, Irish fords, and hung culverts.

An annual programme of electro-fishing was started to provide detailed information on juvenile populations and

Figure 2

particularly those above obstructions which were causing access problems for spawning migratory fish.

The Trust modified three "Irish Fords" with some spectacular results (*Figure 1*). It removed two redundant dams (*Figures 2 and 3*). It installed fish ladders on three sites where the design of road-bridge aprons had affected the ability of fish to migrate upstream (*Figure 4*). These modifications have made accessible an extra 21 miles of spawning habitat and subsequent surveys in these areas have demonstrated high and increasing numbers of juveniles of both salmon and trout.

The Isla is an important resource representing some 30% of the spawning areas of the Upper Deveron. Electro-fishing in the Upper Isla over the past five years has shown low juvenile salmon populations where the in-stream habitat suggests the river could sustain much higher figures. A series of partial obstructions at Keith was pinpointed as the probable cause of poor juvenile recruitment, as migratory fish struggled to get up stream during periods of low to medium water flows. With financial help from distillers Chivas Brothers, owned by Pernod Ricard, one of these obstructions was modified by the installation of a fish ladder with an integral counter. Within a week of its installation we recorded salmon using the ladder (*Figure 5*).

Figure 3

Deveron Catchment – Fiona Hill

Modifications to a man-made waterfall downstream will probably still be required, particularly for spawning sea trout and brown trout. However, the Trust is optimistic that anglers will have good reason to be thankful for the generosity of Chivas Brothers in the future as more and more migratory fish are able to make the journey up stream to their spawning grounds.

The River Bogie system contains over forty spawning burns, representing another third of the Upper Deveron catchment. This area remains heavily forested following the planting of the Clashindarroch Forest in the 1950s. Silt loading following planting, road building, and now heavy shading from conifers have significantly degraded the habitat in these burns over time. However, new and more enlightened forestry practices have led to some small improvements and our electro-fishing results have shown some promising increases in juvenile numbers in recent years (although much of this is possibly due to our removal of several Irish Fords).

However, we are now facing the possibility of a massive 47-turbine wind farm being erected on the ridge between the Bogie and the main Deveron catchments. The clear felling of 1500 acres of mature woodland to accommodate this development, and the construction of 38 km of access roads (criss-crossing a myriad of fragile spawning streams) raises the spectre of a sudden reversal in the recent resurgence of juvenile salmonid populations. As if this were not bad enough, many of the proposed turbine sites and their access roads are to be dug into the blanket mire system that forms the headwaters of the Bogie. The illogical and misguided destruction of this deep peat layer, capable of absorbing carbon dioxide for many more thousands of years, has been forcibly put at a recent Public Enquiry. A long-term programme of electro-fishing, water quality monitoring and invertebrate surveys is now in place to monitor any changes in habitat and water quality. The Trust nervously awaits the Reporter's recommendation.

Our electro-fishing and invertebrate surveys have also enabled the Trust to enter into a constructive dialogue with managers of forests to both restructure riparian zones and ensure that important spawning tributaries are kept free of fallen trees and brash which can very quickly build up to form total barriers to the migration of spawning fish to their redds.

The Trust has built, principally through the generosity of two riparian owners, its own hatchery, the target being to produce enough fed fry to restock those sterile areas previously beyond the reach of spawning salmonids and which have recently been opened up. Examples of the Trust's success are the Towie and Auchintoul burns which now support salmon parr as a direct result of the release of fed fry from the hatchery. Neither of these burns had seen salmon for over a hundred years until the Trust removed the dams that had been blocking the passage of migratory fish.

The Farming & Wildlife Advisory Group (FWAG) was commissioned by the Trust in 2004 to promote agri-environmental schemes. Farmers and land owners were incentivised to enter these schemes by the Trust's contribution of £200 per application (to cover the cost of habitat surveys). As a result, over £500,000 of environmental improvements have been completed, much of which consists of stock fencing alongside water courses and the installation of water troughs or fenced watering points. The provision of buffer strips to reduce the effects of diffuse pollution from agricultural and forestry activities are also an important element of these schemes.

Co-operation with Scottish Native Woods has resulted in the planting of native trees alongside water courses, providing a food source for invertebrates and cover for fish and the many other species which utilise these areas as wildlife corridors. Areas of native trees such as willow and alder also act as filters for acidic run off from conifer plantations and diffuse pollution from agriculture and construction activities.

The Trust and Board participate in the Moray Firth Seal Management Plan which was set up in 2005 by the Scottish Executive and SNH to manage salmon and seals in the Moray Firth. Under this plan, rivers within the Moray Firth are allocated an annual quota to remove rogue seals that are a threat to stocks of fish in rivers and in some cases estuaries. The Board also applies for an annual licence to cull sawbill ducks following a survey each winter to determine the numbers of cormorants and goosanders.

The Trust has started to tackle the increasing problem of non-native and invasive giant hogweed which used to be the responsibility of and be controlled by local authorities. However, eradication was never completed and serious infestations have re-emerged on the Bogie and Isla. Funding for eradication programmes is being sought for this very labour intensive exercise. The work will need to continue for many years as the seeds can lie dormant for up to 15 years. Apart from the danger to humans – physical contact

Figure 4

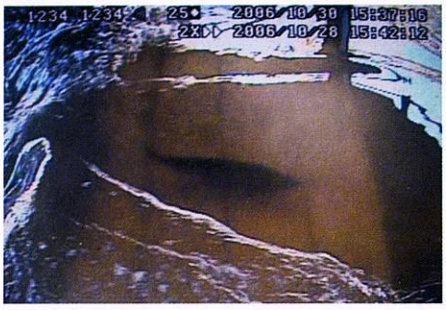


Figure 5

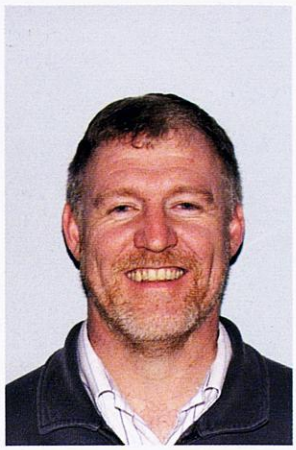
can leave painful blisters on the skin – hogweed shades out native vegetation on river banks which results in bank erosion and silt loading, causing smothering of redds and loss of in-stream juvenile fish habitat.

As indicators of the wide bio-diversity a healthy river system can support, the Upper Deveron contains the most significant breeding population of water voles in the UK and possibly in Western Europe. Many of the burns sustain brook lampreys (*Lampetra planeri*) and river lamprey (*Lampetra fluviatilis*). Juvenile sea lamprey (*Petromyzon marinus*) have also been discovered in the main stem during a survey in 2003. Eels (*Anguilla anguilla*) are present in many areas, although probably not in the same numbers as in recent times. Fresh water mussels (*Margatifera margatifera*) and *Brachyptera putata*, a nationally scarce stonefly that requires good water quality, are also known to be present in the middle reaches of the Deveron.

Our current electro-fishing results are extremely encouraging and have shown many of our tributaries as having significantly improving densities of both fry and parr comparable with some of the best rivers in Scotland. However, many challenges remain, for example, the significant threat from wind farm construction activities high up the catchment, diffuse pollution and continuing afforestation.

Undoubtedly the major threat for both migratory salmonids is out at sea, and a clear indication of this has been the return of emaciated grilse and sea trout to our rivers in recent years. The Trust is focused on trying to ensure that the in-river environment is everything that it should be to ensure that juvenile fish can thrive and, at the same time, enhancing the riparian habitat for the wide range of wildlife that relies on a healthy river system. Thus, with an active and representative Board and a well funded and efficiently run Trust, anglers on the Deveron have every reason to be optimistic for the future.

The Burrishoole system – from the fifties to the noughties



Dr. Russell Poole

Dr. Russell Poole and Dr. Ken Whelan, Marine Institute, Newport, Co. Mayo, Ireland.

History

Nestled in the southern reaches of the Nephin Beg Mountains, in County Mayo, Ireland, lies the Burrishoole system, which comprises two principal lakes, Loughs Feeagh and Furnace. The lakes are at the centre of a dramatic catchment area, which is surrounded by a great horseshoe of mountains. Lough Feeagh, the largest freshwater lake, is drained by two streams discharging into the tidal Lough Furnace, which in turn flows into the sea at Burrishoole, in the north eastern corner of Clew Bay. The Burrishoole is largely an acidic, poorly-buffered oligotrophic system, greatly influenced by the nearby Atlantic Ocean.

Set between the two lakes is a fisheries research station that has been at the forefront of salmonid and eel fisheries biology for more than half a century. The Salmon Research Trust of Ireland (SRTI) was formed in 1955 as a result of an initiative taken by Sir Hugh Beaver, then Managing Director of Arthur Guinness & Co. Ltd and Dr. Arthur Went, Scientific Adviser to the Minister for Fisheries. Major C. W. Roberts from whom Guinness purchased the fishing rights in 1965 originally owned the Burrishoole system. In 1980 the Roberts family gifted the fishery, the fishing rights and property and other tangible assets to the Trust. Throughout the 1980's Guinness gradually phased out its involvement with the Trust and its facilities were eventually handed over to the State in 1989. On 1st January 1990, the Salmon Research Agency of Ireland took charge, under the Directorship of Dr. Ken Whelan, and for the following decade expanded on much of the original research undertaken by the SRTI. In 1999 the Salmon Research Agency was merged with the Marine Institute and along with colleagues from the Fisheries Research Centre in Abbotstown, formed the Aquaculture and Catchment Management Service Group (ACMS).

The Salmon Research Trust

The SRTI was privileged to have three distinguished Directors over the 25 years of its existence, Dr Arthur Went, Dr. Padraic O'Ceidigh and Dr. David Piggins, who shared a common mission: "*to carry out fundamental research into the factors which govern the development of stocks of salmon and sea trout*", including the age old question of whether like breeds like in multi sea winter salmon and grilse. Between 1956 and 1959 the SRTI constructed a laboratory, including an electrical generating plant, concrete fish rearing and broodstock ponds, and a fish fence as well as an upstream and downstream fish trap at the Mill Race, between L. Feeagh and L. Furnace. A meteorological station was also operated in conjunction with the Irish Meteorological Service, a collaboration that continues on the site to this day. In 1969, another larger set of fish traps was installed on the Salmon Leap, thereby giving a total upstream and downstream census of juvenile and adult salmon and sea trout and a full count of silver eels migrating downstream in the autumn. This groundwork was to be the backbone for the work of the research centre over the following decades.

Early Research

The basic research work of the SRTI led to the establishment of a fledgling freshwater and marine salmon farming industry in Ireland; pioneered many of the salmon and sea trout rearing and ranching techniques used in the facility to this day; and elucidated many of mysteries of the life cycle of these species. Marking and tagging of smolts and kelts has developed enormously over the years and has remained one of the mainstays of the research and long-term monitoring at Burrishoole. Coded wire tagged salmon from Burrishoole have been recovered from the Norwegian Sea, the Faroes, and Greenland. Other major studies of sea trout and eel have also involved large-scale marking and tagging programmes.

The release of smolts of known parentage commenced in the early 1960s and by 1965 the returns from released tagged salmon were sufficient to establish the ranching programme of Burrishoole grilse that is still in operation today. The Burrishoole strain was also one of the main grilse strains used in the early salmon farming industry in Ireland.

In support of the fish rearing and early fish census programmes, a general biological survey of the Burrishoole system was initiated in 1957 looking at invertebrates in the streams. Throughout the 1960s a systematic survey of the individual sub-catchments and the main loughs, Feeagh and Furnace, was undertaken. Between 1962 and 1964 an unique experimental programme, known as the Cottage River experiment, was undertaken to investigate in great detail the feeding, growth and competition between juvenile salmon, trout and eels in a stream environment. Many of these early projects were undertaken by undergraduate students and provided a wide range of educational experience for many of the familiar names in fisheries science today. This pioneering research is currently proving an invaluable baseline against which many of the impacts of the latter half of the 20th century can be measured, such as afforestation, overgrazing, aquaculture impacts and climate change.

Throughout the late 1980s and the 1990s, the focus of research was expanded in a number of key areas to meet the demands for quantitative data relating to the observed changes in the survival and abundance of salmonid and eel stocks. Rural life in Ireland changed radically during this period and with these changes came ever-increasing demands and pressures on the country's aquatic and terrestrial resources. Much of the blame for such

Salmon Leap Trap

MSW and 1SW fish

Aerial view of Lough Furnace

environmental impacts was levied on sectors such as agriculture, forestry, aquaculture, and poorly planned tourism development but unbeknown to most of us, the oceans and climate were also beginning to exert their influence in what we now know to be the impacts of rapid global climate change. In the late 90s research carried out at Burrishoole clearly showed that the ocean, particularly the North Atlantic Oscillation, was having a profound effect on conditions in freshwater lakes, including temperature and phytoplankton cycles.

Fish Census

The fish census programme in Burrishoole, carried out at least daily since January 1970, has been the core of many of the research programmes in Burrishoole, while the experimental catchment has been used as an index for modelling stock dynamics of salmon, sea trout and eel. The long-term data sets generated by many years of dedicated monitoring have been used to elucidate the many mysteries of salmon and sea trout biology. It is now clear that, even with substantial changes in salmon exploitation rates, marine survival of salmon has been on the decline in recent decades. The decrease in the size of the North Atlantic stock of salmon has prompted national and international concerns and has given rise to a recent decision by the Irish government to close all mixed stock salmon fisheries at sea and to move to single stock fisheries in rivers and estuaries, targeting only those stocks which are meeting their conservation limits. The long-term data sets from the Burrishoole index system have been fundamental to this management shift from rational harvest to a scientifically-based conservation regime.

Marine survival of sea trout is known to fluctuate widely, but the collapse in the Burrishoole stock in 1988 and 1989 was unprecedented and based in the marine environment. In 1990 the Salmon Research Agency co-ordinated a broadly based research programme involving many state, private and third level agencies which, it was hoped, would identify the extent of the problem and define possible cause or causes of the sea trout stock collapse. The obvious manifestation of the problem affecting the sea trout was severe sea louse (*Lepeophtheirus salmonis*) infestation but the preliminary research did not answer the vital question as to whether or not there was some other physiological or disease factor predisposing the fish to the unprecedented sea louse infestation. Research subsequent to 1992, co-ordinated by the Sea Trout Working Group, found that environmental factors, physiological stress and disease were not directly involved with the sea trout collapse and that severe sea louse infestation was the only common feature associated with the unprecedented disappearance of sea trout from the affected area. A statistically significant relationship was also shown between louse infestation on sea trout and the distance to the nearest fish farm. A wide range of international studies have supported these conclusions and shown that in areas where aquaculture sites are poorly managed, high louse levels may pose a very real threat to wild migratory salmonids.

Eel studies have been carried out at Burrishoole since 1958. With the installation of total downstream trapping in 1970, monitoring of the complete silver eel (downstream migrating mature adults) run became possible. This is the only data set on silver eel production from an unexploited system. The migration of maturing silver eels in the Burrishoole system has undergone some major changes over the past thirty years; the numbers of migrants have been steadily declining and along with this decrease in numbers, the overall age, mean size and sex ratio of the eels have been changing since the mid-1970s. The eel stock across Europe has been declining and the collapse in glass eel numbers in the early 1980s has not since recovered. The EU has proposed the implementation of an Action Plan for the Recovery of the Eel Stock. Demonstration of compliance with eel spawner escapement targets and post-evaluation of management actions will require detailed surveys and modelling of stocks. The modelling of eel stocks, with life cycles of 30-50 years, requires long time series and the data set from Burrishoole has proved invaluable to a recent project developing this approach.

Genetics

Genetic monitoring of both the Burrishoole wild population and derived ranched populations has been ongoing for over 20 years. The results of these genetic studies suggest that the two populations have diverged due to the impact of broodstock and other selective pressures. The impact of hatchery rearing on the genetic composition of natural populations is well documented and is normally associated with the use of too few parents to establish or maintain the cultured population and various effects of selective breeding. Studies comparing the two populations in a common environment suggest that survival in the wild, for the progeny of Burrishoole reared fish is only 49% that of the progeny of Burrishoole wild parents. There have also been concurrent changes in quantitative traits such as the incidence of mature male parr, marine survival, egg size and survival of progeny in the wild.

The rapid growth in aquaculture of Atlantic salmon (*Salmo salar*) in north-western Europe since the 1970s has given rise to concerns regarding the biological consequences of fish farm escapes or the deliberate stocking of reared stocks on wild salmonid stocks. Since Atlantic salmon used for farming are normally genetically

Mill Race fish fence

Downstream trap

Salmon in downstream trap

different from local wild populations, breeding of escaped farmed salmon in the wild, potentially results in genetic changes in wild populations. In a series of unique experiments, undertaken over a decade in the Srahrevagh River, a tributary of the Burrishoole, it was demonstrated that interaction of farmed, or non-native, salmon with wild native salmon resulted in lowered fitness, reduced smolt production and lower overall survival. Out-breeding depression was also shown for backcrosses of hybrid (farmed X wild) and wild stocks. More recent research indicated that salmonids, with a history of contact with aquaculture, have shown lower heterozygosity and allelic diversity at the Major Histocompatibility Complex (MHC), the immune response genes, and that salmonid populations have the best chance of dealing with episodic and variable diseases challenges if the MHC genetic variation is preserved both among and within populations.

Catchment management

A central problem in determining the sustainable development and the productive potential of the freshwater habitat was the absence of tools and strategies to identify and manage the principal threats, which impact on individual catchments. To address these particular issues in the Burrishoole catchment a Management Information System, incorporating Geographical Information System (GIS) mapping and analytical facilities was developed. Within a GIS, data on different themes are stored as different layers and integrated with each other in a variety of ways to reveal where particular situations occur. To this template new information on aquatic habitat and fish population biology, pertinent to the management of the fishery is being continuously added. This system has become the basis for individual catchment management of salmonid and eel stocks in Ireland. The quantification of habitat and its potential for salmon or eel production is fundamental to the establishment of spawning and management targets.

Into the Future

Along the coasts of Western Europe it is the North Atlantic Drift, which most influences our weather patterns. This mass of water moves relentlessly north, feeding into the bays and estuaries of northern Europe a constant supply of warm surface waters, which keeps our winters mild and in summer guarantees a plentiful supply of rain and moisture. Climate models predict changes in the intensity and perhaps even the direction of this important component of the earth's marine circulation system. Experts disagree as to what these changes will mean; some predict a slow but erratic warming of the waters and the appearance, over time, of more warm water fish species and other related fauna, others warn of a catastrophic cooling but whatever the result we know now that change is happening and will continue to happen. Monitoring that change, and predicting the likely outcomes, is one of the greatest scientific challenges facing Europe in the 21st Century. Research is urgently required to inform appropriate international mitigation policies and perhaps even more importantly improve the predictive nature of the current climate change models so as to facilitate the formulation of integrated multidisciplinary strategies to deal with the economic, social, political and environmental consequences of the predicted changes in the global climate.

Geographically the North Atlantic drift comes closer to Ireland than any other country in Europe. Off the west coast counties of Galway and Mayo the great ocean currents merge as they push northwards towards Scotland and finally the Norwegian coast. In this zone the diversity of life that characterises the southern and northern basins of the Atlantic Ocean meet and it is here that the predicted biological shifts in marine species diversity or abundance are most likely to occur. Ireland is, therefore, strategically placed to play a key role in monitoring vital dimensions of climate change, particularly as these relate to the ocean and to ocean mediated changes in our climate and in our environment.

The future will see the traditional research carried out at Burrishoole expanded in a range of key areas and integrated with an interdisciplinary Marine Institute team of specialists who will focus on issues relating to the prediction and monitoring of climate change impacts. There is a real possibility that salmon and eel can become *aquatic canaries* for environmental change in the ocean. Currently, tagged salmon may be used to collect detailed data on temperature, depth and more recently the geographical position of the fish. Most importantly many of these fish return to the point of release after one or two years in the ocean, with the potential to carry with them a unique digital record of life across the Atlantic ocean. New laboratory facilities at Oranmore and Newport, coupled with world class research vessels, data buoy network and the ongoing survey programmes, offer Ireland an unique opportunity to create a capability of international significance to monitor the influences of the ocean on global climate change, incorporating integrated, real time observations on freshwater, estuarine, bay and offshore locations. This affords Ireland a unique opportunity to become a major player in the assessment of climate change impacts through the medium of the marine and freshwater aquatic environments and ensures a continuing key role for the very modest Newport research facility established some fifty years ago by a handful of enthusiastic visionaries.

Selected references are available from Dr. Russell Poole.

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The Scottish Fisheries Protection Agency – Its Genesis

Captain Paul du Vivier RN, Chief Executive SFPA

Britain's sea fisheries have been protected and controlled by the authority of Parliament since 1808 when the Commissioners of the British White Herring Fishery were invested with powers to regulate sea fisheries. In 1882 the Fishery Board for Scotland was set up to manage fisheries surveillance and control in a Scottish context. The Board's functions were transferred to the Secretary of State for Scotland in 1939 and executed through the Department of Agriculture and Fisheries for Scotland, commonly referred to as DAFS.

The Steamships *Minna* and *Brenda*, pictured on page 27, were two of eight vessels involved in maintaining law and order on the inshore fishing grounds around the Scottish coast in the run up to the Second World War. *Minna* was withdrawn from service in 1939 and broken up, while *Brenda* served DAFS until 1951. After the war the fishery protection task was concentrated on preventing incursions into territorial waters (12 mile limit) by foreign fishing vessels. Much changed, however, with the establishment in 1977 of 200 mile Exclusive Economic Zones; for Europe fishing activity within associated fishery limits would become increasingly subject to the regulations of the European Community's Common Fisheries Policy.

The Scottish Fisheries Protection Agency (SFPA) was formed as an Executive Agency of government in 1991 when all aspects of enforcement – policy, operations, ships, aircraft and fishery offices around the coast – and their management, were brought together into a single, unified organisation. Following devolution in 1999, it became an Agency of the Scottish Executive Environment and Rural Affairs Department. It aims to protect fish stocks in the interests of a profitable and sustainable Scottish fishing industry which remains a most important national asset employing over 12,000 people in sea fishing and fish processing and which, in 2005, generated an income of £308 million from fish sales.

Its Present Day Mission

In pursuance of its principal role, the Agency executes a mission which sets out to monitor the Industry's compliance with UK, EU and international fisheries law and regulations in ports and at sea within the 200 mile British Fishery Limits around Scotland. It does this through the effective deployment of its patrol vessels, surveillance aircraft and the sea fisheries inspectorate and the expeditious presentation of cases of non-compliance to the Procurator Fiscal Service for prosecution. In effect, it aims, first and foremost, to deter illegal activity but where deterrence fails, the prime objective becomes the detection of breaches of the law.

The enforcement staff of the Agency – marine officers and land based fishery officers – are appointed by statute as British Sea Fishery Officers. Their job of deterring illegal activity and enforcing the law is in many respects akin to a policing role. They have full powers to enforce fisheries law at sea and in port; they can board fishing vessels, enter property, inspect papers and gear and may seize any gear, catches, instruments or equipment suspected of illegal use.

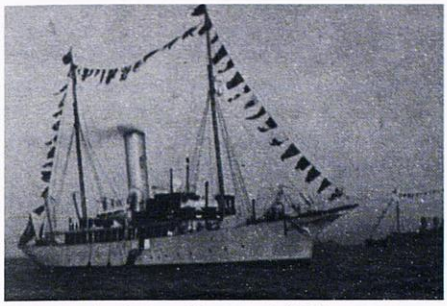
The Agency's area of responsibility extends over some 127,000 square miles of sea within British Fishery Limits, an area that equates to nearly one quarter of all EU waters. It also covers activity around an extensive coastline which harbours numerous landing places on mainland Scotland and the islands, notably Shetland, Orkney and the Western Isles.

It performs its tasks in a demanding environment where the ever variable influences of weather bear significantly on their conduct.

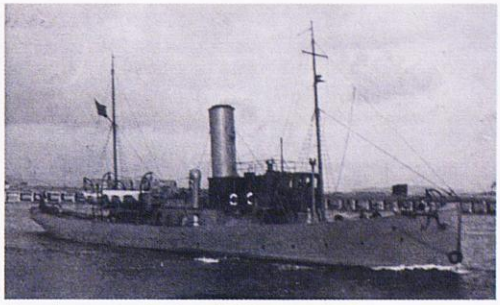
While potentially rich fishing grounds abound in continental shelf waters around Scotland, a number of the demersal species, notably cod, are in danger from over-exploitation. Conversely other stocks, particularly the shellfish and pelagic species, are in a relatively healthy state. Thus the fisheries management challenge is to regulate fishing activity in such a way that permits the sustainable exploitation of the healthy stocks while at the same time providing an environment in which the endangered varieties can recover over time so that they might continue to be harvested at an exploitable level.

The over-arching instrument that governs the management of fisheries is the EU's Common Fisheries Policy. Historically, however, the fishing industry as a whole has been subject to controls established through numerous Acts. These include:

- The Sea Fish (Conservation) and The Sea Fisheries (Shellfish) Acts of 1967
- The Sea Fisheries Act of 1968
- The Fishery Limits Act of 1976
- The Fisheries Act of 1981
- The British Fishing Boats Act of 1983
- The Inshore Fishing (Scotland) Act of 1984
- The European Communities Act of 1972



Minna *at the Spithead Review of 1937.*



Brenda *entering Leith in 1938.*

FPV Jura *in the foreground is the latest addition to the fleet.*

Put simply, the enforcement requirements of the Common Fisheries Policy are governed by three principal regulations, namely the Conservation, Quota and Control Regulations which are enabled by the subordinate Statutory Instruments of these Acts.

The Conservation Regulation lays down certain technical measures for the conservation of fishery resources. They include the setting of minimum mesh sizes, prohibiting the use of certain devices and closing areas to fishing operations. Detailed rules for the measurement of nets and attachments and the sampling of catches of industrial species such as sandeels and Norway pout also derive from the Conservation Regulation.

Quota Regulations set quotas for individual stocks. They also apply certain conditions and specific control measures; for instance in 2004, they stipulated a limit on the number of days during which vessels using particular fishing gear could spend at sea, as well as imposing additional control measures on vessels landing certain species, particularly those deemed to be in danger.

The Control Regulation sets out a recording system for monitoring conservation and fish stock management measures, as well as fishing effort.

It now falls to the British Sea Fishery Officers, as inspectors on the frontline, to monitor the industry's compliance with these regulations which they do on the basis of priorities determined by overall fisheries management objectives. Today these are:

- To preserve the integrity of the quota management system, the principal threat to which would come from the misreporting of catch areas, the mis-recording of species caught, the landing of fish clandestinely and any related under declaration on logsheets of quantities caught. This is particularly relevant in the case of high value species such as cod, haddock, anglerfish (commonly called monkfish), megrim and langoustines.
- To enforce pelagic (herring and mackerel) fisheries regulations, a high priority function because of the potentially precarious state of the herring stock. The potential for under declaring catches and misreporting of species (horse mackerel for mackerel, for instance), catch areas and quantities landed needs to be prevented.
- To check compliance with Technical Conservation Regulations which requires verification of types of nets being used in different areas and sizes of fish being caught and retained for landing, and that no fishing is taking place in areas closed for conservation purposes.
- To prevent illegal salmon fishing, the main target for enforcement being the use of illegal monofilament and other nets laid close to the shore which are recovered when found.

Monitoring activity is directed from a Fisheries Monitoring Centre (FMC) in the Agency's Operations Headquarters in Edinburgh from where the deployment of surveillance aircraft, patrol vessels and inspectors around the coast is planned. In this respect much has changed since the days of *Brenda's* pre-war patrols of inshore waters. The HQ is equipped with a hi-tech satellite-based Vessel Monitoring System (VMS), the information from which acts as the principal cue for determining the deployment of front line resources.

All fishing vessels over 15 metres in length fishing in EU waters are fitted with a transponder which transmits their position every two hours to their national FMCs. A vessel's individual position will be retransmitted to the FMC of the nation in whose waters the vessel is fishing, as illustrated by the VMS screenshot overleaf which shows the whereabouts of vessels fishing in the Scottish zone of British Fishery Limits. The different colours represent different countries; Scottish registered vessels are coloured blue.

Operationally ready to conduct the monitoring and enforcement task on a 24/7 basis are two surveillance aircraft headquartered at Inverness airport, four ocean going patrol vessels based in Leith and Greenock, and some 95 Inspectors located in the main fishing ports around the country.

The aircraft, Cessna FII-406s, jointly fly about 2000 hours on task per annum. They are fitted with a surveillance radar and a sophisticated night-vision infra red camera; their main task is to locate individual fishing vessels and record activity photographically for later verification with declarations by the vessels themselves of their whereabouts.

The aircraft report about 10,000 sightings per annum.

The patrol vessels are directed to the main fisheries of interest for boarding and inspection purposes.

They are each on task for 320 days a year,

BSFOs measuring nets

A patrol vessel's Boarding Boat approaches a Danish trawler for inspection off Rockall

BSFOs at work on the market at Peterhead

during which they will have covered about 170,000 nautical miles and their crews will have conducted in the region of 1000 boardings to check compliance with catch composition rules and the regulations covering the use of specific fishing gear which will vary from area to area.

The Sea Fisheries Inspectorate is deployed around the coast in 18 fishery offices and organised on an area basis – east, west and north. As the map below shows, monitoring and enforcement effort is concentrated in north eastern ports and in Scrabster and Lerwick.

Inspectors work shift routines in these ports while in others flexible working is the order of the day which frequently involves temporary deployment to other ports as dictated by seasonal fluctuations in fishing activity. Total annual inspections amount to some 30,000.

Where breaches of the rules are detected, sanctions are required to be imposed.

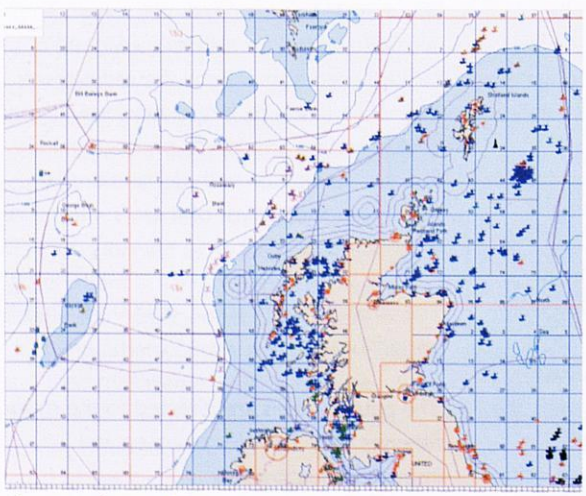
Serious cases of non-compliance will lead to prosecutions in Sheriff Courts, while lesser misdemeanours will be dealt with through a written warning procedure. A year's worth of failures to comply with the law may account for up to some 125 cases being presented to the Procurator Fiscal Service for court action.

In terms of resources, annual expenditure amounts to about £19m. A fleet renewal programme is currently underway through a capital investment of nearly £60m. Two new vessels are already in service, having been delivered by Ferguson Shipbuilders of Port Glasgow in 2003 and 2005 respectively, while a third is under construction in Gdansk, Poland. Tenders for a further two will be sought early in 2007.

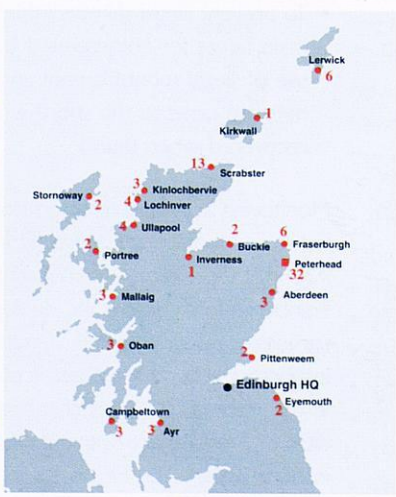
In the meantime, the Agency's aerial surveillance capability will be upgraded next spring when two new Cessna replacements are delivered by Reims Aviation SA of France.

The near-permanent presence of patrol vessels at sea makes them regular contributors to the Maritime and Coastguard Agency's search and rescue operations. The surveillance aircrafts' capabilities may also be called upon for assistance when on task.

While much has changed in the sea fishing scene since the days of the Commissioners of the British White Herring Fishery in the early 19th Century, the future promises new challenges for the SFPA as the management of the broader marine environment encompasses coastal and marine national parks and environmentally sensitive areas such as cold water coral reefs further offshore. The Agency's inventory has much inbuilt flexibility to adapt to future requirements.



Coverage of areas of fisheries interest is extensive



Locations of Fishery Offices and numbers of BSFOs

Cessna

fine art auctioneers

Cheffins

The Scottish Sporting Sale
in aid of
Atlantic Salmon Trust & The Game Conservancy Trust
to be held at
Perth Racecourse
on
June 16th 2007

The Society of Fine Art Auctioneers & Valuers SOFAA

We will be offering a collection of sporting paintings

Sporting guns, fishing tackle and associated collectors items

Entries are now invited

We will be holding a number of Valuation Days for this Sale, where all items consigned will benefit from a special commission rate of 6% which will be shared jointly by the two trusts

Please ring us at any time should you wish us to arrange to visit you or alternatively come and join us at one of the following venues

Valuation Days

•Thursday	8th March -	**Hardy Greys, Alnwick**	16.30pm - 20.30pm
•Friday	9th March -	**Touch House, Touch Estate, Stirling**	16.30pm - 20.30pm
•Saturday	10th March -	**Oxenfoord Castle, Pathhead, Midlothian**	14.00pm - 20.30pm
•Friday	16th March -	**Kincardine, Kincardine O'Neil, Aberdeenshire**	16.30pm - 20.30pm
•Saturday	17th March -	**Ardtalla, Novar Estate, Ross-shire**	14.00pm - 20.30pm

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Real life doesn't count; an angler's progress.

David Profumo, AST Member, author and journalist.

River Thurso, Upper Cattach

It all began in 1963, just after my father resigned from the Macmillan government, the year of Kennedy's assassination. It never made any headlines, but the day I caught my first trout was certainly set to transform my entire world.

There used to be a charming little burn up on the Sutherland moors not far from the House of Tongue. I never knew its name, and now it has been reduced to a sheer-sided drainage ditch, anyway. My father was not then a fisherman – indeed, his political preoccupations had left him precious little time to do anything with me, so this was a notable expedition from the start. The water was spating down in full, gravy mode, but my worm soon found a desirable residence in a back-eddy, the oversized bung dithered and dipped, and a troutling was triumphantly hoisted into the heather.

I was seven. Back at the house, the family fussed and applauded. It was my first taste of approbation.

Every year until he was in his late eighties, my father and I fished somewhere together. They were occasions when we could talk and relax, and the pastime became a nicely cohesive element in our relationship. But whilst I became a passionate anglimaniac (and fishing even spilled over into my professional life) he never owned any tackle, or even learned the basic knots and wrinkles; it was about the places we visited, the people we met, and an annual chance for some fun. That's certainly one way of enjoying it.

When I look back – now from my own middle age – at the thousands of days I have since spent on the water, it is noticeable that the human factor is almost as important as any record of fish. Many of the folk whose company I have enjoyed have been ghillies or guides, but I had two early mentors, especially. My Uncle Harold was a veteran sportsman who had fought in the Royal Flying Corps and fished assiduously since the Great War. I went in awe of him. On his tackle room wall was a photograph of a near-two hundred pound tarpon he had caught when Governor of West Africa (the uncle, I mean, not the *Megalops*) and his cartridge bags were fashioned from a rogue lion he had slain during that same era. He had an estate on the River Fleet near Rogart, and his keeper was George Murray, a gently knowledgeable man who taught me much about the great outdoors. Both men were in attendance when my first salmon was gaffed; a nine-pound cock fish I took on a Grant Vibration rod and silk line, at the age of twelve.

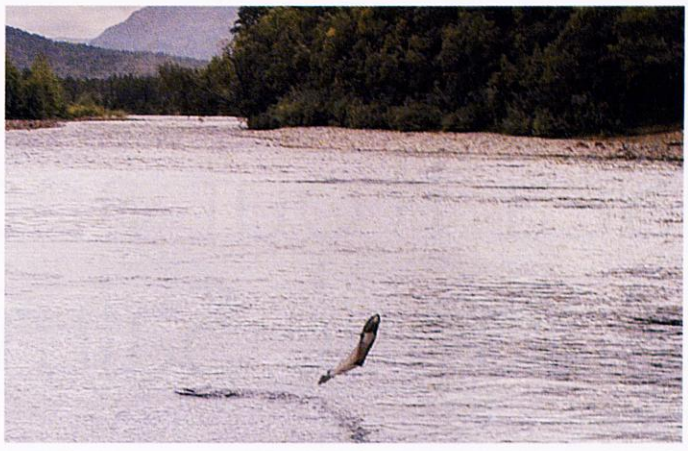
The fortieth anniversary of this personal feat of piscicapture coincides with the AST celebrations, and that seems apt, because it was the day I came of age as a sportsman, and fell seriously in love with the Highlands. Today, I have a Perthshire home, and try to hold a cork handle in my hand on a hundred days each year.

These are deceptively calm beginnings – and I think we can all recollect similar, elementary moments. But the yeast began to ferment, to effervesce. By the time I left school I was a crazed icthyophile. I would clod for eels, whip for bleak, ledger for bream. I became (and remain) a gearhead and tackle tart: the collection now exceeds seventy rods, with flies from size 26 midge hooks to 12/0 irons (tied by Megan Boyd, another mentor), and getting on for a thousand books on the subject. I have it bad. As a fishing writer I have visited two dozen countries, from the Arctic Circle to the South Atlantic. I have been felled by tarpon, been involved in boat and helicopter crashes, hooked a trout on the back-cast, and thrown a fly at piranha, tigerfish, trevally and whale shark. But I promise you this: the most memorable fish I ever caught was that first, mahogany dark, Scottish trout.

It is sometimes said that the progress of *Homo piscatorius* begins with trying to catch the most fish, then the largest, and then the trickiest. If so, I have never matured. Because I can rarely refrain from casting at the nearest thing I see swim. Bonefish and sea trout are my favourite quarry – both spooky, spectral, hydrodynamic beauties. I doubt I will ever get enough of them. For many, *Salmo salar* is chairman of the board, and I can understand why; but one man's meat is another man's *poisson*, and at heart I am really a trout fisher. All angling is, of course, predicated on uncertainty, but I have long felt that there is so much voodoo surrounding the quest for salmon that it is quasi-miraculous when one does take, whereas trouting occasionally works for identifiable reasons.

Richard Gordon once reckoned that salmon fishing was : 'as expensive as keeping a mistress, but *much* more frustrating.' I couldn't possibly comment.

Mind you, I love the mysteries of angling. I am not technically minded, and can't be doing with advanced oxygen theories, Solunar tables, and why lemon sharks cease feeding at 68 degrees Fahrenheit. There are just so many things we do not know – Exactly how do tuna migrate? Why don't British salmon respond better to the dry fly? How am I going to wangle an invitation to Islamouth? – and I prefer it that way. Fishing, like love, is surely a form of madness. It is not a rational activity. It is in various proportions a religion, sport, science, hobby and *modus vivendi*: somehow, it has become a kind of running



River Reisa, Norway

commentary on my entire adult life. Without it, I think I would now be lost.

Let me put myself on the line, here. I am a hedonist. I fish for fun, seldom for food. There are many associated pleasures – fly dressing, cookery, entomology, weather lore, to say nothing of the *après peche* – all of which contribute to that curious amalgam of intensity and relaxation which beguiles millions around the globe. There is no single way of going fishing. The diversity appeals to all types, knowing virtually no boundaries of geography, gender or age. Canon Greenwell (of 'Glory' fame) cast until he was ninety-seven, and Skues tells of an angler who was found dead on the riverbank alongside his lifetime's ambition, a salmon of sixty pounds. I don't think there's any such thing as a good way to go, but that must approximate it.

As we all know, you can enjoy your fishing at any time; just close the eyes, and replay those images. I see late June grilse porpoising at the tail of a brisk Spey run; tarpon shiver on the satin surface of a brackish lagoon, at dawn; a sailfish, lit up electric blue, vaulting as if he would tear an angry hole in the sky; that lunker brownie smutting below the far stanchion of a bridge. Such things have sustained men in battle, on the high seas, in captivity; perhaps you can say the same of the golf links, but I wouldn't bet on it.

All its shrill detractors apart, angling is (for me) to do with the life of fish, not their death. I am often happy to release my captives unscathed, but I am really not a fan of mandatory catch and release. Although he plots the downfall of individual animals, the sportsman is a friend to the species as a whole; and this anomaly, however misunderstood, is at the heart of our pursuit. Whether I am armed with a rod or not, few sights make me happier than an expanse of clean water thronging with fish. We anglers must work with the grain of Nature, about which we truly know so little. I am preaching to the converted here, but we must not be the generation that gives up on the conservation of our wildlife. It's not just the glamorous salmon – look at the red squirrel, or the corncrake. 'Posterity?' asked the politician, 'what has posterity ever done for us?'

I treasure the calm words of an Indian chief: 'This land belongs to my people. Some of them are dead, some are living, but most of them have not yet been born.' That's worth bearing in mind.

When I hear fishermen protest that they don't care if they catch anything or not, I begin to worry. I *always* prefer to catch a fish when I'm out, but I agree that a day is never wasted even if your landing-net remains dry. I feel I have benefited from a curious emotional refreshment, a kind of psychic income. There's an indefinable sense of your life having been enhanced. Merely being on the water re-invigorates me, and seems to rinse away the urban blues, and sundry other impurities of the present century. My pulse quickens positively. Minute sensory details become supercharged: the aroma of peatsmoke or water mint, the busy squall of birds over a baitball, a grating ratchet (zee, zee!), that sudden gleam of a dorsal cutting the stream.

In our little club, we hold fast to the motto: 'Real Life Doesn't Count'. It's not just that we're a bunch of old hippies (members include a vet, an horologist, a television star, a former special forces chap, a captain of industry and, well OK, me). You might call it escapism, and if so we reckon it's an escape *into* the real world. You know the feeling. The perception of time melts down, until nothing appears to matter except the lap of water and the steady song of your line in the air. The everyday is on hold. Somehow, you have stopped the clock.

There is a Babylonian proverb, 'The gods do not deduct from a man's allotted span the days he spends in fishing.' I like it, because, by that ancient system of reckoning, I am still only twelve.

When the beads finally stack up at the wrong end of the almighty abacus, I pray I will avoid the experience that follows:

Slipknot QC died, and duly appeared before St. Peter, who consulted his notes.

'Ah, a fellow fisherman,' said the keeper of the keys. 'Down that lane on the left, and you will find Angus waiting for you by the hut. Best of luck.'

The silken Slipknot sauntered through the sunshine, and found an impeccably tweeded ghillie waiting with a Leonard cane rod and bespoke titanium reel. The chalk stream was as pellucid as vodka, medium olives peppered the surface, and before his eyes a vast brownie made a rise-form like a dustbin lid.

'Well, this looks heavenly,' exclaimed the delighted lawyer.

Angus scratched his curiously tufted head. 'The thing is, sir, Down Here you're not allowed any hooks.'

(Editor's Note: David Profumo's 'Reel Life' column appears each month in Country Life magazine.)

40 years on: Salmon, Sea Trout and the Atlantic Salmon Trust

Dr. Richard Shelton, Research Director and Maj.Gen. Seymour Monro, Executive Director

Introduction

Could it really be that days spent with rod and gun do not count toward one's allotted span? A lot of old sportsmen think so. If they are right, could they be more so than in that magical moment when a good fish takes and the reel sings to the music of eternity? Back on *terra firma* young and old alike are forced to admit that, despite the large reductions in interceptory netting made economically possible by the ready availability of cheap farmed salmon, there just aren't as many salmon and sea trout in many of our rivers as there used to be. The slightly better results of the last two fishing seasons have nevertheless been encouraging, despite the relative lateness and small mean size of this year's main grilse run and the continuing shortage of early-running salmon and of those that have attained large sizes by remaining at sea for more than one winter. For sea trout the picture is patchier with some of the worst shortages of fish larger than finnock in areas where the cage cultivation of salmon is concentrated.

The Atlantic Salmon Trust is working hard to find out what lies behind these shortages. It is a science-based charity devoted to the well being of salmon and sea trout throughout their range but particularly to those stocks returning to the rivers of Great Britain and Ireland. It finances practical research designed to explain the changes in the abundance, structure and distribution of the fish, to focus restoration efforts and to encourage international, national and river-based bodies in policies which will improve and sustain two of the most important living resources available to the rural economies of the British Isles.

A Fish-based Strategy

Salmon and sea trout belong to an ancient and highly successful family of bony fishes with a circum-polar distribution which, over the last few million years, has moved north and south in response to the expansion and contraction of the polar ice cap over successive ice and inter-glacial ages. To this extent, salmon and sea trout are tough and adaptable fishes. Their Achilles heel is their uncompromising requirement for high water quality (especially in terms of oxygen content). The surface waters of the sea are naturally saturated with oxygen which is also present in abundance in clean rivers. Providing access to the latter is the key to the successful management of salmonid fishes. Take it away by obstruction or pollution and experience in both North America and Europe has shown that no amount of expensive fish pass and hatchery construction will restore the stocks to their former abundance. Indeed, although many a salmon or sea trout stock has been rendered locally extinct by obstruction or pollution, history affords no example of such a disaster arising as a result of legitimate fishing. The other side of the coin is that, when previously degraded systems are restored by demolishing obstructions and reducing polluting discharges, the naturally invasive behaviour which enabled salmon and sea trout to cope with successive ice ages enables them to re-establish themselves from adjacent populations. Such has been the recent happy history of rivers like the Kelvin in Scotland and the Tyne in England. It follows that there can be no better approach to the successful management of wild salmonid resources than a strategy which seeks to render their freshwater and marine environments as natural as possible. Simple enough to express, putting such a counsel of perfection into practice demands a proper understanding of the main factors which threaten it in the rivers and estuaries of heavily-populated countries like ours, set as they are in seas which have never been more heavily exploited for fishery, fish cultivation and industrial purposes.

Predators and Prey

Fresh waters are far less productive and much smaller in extent than the seas where salmon and sea trout make most of their growth but they are also relatively free of large predators. By electing to spawn and undergo their juvenile development in fresh water, migratory salmonids trade a degree of shelter for slow early growth and a strict limit on their overall abundance. Provided that enough adults spawn in the first place, losses of fry and small parr tend to be compensated by increases in the survival rates of the fish remaining.

As the fish grow larger, so the scope for compensation gets less. Losses of large parr and smolts to predators like sawbilled ducks, cormorants and seals are virtually uncompensated and make a real difference to the future numbers of adult fish that return to support the fisheries and to spawn. Once the young fish are in the sea, losses to predators like diving birds, seals and dolphins are completely uncompensated and lead to proportional losses to the fisheries. It is regrettable that the numbers of both cormorants and grey seals continue to increase as a result of over protective conservation measures and probably also, in the case of the seals, access to the large quantities of dead and dying fish dumped from fishing vessels. This is not a new problem but it is one that has

. . . large, climatically-driven changes in the distribution and abundance of the crustaceans and young fish upon which salmon and sea trout feed (at sea) are the primary reason for the current shortfall.

been made much worse by the CFP which uses quotas as a singularly inefficient way of controlling fishing mortality.

The River Environment

Because of the decline in heavy industry and the improved treatment of industrial wastes, the quality of some of our worst polluted rivers and estuaries has, over recent decades, shown a welcome improvement. There is a long way to go before all would be capable of admitting and supporting migratory salmonid fishes but the required technical solutions are well known. There have also been reductions in acidic air pollution and recognition of the ways in which coniferous afforestation can exacerbate its effects on fresh waters as well as causing undesirable physical effects of its own. Less well-recognised are the effects of changes in agricultural practice such as the introduction of non organo-phosphorous sheep dips and the increasing use of irrigation derived from adjacent rivers to increase the yield of root crops like potatoes and sugar beet.

The latter is a rural example of what is probably the greatest long-term threat of all to the flow and total wetted area of our fresh waters, namely abstraction directly and via ground water to meet the needs of an ever-expanding urban population. In these, and most of the many other instances of freshwater degradation, including nutrient enrichment from agriculture and fish farming, the knowledge required to take remedial action already exists. The disturbance caused to resting fish by increasing numbers of rafters and, to a lesser extent, canoeists, many of whom are unaware of the limited reserves of energy fish have as they make their way upstream to spawn, is another concern. Making sure that responsible bodies know about and act on these issues is a very important part of the work of the Atlantic Salmon Trust.

Coastal Waters

Coastal waters are places of considerable danger for salmon both as emigrating smolts and returning adults. Fortunately, the smolts pass through this zone relatively rapidly but, when rivers are low, returning adults may spend considerable periods close inshore at which times they are highly vulnerable to seal predation. Records of seal damage suggest that salmon running in the winter and spring can be especially at risk at head of tide because the low temperature of the water flowing into the estuary from the river restricts the swimming performance of the fish but not that of the warm-blooded seal. Sea trout spend virtually all of their marine phase in coastal waters, often sheltering in the kelp zone. It is because of this inshore behaviour that sea trout stocks have suffered more than salmon in areas where the density of sea lice in sea lochs has been raised by the presence of large numbers of caged salmon.

The Open Sea

The results of recent research cruises, combined with records from data storage tags, show that salmon spend much of the daylight hours within 5-10 metres of the surface while in the open sea. While the fish are still small, this behaviour renders them at potential risk from diving sea birds. However, unlike some other pelagic fishes which reduce the effects of predation by forming large shoals which "saturate" the much smaller numbers of predatory birds, sea mammals and large fishes, salmon migrate and feed in small groups, relying on their small numbers and excellent camouflage to render them inconspicuous. How well this approach works during their nocturnal feeding excursions which can be as deep as 140 metres we do not yet know. One thing we do know is that post smolt salmon make use of the Shelf Edge Current to assist their migration into northern waters. Surface and mid-water fisheries for other species like mackerel, herring and blue whiting, which also concentrate along the edge of the continental shelf in summer, may therefore pose a by-catch risk to the migrating salmon.

A Climatic Conclusion

Predation by sea mammals, losses to fisheries, the local effects of intensive aquaculture and problems in fresh water, all have doubtless contributed to reductions in the size of wild salmon and sea trout resources and therefore merit resolute remedial action. Serious as such problems can be, they cannot be the whole explanation. There is widespread agreement among fishery scientists that large, climatically-driven changes in the distribution and abundance of the crustaceans and young fish upon which salmon and sea trout feed are the primary reason for the current shortfall. Because the sea is such a patchy place, the effects of such changes affect some populations more than others. For instance, shortages of spring-running salmon and of the salmon returning to North American rivers whose sea feeding grounds they share, appear to reflect major reductions in the availability of suitable food organisms in the waters of the north west Atlantic. Almost certainly, similar factors underlie both the small average size and later run timing of

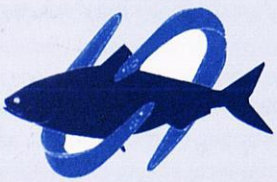
Understanding the ways in which the changing ecosystem of the North Atlantic affects salmonid fishes is the greatest challenge currently facing those who care about these incomparable resources.

the current year's summer grilse run, but in this instance the problem is likely to lie nearer home in the waters of the Norwegian Sea. Understanding the ways in which the changing ecosystem of the North Atlantic affects salmonid fishes is the greatest challenge currently facing those who care about these incomparable resources.

The Atlantic Salmon Trust, which celebrates the 40th year of its foundation in 2007, has led the way in putting the necessary marine research in hand in conjunction with the Governments of Great Britain and Norway and with the North Atlantic Salmon Conservation Organisation (NASCO). The story of progress to date is told in "At Sea with the Atlantic Salmon", a DVD specially commissioned by the Trust and available from its office at Pitlochry.

So, 'if a sportsman true you be', and have fond hopes of there being more fish in the river or loch in the years to come for you and your grandchildren, do consider how you could support the Atlantic Salmon Trust, or one of the many river trusts who are trying to ensure that the fish have the best possible chance to see through their life cycle without undue hindrance from the many threats which face them.

(Editor's note: This article has also appeared in CKD Galbraith's 2007 Sporting Catalogue.)



SYMPOSIUM ANNOUNCEMENT:

Challenges for diadromous fishes in a Dynamic Global Environment

18-21 June, 2007 ***Halifax, Nova Scotia, Canada***

The Northeastern Division of the American Fisheries Society is pleased to announce a second international scientific symposium on diadromous fishes, built upon the successful 1986 AFS symposium, *Common Strategies of Anadromous and Catadromous Fishes.*

The symposium will review the status and range of responses of key diadromous fish species to changes in the global environment from direct and indirect effects of human activity. Participants will address options for maintaining stock sustainability and the role that diadromous fishes play in the functioning of ecosystems and regional and national economies.

Plenary Speakers:

Dr. Robert McDowall, National Institute of Water & Atmospheric Research Ltd., New Zealand

Dr. Thomas Quinn, University of Washington, USA

Invited and contributing speakers will provide presentations and posters on seven focus areas:

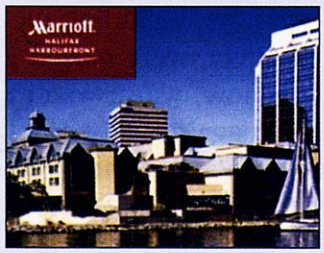
- **Dynamic Nature of Diadromy**
- **Ocean Environment and Migration**
- **Climate Change and Anthropogenic Influences**
- **Population and Habitat Restoration**
- **Linkages with Ecosystem Energetics**
- **Socio-Economic and Bio-Political Linkages in Management**
- **Ecosystem Management Approaches for the Future**

Proceedings will be published through AFS, including papers from oral presentations and poster abstracts.

Abstract Submission: Online abstract submission for presentations is now closed.

Registration: Online registration will begin on January 1, 2007.

Travel and Accommodations: The symposium will be held in downtown Halifax, Nova Scotia, Canada at the Marriott Harbourfront Hotel. The hotel is directly connected to the downtown business district and Casino Nova Scotia, via an indoor skyway, and offers fantastic views of Halifax Harbour. The Halifax International Airport links the cities and towns of eastern Canada and northeastern United States to global destinations. The airport is 30 minutes from downtown Halifax.



Sponsorship: Several levels of sponsorship have been established – all sponsors will be acknowledged in the symposium programme booklet and the proceedings. Please contact Alex Haro; *Alex_Haro@usgs.gov* for additional information or to secure your sponsorship.

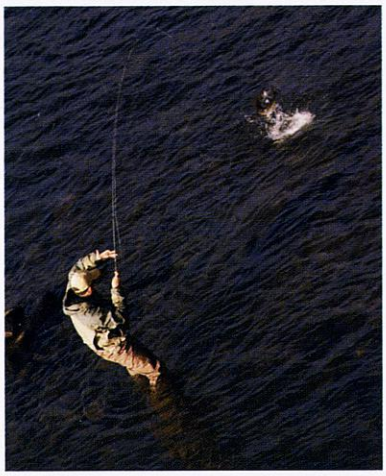
For more details, visit the symposium website:

www.anacat.ca

Symposium Committee:

Trevor Avery, Ken Beal, John Cooper, Rick Cunjak, Michael Dadswell, Alex Haro, Ronald Klauda, Christine Moffitt, Roger Rulifson, Katherine Smith

Clear water and small flies



Peter McLeod, Aardvark McLeod, advertising feature

Iceland was one of the first fisheries to be exploited by the travelling salmon fisherman and many from the UK flocked to its shores from the turn of last century. The prolific rivers and lack of fishing pressure made Iceland an annual pilgrimage for many obsessive salmon anglers. This greatly influenced the Icelandic population and in some ways was responsible for their adoption of salmon fishing as a national pastime. Of the current population of 293,000 in Iceland there are over 60,000 salmon fishermen which means that nearly one in five will be out fishing during their short season from June to September. Many traditional fishing techniques and fly patterns introduced by those early pioneers have then evolved over time into something quite unique. Unlike rivers in Scotland, Russia or Norway, Icelandic rivers have a tendency to run crystal clear. The fish can see you as well as you can see them. This has to be adapted to and simultaneously opens a unique window on the taking behaviour of Atlantic salmon.

Across the UK fishermen often favour large mobile flies tied with lots of arctic fox or brightly coloured buck tail. The coloured water and heavy currents often associated with many of our rivers dictated that this style of fishing is sometimes necessary to present a fly at the correct depth and speed to encourage a salmon to take. Although the use of shooting heads, short leaders, and large shrimp or temple dog flies are often employed in the early season, the actual technique of downstream fishing remains consistent, depth really only dictated by speed of current and temperature of water. In my humble experience fishermen are often disinclined to fish really small flies which can prove remarkably effective. It was only when I first began to fish in Iceland that I learnt to fish light, and it was also where I learnt that salmon will take very small flies. It took me a long time to come to terms with the fact that salmon could not only see these flies but it was far more effective; and seriously good fun!

One can very easily fish standard techniques of two handed rods, sink tip lines and medium sized doubles in Iceland and have great success, especially on such rivers as the East and West Ranga that are perfect for this style of fishing. However, for me that is not why you should fish there as you can fish those techniques anywhere in the world. Icelandic fishing is about hunting. Not dissimilar to targeting fish on a bonefish flat, it is possible to target salmon and sea trout on single handed rods in crystal clear water. Most rivers in Iceland lend themselves well to this, no mater the size of the river as the water remains clear. Seasoned Icelandic fishermen fish with floating lines, reasonably long leaders and size 10-16 flies, and most boxes are full of red and black Francis, a shrimp pattern developed and much loved in Iceland.

Salmon can be seen clearly in their lies on many rivers, and with the help of a good guide you can swing a fly over them and actually watch the take as the fish raises in the water column and sips down your hitched sunray, like a trout rising to a dry fly. As the water is very clear stealth is required. You will often peer over the lip of a bluff to spot the fish in their lies before retreating to a suitable position from which to present the fly. The reaction of the fish to the drifting fly is often witnessed, and gives an otherwise unknown insight into the world of a salmon that I find fascinating.

Hugh Falkus once wrote in his famous volume "Salmon" about a particular fish he had spotted and proceeded to cast at repeatedly, but to no avail. He knew it was there, so persevered. Finally, on something like his 90th cast it took the offering with no rhyme nor reason. How many times do we work our way down a pool with that feeling of fishing over dead water? But how many fish do we cover and how many come and actually look at the fly? We never know, and often this can be disheartening, particularly for beginners. In Iceland, pods of fish can often be spotted in the gullies created by larval shelves or moving into the pools providing a target, and then to be able to watch the behaviour adds to the excitement, even though they may not take.

Fishing the "Hitch" is very important here, and one that most Icelandic guides will encourage you to try. This extremely successful technique developed many years ago can produce takes which will often have your heart in your mouth. A half hitch is put in the leader just above the fly and tightened over the head, whether it be a tube, single or small treble. This means the fly then travels on the surface of the water. The secret is in the speed the fly comes across the glide. The fisherman is trying to achieve that perfect silky v-wake behind the fly. If it sinks it is travelling too slowly and is adjusted by a gentle raising of the rod. If it produces white water it is travelling too fast. This gliding V has an intoxicating effect that many salmon find

hard to resist. You will also find that even though you might not hook fish at the same rate as traditional methods it does not disturb the pool allowing the fish to be marked and then often picked up with a sub-surface fly on the next drift.

As you are now mostly fishing just below or on the surface the speed of the fly therefore becomes more important than the depth the fly is fished at, and by varying the speed the fly is travelling takes can be induced. It is better to sometimes have a "trout head" on, and think of the ways that trout can often be cajoled into taking your offering. Casting at 90 degrees with a downward mend instead of the traditional 45 degree downward angle and an upstream mend will have a light tube hurtling across the pool and I have witnessed salmon on Nordurá and Grimsá come clear of the water in their effort to attack the fly. In slower moving currents stripping the fly fast or slowly raising the rod as the fly passes over a known lie can achieve the same goal. You should not be afraid to experiment and doing something radical can often be the difference between a blank and that all intoxicating tightening of the line.

Iceland is a playground for the salmon fisherman, and as it is only a three hour flight away it makes for a nice change of scenery with its dramatic landscape, clear rivers and lack of biting insects. I know many who having fished extensively around the globe, and find it one of the most rewarding they have done.

Fishing in Iceland can start from £2000 per person based on double occupancy (this includes international flights from the UK, 6 days fishing, and accommodation) and is organised by the bespoke fly-fishing travel company Aardvark McLeod. As Icelandic specialists working exclusively with the Reykjavik Angling Club, Aardvark McLeod can organise fishing on over 30 rivers in Iceland. For these, or any other international fishing trips please contact:

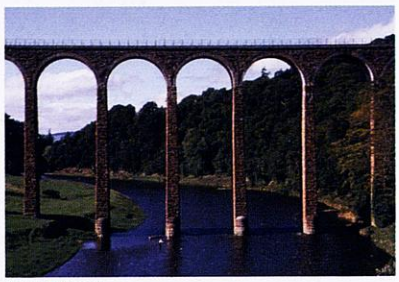
Aardvark McLeod
RBL House
Ordnance Road
Tidworth
Hampshire, SP9 7QD

mail@aardvarkmcleod.com

Tel: +44 (0)1980 847389
Fax: +44 (0)1980 849161

www.aardvarkmcleod.com

Scottish Fishing Review 2006



River Tweed

Andrew Graham-Stewart, AST PR Consultant

SCOTTISH ROD CATCHES IN 2006

It would appear that rod catches of salmon in Scotland are now stabilising at a reasonably healthy level of over 80,000 per annum. Following a low point of just 52,000 in 2003, catches bounced back to some 93,000 in 2004 (which included a wet summer), almost 84,000 in 2005 and, on the basis of information available at the time of writing in early December, a similar figure in 2006.

Especially pleasing has been this season's upturn in catches of spring salmon, the decline of which has been of most concern in the last two decades. Spring salmon are of course particularly important as they extend the angling season on our east and north coast rivers, with all the attendant benefits to the rural economy, to nine months or more. Many rivers reported more springers in 2006 than has been the case for ten years or more. Late February and March were dominated by heavy snow and very hard frosts (the hardest winter weather for a decade) and fish were held below traditional temperature barriers in the lower reaches of rivers.

For the third year running the main grilse runs have been late – on most systems by four or five weeks. The runs have continued through August and well into September; on many rivers, August (rather than July), is becoming established as the most prolific summer month. Whilst grilse numbers have been acceptable, their size (some as light as 2 lb) has been a source of major concern; there was some improvement in weight towards the end of the runs. Fortunately the multi sea-winter salmon (which, as we know, feed in a different part of the ocean) have not been similarly afflicted and indeed they have been in superb condition.

Another worrying situation is the marked decline in sea trout numbers, which has been felt throughout the mainland and is perhaps most pronounced in some of our most prolific sea trout fisheries such as the Angus Esks and the Solway rivers. One theory for this decline (perhaps worthy of further investigation) is the prevalence in our coastal waters of unprecedented numbers of sea bass; warmer sea temperatures have enabled this fish to encroach further and further north. For instance ten years ago they were very rare in the Solway – now they are common there and I have reports of considerable numbers as far north as the Kyle of Durness. Sea bass are roving coastal predators (they may well prey on sea trout smolts – it is perhaps relevant that a silver Toby is a normal lure for sea bass) and they occupy the same in-shore niche as sea-trout.

Below I have summarised the 2006 season over much of Scotland – with limited detail on the spring, which was covered in the Summer Journal.

TWEED

The spring catch was up by some 10 per cent on the previous two years; this was mirrored later in the year by a strong salmon figure on the Ettrick fish counter. During the high summer drought angling was fairly hopeless except on the lower beats. Water levels recovered from late August and for most of the next three months the river fished well, although November suffered a little from an excess of water. I understand that the rod catch total for the year is likely to be in line with the 2005 figure of 13,500.

TAY

Following a good spring, including the best April for 20 years, activity tailed off until late July when the grilse finally began to arrive. Although they were mostly small, there were plenty of them and rods enjoyed the best August for at least ten years. Autumn catches were down on recent years but nonetheless the season's total was an acceptable figure of over 10,000 salmon/grilse.

NORTH AND SOUTH ESK

Some middle and upper beats on the North Esk had their most successful salmon season ever in contrast to the lower river, which really struggled. Middle and upper beats on the South Esk were similarly encouraged on the salmon front despite very low water in mid-summer. However, both rivers reported desperately few sea-trout.

DEE

The trend to more spring salmon continued. Both June and July suffered from a lack of water but catches in August and September were almost 40 per cent up on the five year average. The season's total amounted to close to 6,000 – some 15 per cent more than the total for 2005.

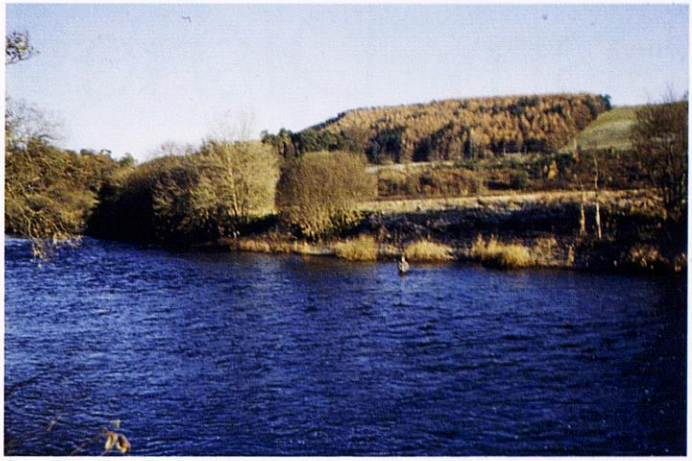
SPEY

The provisional total for the season was 11,378 (of which 71 per cent were released) – compared to 9,700 in 2005. Spring catches showed a moderate increase with 1186 recorded by the end of April, compared to 930 in 2005. The sea-trout catch of 3,286 (49 per cent released) was an improvement on 2005's figure of 2,100 but still below the ten year average of 3,700.

MORAY FIRTH

On the Findhorn the catch to the end of April was 281 springers (over double the five year average) and total of salmon/grilse for the year was 3454; the latter figure is just 100 short of the record rod catch in

River North Esk, Auchmull



River Nith, Blackwood

1995. In stark contrast to most northern rivers the River Ness had a dismal year; some beats were down by as much as 50 per cent on their average catch. Grilse were in short supply and even by September there was no real build-up of fish in the pools. On the Beauly the lower river's three rotating beats fished better in August than they did in July (for decades the latter has been the peak month), reflecting the lateness of the grilse. These beats recorded 686 for the season, a little up on the ten year average. On the Conon there were virtually no grilse in June but there was a good run of quality salmon in the 12 lb to 15 lb class. The grilse runs developed steadily in July and continued right through August with the Brahan beats catching 530 over the two months. The season's total for these beats was 767 for the season (including 507 released) compared to a five year average of 694.

KYLE OF SUTHERLAND

The Carron had its best spring for many years with 500 by the end of May. With long periods of low water and grilse in short supply, catches in the next four months were disappointing but overall season's totals were quite satisfactory with most beats comfortably up on 2005. The lower Oykel recorded 311 to the end of May, compared to a five year average of 137. Summer catches did not really live up to expectations until August, which was the most prolific month of the year. Season's totals were 791 (five year average 662) on the lower river, 214 on the upper and 114 at Benmore. The lower Cassley recorded 133 salmon (five year average 64) for the spring and 268 for the season (five year average 180).

FAR NORTH

On the Brora, spring catches to the end of May were some 50 per cent up on those of 2005. June and July were almost totally devoid of rain; a welcome spate at the start of August reinvigorated the river and catches recovered over the next two months but they were not sufficient to make up for the impact of the long drought on the season's total. The Helmsdale more than lived up to its exalted reputation. The six beats caught 600 by early June. The lateness of the grilse was reflected in the average weekly catches during the summer: 35 in June, 50 in the first half of July (normally the peak period), 125 in the second half of July and 190 in the first three weeks of August. Catches in the latter month were the fifth highest in 100 years despite some heatwave conditions. Sea-liced fish were still running in September, when the beats averaged 70 per week. The season's total was 2200 to the 12 rods, the highest since 1992. The Thurso also had a spectacular year. Some 300 springers were caught of which only four weighed less than 10 lb. With the estuary nets removed for the first time in history, August produced over 550, the fifth highest figure for the month since records began in the mid 19th century. The total for the season was 1305, the best result since 1990 and well up on the five year average of 717.

WEST HIGHLANDS

Fish numbers on the west coast were generally down. For example the number running the Awe barrage was down by about a third. There were a few exceptions to this trend including the Inver with 183 in the book, the Kirkaig with 124 and the early season on the Lochy; the latter had its best spring run in many years with some very heavy salmon including 11 of over 25 lb (the heaviest at 42 lb). The Wester Ross Carron celebrated its highest rod catch in at least 25 years with 200 salmon landed.

OUTER HEBRIDES

When the grilse arrived eventually (four to five weeks late), most of the systems on the west of Lewis did well. Some of the smaller systems excelled with for instance 201 on the Barvas and 111 on the Fhorsa. Grimersta had an unusual year with some difficult months due to lack of water but the best August since the late 1980s; fresh salmon were still running in early October and the season's total was 399. Fish were inexplicably scarce in the rivers on the east side of Lewis such as the Creed. Amhuinnsuidhe on North Harris also had a difficult year. In contrast South Uist had an excellent season with 79 salmon and 851 sea-trout of over 1 lb (including fish of 8 lb and 9 lb); the sea-trout total is the highest since the heady days of the 1960s.

AYRSHIRE

It was a disappointing year, particularly following 2005's encouraging results. The exception was the Stinchar where catches held up reasonably well and were better than the recent average. The Doon, Girvan and Ayr all struggled; a contributory factor was the almost continual high water, once the long dry spell broke in mid-August.

SOLWAY

The Nith reported another highly positive year for salmon including sea-liced fish right up to the last day of the season on November 30. The annual total was anticipated to be "over 3,500," which has only been exceeded four times since 1952. Rods on the Annan caught some 1,300 – compared to a five year average of 1,100. However, the dearth of sea-trout in the Solway is of major concern; the Annan had its lowest sea-trout catch on record and on the Nith anglers landed about 1,000 – less than 20 per cent of what they would have expected a few years ago.

Fishy Dishes

Jemima Strickland

Caterers to the Honorary Scientific Advisory Panel

Parties and little soirées are a big part of the festive season and the presence of canapés or nibbles are an essential ingredient to a good party. It is always a good idea to have a variety of warm and cold canapés to offer to your guests. It means you can spend the minimum amount of time in the kitchen organising platefuls of goodies. If you plan well, the cold canapés can be plated and placed on tables ready for hungry guests. The warm canapés can be passed round at intervals, enabling you to get out of the kitchen and enjoy your own party. Below is a selection of recipes for warm and cold canapés and they can all be made with either Salmon or Trout.

Smoked Salmon Roulade

This canapé can be made up to a day in advance and kept in your fridge. It's very easy and involves no cooking! Once the Roulade is sliced and placed on a plate it looks spectacular.

Ingredients:

300g cream cheese
1 tbsp lemon juice
2 tbsp chopped dill
Black pepper
350g Smoked Salmon
4 large flour tortillas.

To cook:

Mix the cream cheese with the lemon juice, dill and black pepper.

Spread the mixture over the tortillas and lay the Smoked Salmon on top.

Roll the tortillas up like sausages and then wrap tightly in cling film. Keep in fridge.

When you are ready to serve, take the sausages out of their cling film and using a sharp knife cut through the tortillas on the diagonal. For decoration add a few slices of lemon and some extra sprigs of dill.

Makes about 25

Smoked Salmon Catherine wheels

This canapé is very similar in theory to the roulade but can be a bit trickier because of the stickiness of the pate. A sharp warm knife is essential to get a clean slice through the finished rolled up Catherine wheel.

Ingredients:

4 Large slices of smoked salmon. Large slices are necessary to get a wide surface area with which the pate can then be spread upon. The slices act exactly like the tortillas do in the previous recipe. If you don't have time to make your own Salmon pate, then you can cheat and buy some from the supermarket.

Smoked salmon pate:

Ingredients:

60g butter
60g flour
3/4 pint milk
1 bay leaf
1/4 level tsp ground nutmeg
225g haddock fillet
225g salmon
Grated rind and juice of one lemon
1 tbsp chopped parsley
2 eggs beaten
Melted butter

To cook:

First make the pate. Melt the butter in a pan, remove from the heat and stir in the flour; cook for 2-3 minutes. Slowly add the milk, beating after each addition. Add the bay lead, salt and pepper, and nutmeg and boil gently for 2-3 minutes. Discard the bay leaf. Finely chop the haddock and salmon and add to the sauce. Stir in the lemon rind and juice, parsley and eggs. Butter a large soufflé dish (capacity approx 18fl oz) or 6-8 ramekins (capacity 3fl oz each) and pour in the mixture. Brush the top with melted butter. Place the soufflé dish in a large roasting tin and pour in enough water to come halfway up. Cook for about 40 minutes until firm to touch. Once cool, keep in the fridge. This quantity of pate is more than you need to make the Catherine wheels but the leftovers can be frozen or put on oatcakes to bulk out your canapé display.

To make the Catherine wheels, spread out the slices of smoked salmon and spread the pate generously over the top. Roll up the smoked salmon like a sausages, wrap tightly in clingfilm and keep in the fridge.

To present the Catherine wheels, slice straight across and place on a serving tray so the Catherine wheel effect can be appreciated. If you like, you can put a dollop of crème fraiche on top or a spoonful of caviar, or a sprig of dill. A combination of these could also be effectual.

Makes about 25

Pan-Fried Salmon/Trout skewers

Canapés on skewers are always fun and keep the fingers of your guests clean and away from sofas and cushions! Remember to place a strategic receptacle for the dirty skewers once the canapés have been eaten. Placing a clean skewer in the receptacle will automatically inform your guests what it's for.

Ingredients:

5 Salmon fillets. You want to end up with approximately 25 bite size pieces.
3 tbsp basil
3 tbsp dill
3 tbsp parsley
Juice of 2 lemons
Salt and Pepper

To cook:

Cut the fish into the bite size pieces and toss in the herbs and lemon juice. Leave it in the fridge overnight if you have time, otherwise try and give it an hour to marinade. Just before you are ready to serve to your guests, gently fry the fish until golden brown. Thread onto a skewer and place onto a round serving plate. In the middle put some hollandaise sauce in a bowl for decoration but also for those who would like a dip.

Makes about 25

Salmon filo pastry parcels

This canapé probably involves the most time and energy but are well worth the effort. These little parcels can really be filled with anything you like, whatever you have lurking in your larder. I love the crunch of crackling filo against the soft filling inside.

Ingredients:

6 sheets of filo pastry

150g of butter, melted

the filling:

225g cream cheese or parmesan

Garlic, optional

1 tsp tabasco or lemon juice

450g Salmon fillet, flaked

1 tbsp chopped parsley or dill

To cook:

Put the cream cheese, garlic, tabasco, salmon and parsley in a food processor and blitz together. Add seasoning to taste.

Lay out a sheet of filo onto a work surface, brush with melted butter. Cover with another sheet of filo and again brush with melted butter. Cut the sheet of filo into 3 long strips and then again across the middle to make 6. Place a teaspoon of the mixture onto the bottom left corner of a strip of filo. Fold the right hand corner over the top to create a triangle. Continue to fold up the parcel so the filling is completely encapsulated inside the filo. Place onto a butter baking tray and cover with clingfilm.

Keep in the fridge until you are just about ready to serve to your guests. Place them in a preheated oven, 420F/220c/Gas Mark 7 for about 10 minutes. Let them cool down a little bit before offering to your guests because the filling will be too hot to handle.

Makes about 18

Scalereadings

AST's NEW ADDRESS from mid March:

Atlantic Salmon Trust
Suite 3/11
King James VI Business Centre
Friarton Road
Perth
PH2 8DG

Tel: 01738 472032
Fax: 01738 472033

2006 – Activities and People

Another action packed year draws to a close! John Webb has continued to spend most of his time on restoration work, particularly on the West Coast of Scotland, and also provides a constant practical advisory service to fishery managers, proprietors and biologists alike. We welcome Ivor Llewelyn as the new Deputy Director in England and Wales. He took over from Tim Hoggarth in September. As this edition of the Journal goes to the printers, we report the sad death of Tim's wife who fought valiantly against cancer for over two years. Pru was not only a great support to Tim but a stalwart member of the Game Fair team. Tim served the Trust for nine years. Very much a team player he was a most efficient and modernising Company Secretary as well as being the AST's important voice and finger on the pulse in England and Wales.

Ivor comes to the Trust after a long and respected career in the fisheries department of DEFRA and its predecessor. He thus brings a tremendous breadth of experience and knowledge and he has wasted little time in getting round his constituency.

Whilst Seymour, Neil and Ivor move around from river openings to game fairs and to a host of varied meetings, Jenny holds the fort at Moulin. Again she has been instrumental in putting together this year's Postal Auction which contains over 280 donations – a record! Our thanks to the donors, and in anticipation, our thanks go to the bidders as well.

2007 – 40th Anniversary Year

This will be a busy and exciting year for the Trust and the programme of activities is on the inside front cover. We hope to support more research and restoration projects than ever, we are manning, jointly, three conferences/seminars and will celebrate the Anniversary with a dinner on 20th November. We hope, too that the Postal Auction – with its new, limited on-line facility – and the game fairs will be highly successful. Members and supporters are encouraged to help in whatever way they can.

The Move to Perth

The Trust's main office will be moving to Perth in March. The Trust has been at Moulin, Pitlochry since 1985. It was briefly based at John Mackenzie's home, but before that had been in Farnham.

Over the past few years we have found that Pitlochry is not the ideal location geographically for the Trust's activities and we have outgrown the space. The Board took the decision in principle to move the office to Perth when suitable premises could be found.

We will therefore move to a new building on the banks of the Tay below the harbour: The King James VI Business Centre. We move in March and details of the new address feature above.

Membership

The Trust has an elected Membership which until the AGM of December 2005 was limited to 60. There is now no limit and as of the AGM in December 2006 the membership had grown to 89. It is the intention to increase this further whilst taking into account the practicalities of supporting a larger membership.

There are of course over a thousand regular supporters of the Trust to whom we are extremely grateful.

Trust Publications

All publications are free except where indicated. Postage will be charged for packages over £5.

Salmon Stocks: A Genetic Perspective
N.P. Wilkins

Salmonid Enhancement in North America
D.J. Solomon

Salmon in Iceland
Thor Gudjonsson and D. Mills

Atlantic Salmon Facts
D. Mills and G. Hadoke
(Revised May 2003 by R.G.J. Shelton and J.B.D. Read)

The Atlantic Salmon in Spain
C.G. de Leaniz, A.D. Hawkins, D. Hay and J.J. Martinez

Salmon in Norway
L. Hansen and G. Bielby

The Automatic Counter – a Tool for the Management of Salmon Fisheries
A. Holden
(Report of a Workshop held at Montrose, 15-16 September 1987)

A Review of Irish Salmon and Salmon Fisheries
K. Vickers

Scottish Freshwater Fisheries Management Report

Enclosed is a copy of the Scottish Freshwater Fisheries Management Report, produced by the Association of Salmon Fishery Boards (ASFB), Rivers and Fisheries Trusts of Scotland (RAFTS) and the Institute of Fisheries Management (Scotland) (IFM). Recognising the fact that many are confused about which organisation is doing what in Scottish freshwater fisheries, and in an attempt to co-ordinate all our work better, the intention of this report is to try and condense, in one document published 3 times a year, all the news and information that those with an interest in Scottish freshwater fisheries might wish to have access to in as digestible and condensed form as possible. This will complement the new Scottish Freshwater Fisheries Management website – **www.sffm.org.uk** which is being developed and which will become the virtual fisheries centre for information about Scottish freshwater fisheries management issues.

ASFB/RAFTS/IFM would be very happy to send hard or emailed copies of this report to any supporters of the Atlantic Salmon Trust who might have an interest in receiving the report. This will be done free of charge. All that is required is for you to register your name by sending an email, calling or writing to the following address:

Andrew Wallace
ASFB, 2 Hill Street, Edinburgh EH2 3JZ

Tel: 0131 226 4955
Email: a.r.wallace@btinternet.com

Water Schemes – Safeguarding of Fisheries
J. Gregory
(Report of Lancaster Workshop)

Genetics and the Management of the Atlantic Salmon
T. Cross

Acidification of Freshwaters: The Threat and its Mitigation
R. North

Strategies for the Rehabilitation of Salmon Rivers
D. Mills
(Proceedings of a joint Conference held at the Linnean Society in November 1990)

Salmon Fisheries in Scotland
R. Williamson

The Measurement and Evaluation of the Exploitation of Atlantic Salmon
D.J. Solomon and E.C.E. Potter

Salmon in the Sea and New Enhancement Strategies
edited by D. Mills £30.00
(Proceedings of the 4th International Atlantic Salmon Symposium, St. Andrews, New Brunswick, June 1992)

Surveying and Tracking Salmon in the Sea
E.C.E. Potter and A. Moore

Automatic Salmon Counting Technologies – A Contemporary Review
G.A. Fewings

Salmon in the Dee Catchment: The Scientific Basis for Management
A. Youngson
(Proceedings of a one day meeting held at Glen Tanar House, 13 October 1994)

Spring Salmon
A. Youngson

Enhancement of Spring Salmon
edited by D. Mills
(Proceedings of a one day Conference held at the Linnean Society of London 26 January 1996)

Water Quality for Salmon and Trout
J. Solbé
(second, revised edition)

Salmon Fisheries in England & Wales
W. Ayton

The Industrial Fishery for Sandeels
A.D. Hawkins, J. Christie and K. Coull

The Interpretation of Rod & Net Catch Data
edited by R.G.J. Shelton
(Proceedings of a Workshop held at the Centre for Environment, fisheries and Aquaculture Science, Lowestoft November 2001)

Predation of Migratory Salmonids
(Assessment of a Workshop held in Edinburgh on 11-12 April 2000, made by the Chairman, Professor Fred Last OBE)

Trust Shop

Books *(a percentage of the sales of books and the DVD come to the AST)*

The Salmon Rivers of the North Highlands and Outer Hebrides *(signed)*
1st Reprint. Andrew Graham-Stewart £35.00

The Longshoreman *(signed)*
Richard Shelton £12.00

McSalar
Michael Martin £4.00

Richard Waddington 1910-1999 Autobiography
Richard Waddington £18.00

Upon a River Bank *(signed)*
Derek Mills £9.95

Occasional Salmon
Neon Reynolds £9.50

The Fox and the Orchid
Robin Page £5.00

Atlantic Salmon – an Illustrated Natural History
Roderick Sutterby and Dr Malcolm Greenhalgh £25.00

Trout, Salmon and the Evening Rise. The Barometric Breakthrough
Andrew. Bett £19.95

Northern Tails – an Icelandic Fishng Odyssey
Adrian Latimer £14.50

DVDs:

DVD – 'Atlantic Salmon, a life on the edge' (incl. p&p) £18.00

DVD – 'At Sea with the Atlantic Salmon' (incl. p&p) £10

AST TIES (dark or mid blue)
Silk £10.00 Polyester £5.00

Posters and Postcards

"Salmon Recognition"
Posters £3.00

Postcards (A5 size) 50 pence

"Life Cycle of Atlantic Salmon"
Posters £3.00

Postcards (A5 size) 50 pence

"Threats to Salmon"
Posters £3.00

Poems

"The Best Worker in Europe"
Signed by Ted Hughes, with drawings by Charles Jardine £100.00 (incl p&p)

"Lines from Euston (by one who is not going)"
by A.M. Harbord £5.00 (incl p&p)

Prints

"The Junction Pool, River Tweed"
by Shirley Carnt £20.00

Extra copies of the AST's Journal, leaflets and car stickers are available free

To order, contact
Jenny at the Trust's office:
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Telephone: 01796 473439
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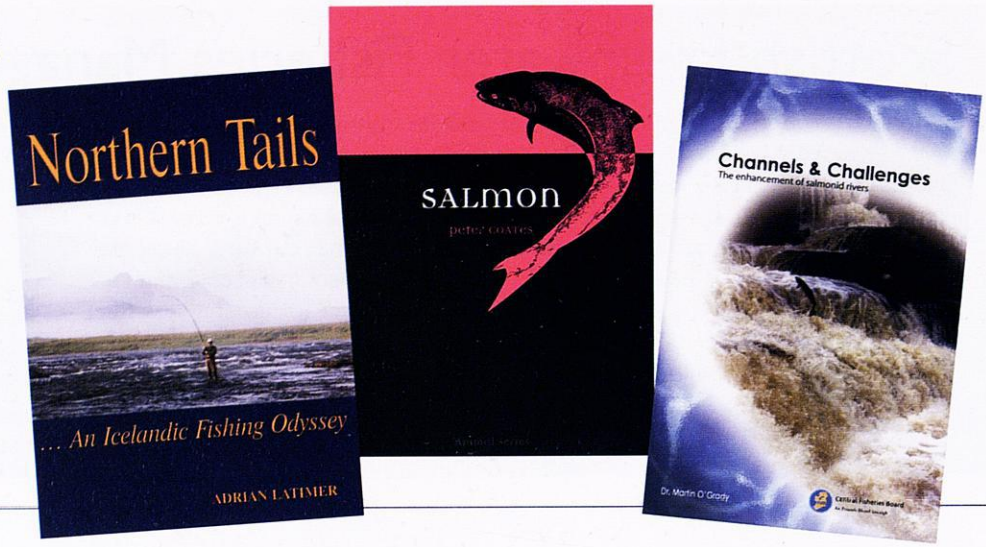
and then at the new address.

Book Reviews



Northern Tails – an Icelandic Fishing Odyssey

Adrian Latimer, 196pp

ISBN 0-9541519-2-5 £14.50

Having visited Iceland eight times and fished a number of its rivers and lakes for salmon, sea trout, brown trout and char I was immediately taken back in time on reading Adrian Latimer's Icelandic odyssey. The author has had the enviable opportunity of fishing in many parts of the world of which the average angler can only dream. However, he shares his experiences and doesn't conceal the discomforts and frustrations he's had to endure – low water, muddy water; gale force winds, uncooperative fish and very wet weather. For all that he catches fish and tells us in his inimitable way how and with what flies.

As I've found in his previous books, his style is not simply a fish-catching narrative but also an arresting account of the scenery, the wildlife, the local people and their history. Iceland is such an interesting country and Adrian conveys his excitement throughout his travels to the various rivers such as the Ranga, Kjarra and Breiddalsa it's been his privilege to fish and also the characters sharing his exploits. He suffers no delusions and draws attention to the threats facing this country's valuable angling resource – salmon farming, hydro-electric development and the fishmongering mentality of worm fishers from various countries that denude some rivers late in the season.

Having read this book I know I must return to Iceland. The only constraint is money. Fishing in Iceland is extremely expensive, but if you can afford it you will have no regrets. Read this book and you will just have to go!

Derek Mills

Salmon

Peter Coates, 216pp

ISBN-13: 978-1-86189-295-9

ISBN-10: 1-85189-295-0

The basic food of the Atlantic salmon alevin (first juvenile stage) is diatoms, salmon parr (older juvenile stage) migrate downstream tail first "so that water does not enter its gills", "The grilse (a sea-run adult salmon that has returned to spawn after a year of sea feeding) is an adolescent male that attains sexual maturity early and makes a precocious attempt to spawn after just a few months at sea." All of these statements are incorrect. Alevins are not herbivores but tiny carnivores especially fond of gnat larvae; when parr migrate downstream tail first (they do it head first as well and they also migrate upstream) they do so to control their descent; not all grilse are male and in no sense are they precocious. The latter distinctions are correctly reserved for the mature male parr that play such an important part in spawning with the much larger sea-run fish. That such myths should be perpetuated in a contemporary text on salmon is surprising, the more so in that it also contains many nuggets of good science, especially with respect to the effect of homing behaviour on racial structuring, on the sparse fossil record of the group to which modern salmon belong and of the dire effects of intensive salmon culture.

Why then did I enjoy reading Peter Coates' book so much and in the process learn a great deal that was new to me? Coates is not a biologist but an historian with a strong and well-informed interest in Man's longstanding fascination with the life cycles of both the Atlantic and the various species of Pacific salmon. It is from the cave art of Altamira in northern Spain that we learn that salmon formed part of the diet and culture of Cro-Magnon man at a time when most of the British Isles were covered with ice. We also learn from the symbol stones of Pictland that salmon were just as important to the peoples of northern Britain long before its inhabitants had joined with invaders from Ireland to form the united Kingdom of Scotland. On the other side of the northern world, the natives of the Pacific North West revelled in the even greater bounty that arrived each year in the mighty rivers alongside which they established their settlements. The common thread that ran through the relationship of the animistic hunter-gatherer communities living alongside the salmon stocks of both oceans was a strong sense of the spiritual interdependence of both fish and Man. Only now is the realisation dawning that what was once interpreted as no more than a primitive delusion that both men and salmon had souls was also the unconscious mechanism that prevented the despoilation of both the resource and its habitat. As Coates so eloquently reminds us, we still have much to learn from our salmon-worshipping ancestors.

Richard Shelton

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Channels and Challenges. The Enhancement of Salmon Rivers.

Martin O'Grady, 142pp

Irish Freshwater Fisheries Ecology and Management Series: No. 4

Central Fisheries Board, Dublin, Ireland.

The amount of food and space available in the rivers for spawning and development to smolthood sets a strict upper limit on the abundance of wild Atlantic salmon resources. If it is not entirely true to say that, "Look after the rivers and the fish will look after themselves," it is certainly a fair measure of it. How though do you look after a river on behalf of the salmon? How especially do you restore and enhance the smolt-producing capacity of a river degraded by industrial and agricultural development? Rather a lot of us think we know but fewer of us have given our theoretical ideas practical expression.

Among this select company, no-one has achieved more than that splendidly enthusiastic man of action, Dr. Martin O'Grady, leader of the Irish Fisheries Enhancement Programme from 1994 to1999. His objective throughout was not to try and put the clock back to an imagined pristine past but to use our increasing knowledge of the habitat requirements of salmonid fishes to make the best of the fresh waters of today. His results have been impressive and in his, *Channels and Challenges*, he shows us precisely how he achieved them. Baseline survey, identification of bottlenecks to juvenile production, practical action and finally cool evaluation of the results, it's all there, in simple English and with the clearest of illustrations. He has much to teach us.

Richard Shelton

Fundraising

Record funding and direct support initiatives in 2006-07, but we urgently need to increase our project funding and we need YOUR help!!

Neil McKerrow, Deputy Director (Finance)

OUR CASE FOR SUPPORT

1 **The Atlantic Salmon Trust is the only charitable body exclusively devoted to research and restoration of wild salmon and sea trout stocks on a national and international basis.**

2 **The Atlantic Salmon Trust** liaises, supports, and provides advice on an independent, scientific and practical basis to governments, national authorities, wildlife and environmental organisations, as well as still-water and river proprietors, managers and biologists.

3 **The Atlantic Salmon Trust** funds numerous research projects in the UK and Ireland, and in international marine waters. It participates in international initiatives and research.

4 **More funding** is desperately needed now to support worthwhile marine and freshwater projects. These are reviewed by the Trust's Honorary Scientific Advisory Panel, whose expertise is widely acknowledged.

WE HAVE INCREASED OUR RESEARCH GRANTS FOURFOLD THIS YEAR, BUT THERE ARE MANY MORE WORTHWHILE PROJECTS FOR WHICH FUNDS ARE REQUIRED!

OUR TRACK RECORD

The Journal records elsewhere the variety of projects and research funding currently provided by the Trust. Last year the Trust, directly or indirectly, contributed £170,000 towards salmon and sea trout research and restoration in grants, scientific expenditures, or scientific and management time. Direct grants were more than twice the level of previous disbursements.

THE YEAR 2006-2007 SO FAR!

Our Expenditures

This year the Trust has encouraged as many worthwhile projects as possible to come forward for consideration by the Trust's Honorary Scientific Advisory Panel. Following their April review, twelve such projects have been supported so far this year, and these are detailed elsewhere.

Funding for Marine Research remains in place, but a disappointing lack of available ship time has temporarily stalled expenditure on this all important initiative. The Trust remains actively involved in stimulating action in various governmental and departmental fora!

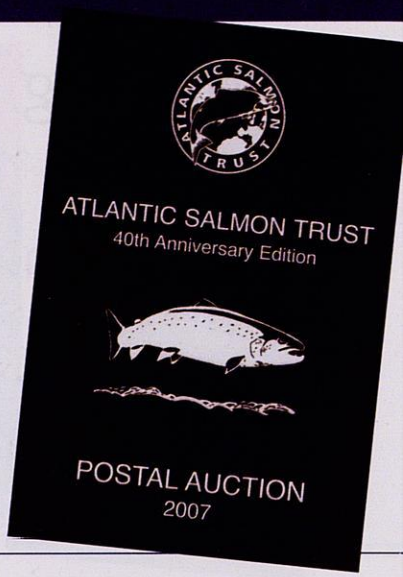
Marketing costs have increased by the cost of producing the Trust's DVD outlining the scope of the Marine Project sea-trials and initial research findings – copies are still available for purchase from the Trust!

Our Income

Income from gift-aided contributions and donations is well ahead for the six months. It is encouraging to note that we are experiencing an increase in the number of our supporters and in the amounts being contributed. Our donor base remains most loyal, and a number of individuals have made very generous donations this year. The Trust is also most grateful to all those who have introduced new supporters and helped spread the word, and to those who have increased their financial contributions. Sales of promotional items and publications are also on the up, no doubt reflecting successful attendances at game fairs, and support from members and the general public alike.

Looking ahead!

There are no grounds for complacency – the principal fundraising activity of the year remains the Annual Postal Auction which is now in full swing with a record number of fishing lots generously donated for sale. This year's Auction includes an electronic-bid option which we hope will meet with interest and a positive response. On the threshold of the Trust's 40th Year, we are anxious to provide support to as many valid projects and research activities as we possibly can, as well as publicising our activities in seminars and other public events. Details of this year's programme appear elsewhere in the Journal. We hope to welcome as many supporters as possible to these events!



*Did **you** take part?*

YOUR SUPPORT – PLEASE!

You can help us by making a Gift Aid Donation, no matter how small. Some examples of current costs and projects are given below:

£15,000 – cost of a privately hired research vessel in North Atlantic for one day

£10,000 – major research project on salmon genetics or predator/ wild fish interaction

£5,000 – research project on river restoration or fish farming impact on water system

£1000 – practical advice or training by the Trust's Field Research Biologist over 2/3 days

£300 – one day's practical advice on river bank management

AS A SUPPORTER

You can help us in one of a variety of ways:

Make a Donation by Gift Aid

The form is on the facing page. The Trust can reclaim Income Tax. Higher Rate Tax Payers can obtain the benefit of additional relief.

Donations can be made by single donation or by Banker's Order.

Make a gift of shares to the Trust

You can claim Income Tax relief on their value, and will be exempt from any Capital Gains Tax charges.

Sponsor the Trust or a specific project

These currently include:

Cumberland Eden Project
Moray Firth Seal Management Project
Shieldaig Seatrout and Seal Project
Marine Research into Salmon at Sea
Frome Improvement Project
Orkney Sea Trout Project
Sexual Selection/Sperm Competition in Salmonids
Stream Habitat Project (*with Game Conservancy Trust*)
River Mersey Fish Pass
River Slaney Fish Counter
Loch Feochan Genetics Project
15th International Salmonid Conference and ART Award

For fuller details of projects please call Seymour Monro, Dick Shelton or Neil McKerrow.

Make a legacy to the Trust

Bequests to charities

Giving a Legacy – Your Will could express a donation in various ways, eg. The gift of a specific sum of money, a gift of specific assets (such as shares), or a gift of all or a specific part of the balance of your estate once all other legacies (eg. to the family) are taken account of. This is known as the 'residue'.

Bequests to charities are deducted from the total value of the estate before the calculation of any inheritance tax therefore reducing the total inheritance tax payable.

If you would like to leave a legacy to AST by changing your Will please consult your legal and financial advisors.

Some families invite friends to leave the Trust donations in memory.

If you would like to leave a legacy to the Atlantic Salmon Trust please contact our Financial Director, Neil McKerrow, who will be very pleased to advise further.

Being a Supporter will secure you a copy of the Journal which is produced twice a year, as well as access to publications and research findings. Above all, you can be sure in the knowledge that you are assisting a most worthwhile cause.

PLEASE DONATE – AND ENCOURAGE OTHERS TO DO SO!!

Leaflets and other publications can be supplied for fishing huts and beats !!

Gift Aid Declaration and Banker's Order Form

THE ATLANTIC SALMON TRUST – GIFT AID DECLARATION

PLEASE COMPLETE IN BLOCK CAPITALS, EXCEPT FOR SIGNATURES

Title Forenames Surname

Address

Post Code e-mail

I would like the Atlantic Salmon Trust (Registered Charity No 252742) to treat as a Gift Aid Donation this and all donations I make from the date of this declaration until I notify the Trust otherwise.

Signature Date

EXPLANATORY NOTES:

- You must be a taxpayer to make a valid Gift. The total of income tax and capital gains tax payable by you in each year must be at least equal to the tax recoverable on all your Gifts.
- For every £1 donated under Gift Aid, the Atlantic Salmon Trust can recover a further 28p.
- Higher rate tax relief can be claimed by you on Gift Aid Donations.
- A Declaration can be cancelled at any time by notifying us. It must cease if you no longer pay tax.

A. Cash donation. I enclose a cheque in the sum of £ made payable to the Atlantic Salmon Trust

B. To make a series of donations, which will be of great help in allowing the Trust to budget for work in future years, please complete the Banker's Order below.

BANKER'S ORDER

To The Manager Bank Plc Sort Code

Branch Address

Post Code

Please pay to BANK of SCOTLAND, 76 Atholl Road, Pitlochry PH16 5BW (80-09-41) for the credit of

THE ATLANTIC SALMON TRUST LIMITED (Account No 00890858) the sum of £ _____ (_____ pounds)

on the _____ day of _____ 20___ and a like amount on the same day each month/quarter/half year/year

(delete as appropriate) (a) until I give you notice in writing OR (b) for a total period of _____ years.

Account to be debited A/c No Account name

Signed Date

Full Name A/c No

Address

Post Code

PLEASE RETURN THIS COMPLETE DOCUMENT TO THE ATLANTIC SALMON TRUST, MOULIN, PITLOCHRY, PERTHSHIRE, PH16 5JQ

Governance

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The Lord Moran
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Mr Neil McKerrow

Deputy Director:
Mr Ivor Llewelyn

As at 1st january 2007

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K. Whelan, B.Sc., Ph.D. (The Marine Institute of Ireland and President, NASCO)
J. Webb, M.Sc. (AST Field & Research Biologist)

Observers:
N. Milner, B.Sc., Ph.D. (Environment Agency)
J. Armstrong, B.Sc., Ph.D. (FRS, Freshwater Laboratory)
A. Moore, B.Sc., Ph.D. (Centre for Environment, Fisheries and Aquaculture Science)

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Atlantic Salmon Federation (ASF) (Canada)
Atlantic Salmon Federation (ASF) (USA)
Association Internationale de Défense du Saumon Atlantique (AIDSA) (France)
Association of Salmon Fishery Boards (ASFB)
Association of Rivers Trusts (ART)
Countryside Alliance
Fishmongers' Company
Game Conservancy Trust (GCT)
North Atlantic Salmon Conservation Organisation (NASCO)
North Atlantic Salmon Fund (NASF) (UK)
Rivers and Fisheries Trusts of Scotland (RAFTS)
Salmon & Trout Association (S&TA)

AST Tent, Scone: Neil McKerrow, Dick Shelton, Seymour Monro, Sarah Bayley (RAFTS) and Robert Clerk

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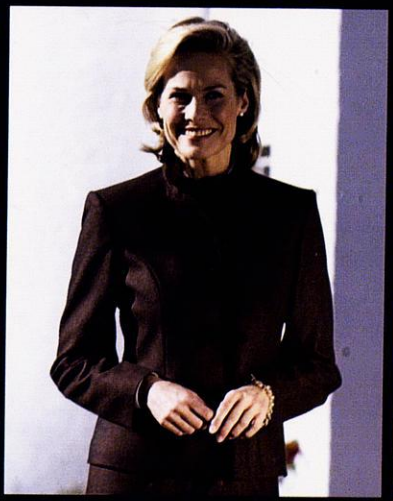


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