# 2012
ANNUAL REVIEW

## ASSOCIATION OF SALMON FISHERY BOARDS
(ASFB)

## RIVERS AND FISHERIES TRUSTS OF SCOTLAND
(RAFTS)

# Introduction

ALAN WILLIAMS - *Chairman, ASFB*

I am pleased to introduce our fourth annual review and delighted that it is produced jointly with RAFTS for the second year running. In much of Scotland the District Board and Trust or Foundation are synonymous and, in my view, the stronger for it.

The review gives us the opportunity to look back over a year that was generally good for multi sea winter fish but poor for grilse. We have now experienced significantly reduced grilse numbers in two of the last three years. On my home river, the Spey, it is necessary to go back to the early 1970s to find two comparably poor grilse years and, inevitably, this begs the question of a longer term change in the migratory patterns of salmon.

During 2011 ASFB has been developing a Code of Good Practice to ensure that the Boards are viewed as 'fit for purpose' in their statutory responsibilities. Alan Wells has settled in to his new role as Planning and Policy Director of ASFB and, in April, Andrew Wallace vacated his previous position as Managing Director of both ASFB and RAFTS. I am pleased that Andrew continues his involvement with fisheries as Chairman of RAFTS and that he co-introduces this review. He has been the lynchpin for both the ASFB and RAFTS and it is to the advantage of us all that his experience continues to be available.

2012 will see a new Aquaculture and Fisheries Bill being brought forward at Holyrood, which will occupy much of our energy. However, in Alan Wells, I believe we are suitably resourced to meet this challenge. I also recommend a visit to the ASFB's new website to view our Policy Papers on a number of key issues.

Finally I would like to thank our sponsors – Strutt & Parker and Gillespie MacAndrew – for their support with this review, and to the Fishmongers' Company for their valuable role in Scottish fisheries management. In conclusion I wish all of our rivers a successful season in 2012.

ANDREW WALLACE - *Chairman, RAFTS*

RAFTS made significant progress in 2011 but, given the current problems facing all walks of public life, no organisation can afford to be complacent. Much of that progress has its origins in the firm foundation laid down by our founder chairman, Roger Brook, who stood down last March, after six years which saw RAFTS grow from a handful of disparate Trusts into the national network we see today. We owe Roger particular thanks for all the hard work and energy he has put into RAFTS and, thankfully, for his continuing help with the cause.

As well as Roger, others have been vital in ensuring RAFTS's success. Callum Sinclair's considerable organisational skills have had a game-changing impact in conjunction with his team – project development manager Dr Chris Horrill, working with Elizabeth Clements, Hollie Walker and her invasives staff. Equally Mark Coulson and Anja Armstrong have been doing ground-breaking work on salmon genetics; Diane Kennedy and Donna-Claire Hunter have been running the aquaculture 'managing interactions' programme; and the staff we share with the ASFB – Brian Davidson and Stephen Harris – have helped to hold the whole thing together.

RAFTS' success is also reliant on the commitment and enthusiasm of its members – and we therefore owe a huge debt of gratitude to the network of 25 member Trusts and all the professional and volunteer staff that make those organisations work.

Furthermore RAFTS' future is now inexorably tied up with the three main Government bodies from whom we have had so much support – the Scottish Government itself, Scottish Natural Heritage and the Scottish Environmental Protection Agency. It is with these, and other, organisations – such as the ASFB and our sister organisation, The Rivers Trust in England and Wales – that we have developed the inspiring partnerships that have enabled national-scale co-ordinated projects to thrive in so many of our priority areas.

The future of RAFTS lies in our ability to continue to develop these relationships and to continue to deliver ever larger and more complex projects that help to improve our freshwater catchments, on time and on budget. This has been, and will remain, our main priority.

*ASFB/RAFTS acknowledges and thanks the following for their support of their work:*

Worshipful Company of Fishmongers

*Editorial consultant: Rob Fletcher*
*Editorial assistance and images: Andrew Graham-Stewart*

# Partnerships: from co-operation to co-ownership

JAMES CURRAN - *Chief Executive Officer, Scottish Environment Protection Agency*

When I started my professional life, most people worked in individual offices and a tea trolley would come down the corridor. Now it's all open-plan and water-cooler conversations – our culture has radically changed and the latest ambition is to have 'co-ownership' of problems rather than mere collaboration or co-operation, which are both definitely deemed out-of-date.

My take, is that sustainable development is all about breaking down barriers that constrain thinking, about bridging gaps between traditional disciplines, professions and job roles, and creatively exploring the space that lies between. It's only there that we'll find the solutions to our modern problems and deliver multiple benefits to the environment, people and wellbeing. So, for me, partnerships are essential for the future.

SEPA isn't complimented too often, but people do mention that we have in the past – and continue to – be good at creating partnerships. I'm often impressed by the technical ability of our staff, especially when it's allied to an ability to communicate, explain and work alongside others.

*'The Riverfly Partnership can help SEPA to detect any possible pollution problems and then take appropriate action.'*

So, what kind of things am I thinking about? Well, this way of operating is exemplified by the Scotland's Environment Web project (SEWeb) – a Scottish Government initiative which SEPA is co-ordinating and is funded by the European LIFE+ Programme. It aims to create a network in Scotland which provides, presents and draws on the whole collection of environmental, social and economic information which will allow us all to understand much more about our ecosystems, how they support our society, and how essential they are to sustain our lifestyles.

The network is already up and running and the website, called Scotland's Environment, is now live, but several elements will grow much further in future. One example, which I'm personally enthusiastic about, is 'citizen science'. This would encourage everyone and anyone in Scotland to make observations of the environment and submit them online – creating a wealth of background information which would be impossible to collect any other way and, at the same time, providing a hugely valuable resource for various organisations to act on.

This has to be done alongside third sector organisations which already have experience of getting volunteers involved, and are perhaps much better at motivating individuals than SEPA is. We already use volunteers to measure rainfall and snow depth to help us provide flood warnings, and volunteers have also given us precious samples of volcanic dust during the past two Icelandic eruptions.

In the sphere of fisheries perhaps the best example of citizen science is the Riverfly Partnership, which is run by Buglife, RAFTS and SEPA. Through the initiative anglers are encouraged to take samples of river bed gravel and then identify the insects these contain. If their findings are reported quickly to SEPA we can then detect any possible pollution problems and take appropriate action.

Anglers are, admittedly, already interested in looking after their rivers, but similar approaches using public volunteers to measure factors such as soil quality, air pollution and flooding will certainly encourage them to understand, appreciate and look after their environment. At the same time, huge amounts of valuable data can be collected.

Another good example is the Biosecurity project, again led by RAFTS and involving many other organisations – including SEPA and SNH. This will deliver whole catchment assessment of invasive non-native species which have to be tackled under the Water Framework Directive. These invasive species, such as Japanese knotweed or signal crayfish, can be enormously damaging to our native wildlife but, because they are so widespread, it's a mammoth task to map them out and then to take co-ordinated (or should I say collaborative, or co-owned?) action.

The British Trust for Conservation Volunteers in Scotland (BTCV), which is funded jointly by ourselves, the Scottish Government and SNH, is running a programme called Scotland Counts, which seeks to widen out volunteer observing through NGO partnerships, to get people excited about observing and also caring for our surroundings.

At a recent conference I attended one of the best talks of the day was given by the Scottish Flood Forum, a third sector organisation which helps individuals – before, during and after a flood – to understand what has happened and how to minimise the stress, anxiety and cost of floods in the future. That's a job that is completely supportive of SEPA's flooding work and something we could never do alone. It is also co-ownership in action.

Future citizen scientists. Photo: Galloway Fisheries Trust

# RAFTS news

CALLUM SINCLAIR - *Director, RAFTS*

RAFTS has had another busy year in 2011, with many changes in our staff, numerous new projects starting or being planned, and the need to maintain existing projects as we go. Some of the major activities and issues of 2011 are summarised here.

## Changing financial context

It is clearly a difficult time to work in the public sector, as austerity measures begin to cut jobs and shrink budgets, while many of the legislative obligations carried by public organisations remain the same. Paradoxically these straitened times may, however, provide additional opportunities for RAFTS and its members to work in genuine partnership with public sector organisations in those cases where legislative obligations and freshwater management interests coincide.

We have already worked with SEPA on the provision of fish survey data to support Water Framework Directive (WFD) classifications and, on an on-going basis, regarding obstacles to fish passage; we have collaborated with SNH on Site Condition Monitoring for Special Areas of Conservation (SACs) for Atlantic salmon and on mapping crayfish distribution; and acted with the Scottish Government and Marine Scotland on fishery management planning and aquaculture. There are likely to be further opportunities for working in partnership with these organisations – and others – perhaps borne out of financial necessity, in the future.

The counterbalance to the possibility of additional centralised funding opportunities becoming available to fisheries Trusts, through RAFTS, is that local budgets and funds previously available to individual Trusts are increasingly thin on the ground. This may be an inevitable consequence of the financial situation funders and partners find themselves in – with budgets being drawn to central hubs where the view, rightly or wrongly, is that they can be administered more efficiently.

We understand the frustrations this change can cause to our members, but the reality of the situation may well be that the need for an effective central point of contact for funders and partners is more necessary and essential now than ever before. At the end of the day, as long as sufficient funds reach the local fisheries Trusts to allow them to carry out their roles, we, as a sector, should be content. The reality is that, in many instances, there is no choice but to operate in this way. Of course, this should not prevent member Trusts from seeking and securing funds in their own right; but they should be aware that some funds previously available might not be on the table in the same way.

## New projects, new people, new challenges

The RAFTS staff doubled in size in 2011, largely due to the recruitment of project staff associated with the Scottish Mink Initiative (reported by Hollie Walker on pp11-12) and the Managing Interactions Aquaculture Project. Both of these schemes have challenged RAFTS and its members to work together to deliver new objectives and to integrate new and dispersed staff into our team. As I write RAFTS has 14 staff, based in 10 locations, and so there is a logistical job to do to ensure good management and governance of projects and staff. This is a challenge to all and we are working hard to improve co-ordination.

We have also been working hard to progress and develop new projects. There are too many ideas to report properly here, but amongst the most significant are:

- The development of a process to prioritise obstacles to fish passage to secure WFD Restoration Fund support (reported by Elizabeth Clements on p15) which will stimulate an on-going stream of applications to that fund.
- Working with SNH on the submission of a LIFE+ application associated with SACs designated for freshwater pearl mussels (news on this is anticipated in first half of 2012).
- The on-going development and submission of invasive non-native species-related applications to the WFD Restoration Fund; implementation of Interreg IVA invasives project in the South of Scotland and with Irish partners; and the gestation and formulation of a prospective new LIFE bid for invasive species management in 2012.
- Development of new proposals to the Government in order to maintain momentum behind fishery management planning, aquaculture / wild fish interactions, genetics and the Strategic Framework for Scottish Freshwater Fisheries.

All of these new schemes take time to construct and RAFTS tries hard to find a balance between new project development and current project delivery. It is a difficult balance to find, however, and we are grateful for the flexibility our members and project partners allow us.

## So who really does the work?

We are lucky in RAFTS, and in the fisheries Trust network itself, to have a staff resource of high quality, of boundless enthusiasm and commitment, and of great flexibility. It is this resource that makes RAFTS and the Trusts viable partners and, together, an attractive vehicle to deliver a wide range of activities with, and for, others. It is this resource, distributed around Scotland and in places other organisations simply cannot reach, that we must promote through new projects.

RAFTS thanks its entire current staff, those who have left us in 2011 – notably Anja Armstrong from the FASMOP Genetics project – and the staff of each of our member Trusts for their patience and commitment to the cause. Without this army of enthusiasts the freshwaters of Scotland would surely be less well protected, managed and cared for.

Given the changing financial context, we need to work effectively, efficiently and in priority areas – by geography or subject – to achieve the best results for our freshwaters, their species and their habitats. It is a combination of RAFTS and its members which we believe will provide the best opportunities to deliver vital ecological improvements across Scotland.

And it is the combination of the national consistency and co-ordination provided by RAFTS, working alongside a professional network of Trusts to offer local expertise, which will ensure that the Trust network across Scotland remains in good health. If we can do this, our freshwaters, fish and fisheries will be better off.

# RAFTS news
*continued…*

## Communications (in partnership with ASFB)

In 2011, RAFTS and ASFB launched updated websites: **www.rafts.org.uk** and **www.asfb.org.uk**. Together, these will form a valuable resource for those involved at the front line of freshwater fisheries management in Scotland.

In keeping with the close working relationship between the two organisations, the two sites are carefully integrated, with news and events from across the network co-ordinated between the sites. News is also circulated via a new joint electronic newsletter and a joint Facebook page (Asfb-Rafts). The Facebook page was first used to highlight those candidates in the 2011 Scottish parliamentary election who signed a pledge committing to protect wild salmon and sea trout. In total 50 candidates signed the pledge, of which 19 were elected. Most recently, ASFB and RAFTS have joined Twitter – find us at **@asfb_scotland** and **@rafts_scotland**. In 2012, thanks to a grant from The Fishmongers' Company Scottish Special Projects Fund, we will further refine our communications strategy, develop the websites and newsletter, and provide specific media training for our respective members.


Pages from the new look websites


# ASFB news

BRIAN DAVIDSON - *Operations Director, ASFB & RAFTS* and DR ALAN WELLS - *Policy and Planning Director, ASFB*

## Policy development

During 2011 ASFB completed policy papers on mixed stock fisheries and carcass tagging and is currently in the final stages of preparing a policy paper on aquaculture, in conjunction with RAFTS, which will include specific guidance on dealing with applications for aquaculture developments. ASFB and RAFTS are also in the final stages of completing guidance on dealing with applications for terrestrial windfarms and the Association has completed guidance in the use of the standardised bailiff's notebook, salmon and freshwater fisheries legislation and offences, and undertaking appropriate assessments for introductions of salmonids into SAC rivers. These documents will be available on the two websites during 2012.

## Affordable angling opportunities

Following the award of a grant from The Fishmongers' Company Scottish Special Projects Fund, ASFB is developing a project to demonstrate Scotland's impressive range of good value salmon fishing. The main aim of this project is to provide factual information to the public, politicians, anglers and others, in order to counter the generally held, but erroneous, perception that salmon fishing in Scotland is expensive, exclusive and available only to a small and affluent section of society.

As with many other recreational and sporting activities, some salmon fishings at the top end of the market will always attract a premium cost, and this tends to reinforce the existing perception. The aim of our project is to produce a website and associated database demonstrating the range of affordable and publicly accessible salmon fishing. The site will not be a marketing tool for individual fisheries, nor will it be a place where fishing can be bought. It will not compete with other sites, and we believe that it will complement a number of other initiatives being run to promote access. We believe that this will be a very useful resource for both the ASFB and individual Boards to demonstrate that salmon fishing is widely available at costs to suit all pockets.

## Carcass tagging

In July the DSFBs applied to Scottish Ministers for compulsory carcass tagging of all net-caught salmon and sea trout. The proposal is for a mandatory, uniquely numbered scheme for all wild salmonids offered for sale.

Similar schemes have also been in operation in the Republic of Ireland since 2001, Northern Ireland since 2002, and England and Wales since January 2009. The latter ensures that all salmon and sea trout caught legally by means other than angling are tagged with uniquely numbered Environment Agency carcass tags. They must be attached immediately after capture and remain attached until the fish are processed. Details of

the fish and the tag reference numbers must be recorded in an annual log-book and returned to the Environment Agency at the end of the year.

We await an official response from the Scottish Government, but in the meantime the consultation on the Aquaculture and Fisheries Bill includes proposals for Scottish Ministers to have powers to introduce such a system in Scotland.

## Offshore energy

As highlighted in last year's review, a number of proposals for offshore renewable energy are now underway. All of the proposed sites have the potential to affect migratory salmonids, but the extent of the effects of both construction and operation on migratory fish are unknown. ASFB has attended meetings with many of the Boards and Trusts potentially affected by developments in the Moray Firth and the Forth Array, to highlight the information gaps to the developers involved. These include: marine migration routes and marine habitat usage of salmon and sea trout; and the potential effects of interactions with the developments and infrastructure, during construction and during operation (electromagnetic fields, noise, vibration, loss of feeding habitat and/or prey species, aggregation of predators). Marine Scotland has published a Research Implementation Strategy, which will investigate the effects of electromagnetic fields on salmonids and evaluate generic methods for assigning fish caught in coastal zones to river of origin and the options for establishing the migration routes of Atlantic salmon in coastal areas.

By filling these information gaps and ensuring appropriate pre-development survey and post-deployment monitoring there is the potential for developments that don't compromise the protection of these iconic species and the associated local economies. However, as things currently stand, it is almost impossible for DSFBs to assess the risks such developments pose.

## Enforcement and training

ASFB continues to enjoy a productive and practical working partnership with the Institute of Fishery Management's (IFM) Scottish branch. Considerable economies of scale and the sharing of expertise have been made possible through this arrangement, with our focus on strengthening the enforcement capability within the Board network and providing relevant training, tools and guidance to bailiffs, Boards and others. The annual bailiff's conference continues to go from strength to strength, and this event now attracts a solid following from Boards, their bailiffs and a range of other agencies involved in law enforcement – both in fisheries and the wider field of wildlife crime.

The ASFB and IFM have collaborated on the delivery of an industry-specific bailiff training course and the latest version of this was launched in January. This accredited course serves as the entry level requirement for those appointed to exercise powers of enforcement and provides an assurance that those exercising these powers have a demonstrable standard of knowledge and expertise. Further work has been undertaken to ensure consistency of approach, including standardised offence reporting notebooks and specific guidance on new legislation.

ASFB is a member of the Partnership Against Wildlife Crime and specifically contributes to the Poaching Subgroup. The remit of this group aligns very neatly with a number of the enforcement priorities for the Association, and this has helped facilitate contact with the operational and intelligence personnel within the National Wildlife Crime Unit. Forthcoming work arising from this will include the development of guidance to facilitate communication with local wildlife crime officers – including advice on how intelligence on illegal activity should be appropriately recorded and shared. Wider benefits have also arisen from this collaborative work, one of which is the classification of fish poaching within the broader definition of wildlife crime. This has been extremely useful in ensuring that poaching remains a national wildlife crime priority and, at least at a political and policy level, will be considered integrally with other environmental and wildlife crime.

Fixed engine nets near Montrose. Photo: Alan Wells

# The importance of good governance

BRIAN DAVIDSON - *Operations Director, ASFB & RAFTS*

The DSFB network varies significantly in complexity and scale, with individual Boards differing hugely in geographical size, income, staff resources and expertise – depending on the scale of each district and the value of its fishery. This variety is a key strength of the Scottish system and allows the Boards to respond to their unique challenges, in marked contrast to unwieldy 'one size fits all' structures which can be unresponsive to local issues.

While the concept of devolved fishery management tends to be locally appropriate it does, however, present some challenges, and can lack uniformity in approach on a range of small – but critically important – legal and constitutional practices.

As a result we launched a Code of Good Practice at the end of 2011, which aims to provide a relatively simple road map to guide Boards and Trusts through their complex array of legal obligations.

For Boards these obligations are set out in the salmon fisheries legislation; for Trusts in Scottish charity and company legislation. The Code provides consistent guidance on the legal operation of our members and, beyond that, the promotion of good practice in terms of sound corporate governance.

Irrespective of size, all Boards are legally governed by the same Act of Parliament. Although privately funded, the fact that Boards hold powers conferred by Parliament means they have a public obligation to use these powers consistently and responsibly.

*'While the concept of devolved fishery management tends to be locally appropriate it does present some challenges, and can lack uniformity in approach on a number of crucial issues.'*

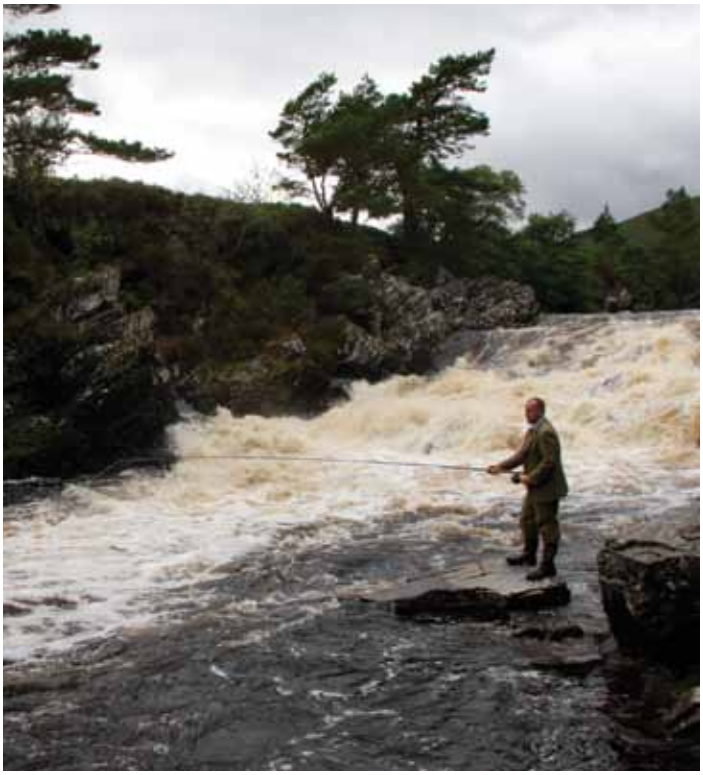
Trusts are not governed by specific statutes, although many have a company structure and all are charitable organisations. This means that they are governed directly by charity and company law, via the Office of the Scottish Charity Regulator (OSCR) and Companies House. Individual Trusts have an individual and corporate responsibility to report their legal operations – such as accounts, directorships and the filing of other constitutional details – with these respective regulators.

The Code will provide guidance on a wide range of matters for Trusts – including the roles, responsibilities and legal obligations of trustees and directors, their financial operations, the disclosure processes for staff and many other areas.

The Code is also well timed because governance within our network is currently receiving wider attention – the consultation on Scotland's Aquaculture & Fisheries Bill proposes that the Boards are bound by a non-statutory, sector-developed code, which is precisely what we have developed. More specifically, the consultation suggests that the Code might include recommendations for DSFBs to hold public meetings, publish minutes, reports and accounts, and engage in consultation with other stakeholders on certain matters.

The Code, in the main, provides a framework to help our Boards and Trusts fulfil their legal requirements. More widely, it will also provide public confidence that fishery management in Scotland has a strong legal and constitutional foundation. This will ensure a secure and stable platform from which our individual members can look beyond minimum legal requirements, and continue to develop innovative ways to manage Scotland's precious freshwater resource.

Irrespective of the outcome of the current legislative proposals, ASFB and RAFTS remain fully committed to ensuring that the promotion of good governance values within our network receives a high priority.



Fishing the Oykel in spate. Photo: Andrew Graham-Stewart

# Genetic testing of stocking effects on the River Spey

DR MARK COULSON - *Molecular Geneticist, RAFTS* and ROGER KNIGHT - *Director, Spey DSFB and the Spey Foundation*

## Hatcheries

Hatcheries continue to play a significant part in fisheries management. Often, they can be seen as a first option when salmon stocks are in decline. However, stocking practices and the reasons behind stocking may take place for a variety of reasons (as is elaborated by Alastair Stephen on p8) – with either reintroduction, rehabilitation, enhancement or mitigation in mind. While genetics is playing an increasingly important part in stocking practices, it also provides the opportunity to examine the effectiveness of hatchery contribution to wild stocks.

## Parentage testing in the River Spey

By applying 'paternity testing' techniques to rod-caught fish, with genetic information from the hatchery broodstock, it is possible to determine the proportion of rod-caught adults that were reared in the hatchery. This can allow accurate calculations on the economics of running a hatchery and reveal how much each hatchery-reared rod-caught fish costs the Board.

The genetic approach used for the Spey hatchery is very similar to those used in forensic science to solve crimes or used in cases of human paternity testing. We screened 17 different genetic markers for each individual. An individual salmon has two copies of each marker, one inherited from each of its parents. By comparing the make-up from each individual at these markers we can build a picture as to the genetic relationships between any offspring and any potential parents. This allows for completely unique, individual-specific, genetic profiles to be created. The result is an ability to identify any actual parents with very high certainty and exclude other individuals as parents.

## Summary of the results

A genetic profile was determined for each individual fish that had passed through the Spey hatchery as part of the Stock Enhancement programme, as well as samples from hundreds of rod-caught adults. The main focus of this research was on the 578 rod-caught samples from 2009 and 2010, which were cross-referenced back to the hatchery broodstock of 2004 and 2005. Analysis was run to determine if any of the broodstock could be assigned as a parent to any of the rod catch. In addition to the genetic profiles, the Spey hatchery had also kept detailed breeding records as to which individuals were crossed in the hatchery. This proved very useful in corroborating any cases where both parents of a rod-caught individual were traced back to the hatchery. In such cases, breeding records confirmed the genetic pairs of parents.

On average, the proportion of the rod catch for 2009 and 2010 that could be traced back to the hatchery was approximately 0.5%. Such a proportion, applied to the total rod catch for the river (with a 5-year average catch between 2007-2011 of 9,610 salmon and grilse), results in a contribution of about 50 individuals coming from the hatchery. It should be noted that the two sea winter fish which emanated from the 2005 broodstock samples would only have returned in 2011, assuming that these fish had spent two years in the river as juveniles. This latter year could not been screened for the genetic markers and has not therefore be included in the results. Finally, 34 adults trapped below Spey dam were screened and none of them could be attributed to coming from the hatchery, despite considerable stocking above the dam.

## Management implications

The main aim of the Board's Stock Enhancement Policy is to maximise the number of smolts from the Spey catchment that go to sea, following an apparent increase in marine mortality and impact upon the number of fish returning to the catchment (as stated in the Board's 2002 Annual Report). The Board utilised two hatcheries, one owned and operated by the Board and the other by Tulchan Estate, under the supervision of the Board. In 2011 just over 1 million salmon fry were produced at these two hatcheries, although production was previously more than double this figure.

During 2011 the Spey Board undertook a total review of its Stocking Policy and Practice. The result was a reduction in the numbers of fish which will be stocked in 2012. Full details of the new Stocking Policy and Practice and the reasons behind the decision can be found in the Board's 2011 Annual Report, which is available at **www.speyfisheryboard.com**

Top: Conon hatchery. Photo: Alastair Stephen. Above: Releasing a fish. Photo: Andrew Graham-Stewart

# Catch and release compared to stocking

DR ALASTAIR STEPHEN - *Scottish and Southern Energy and IFM*

Stocking and catch and release (C&R) are two possible methods by which fishery managers can attempt to increase salmon populations. However, as these options tend to polarise opinions, it is worthwhile to actually examine some of the facts and figures associated with them. And, despite being involved with one of the country's largest hatcheries – on the Conon – I hope to show that voluntary C&R has more of a role to play than the vast majority of hatcheries.

There are four main circumstances when stocking is considered:

1) For *RESTORATION* after a population has become extinct. An example might be to restore a stock following a major pollution incident, or to kick-start a population where a man-made barrier has been removed.
2) For *REHABILITATION* where it is thought a river can produce more fish and is not at its carrying capacity. The majority of stocking in Scotland probably falls into this category.
3) For *ENHANCEMENT* of existing natural production. It is recognised that the carrying capacity of the river has been reached but, by adding artificially-reared smolts, this will add to the adult return.
4) To *MITIGATE* lost natural production due to an activity that cannot be removed, such as a large hydro generation scheme.

It is acknowledged that carefully evaluated stocking projects can have a beneficial effect on salmon production, especially for restoration or mitigation purposes. The Conon, for example, has been permanently affected by hydro development and, without stocking, the fishery would have shrunk considerably. However, the programme only works because of the large areas from which adult salmon are otherwise excluded and is helped by the fish trapping facility built into the original hydro scheme.

In the majority of cases, however, stocking is likely to be disproportionately expensive, ineffective and – in some cases – may have the potential to significantly damage existing stocks.

According to ASFB surveys, around 10.5 million eggs/fry and 165,000 smolts were stocked in Scotland in 2009. While this may sound like a huge number, it is dwarfed by even the most conservative estimates of wild fish egg production (see Table 1), which is between 900 million and 1.8 billion eggs per year.

Table 1: Scottish wild salmon egg production

| Estimated total number of fish returning to Scottish rivers | 400,000 salmon<br>Assuming 20% catch rate | 800,000 salmon<br>Assuming 10% catch rate |
|---|---|---|
| Estimated number of hen fish (50%) | 200,00 hen salmon | 400,00 hen salmon |
| Estimated number of eggs laid per hen (4,500) | 900 million eggs | 1.8 billion eggs |

Taking these figures, the numbers produced by artificial stocking represent between 0.6 and 1.17% of natural production. From this, it is also possible to calculate the likely numbers of eggs produced as a result of C&R across Scotland. The most up-to-date overall C&R rate from the 2009 catch data is 67%, with 82% for spring fish. For the purposes of this calculation, we conservatively assume a 70% overall figure, and again a figure of 80,000 fish, as used above for total rod catch.

Table 2: Eggs produced by released salmon

| | |
|---|---|
| Number of salmon caught in Scotland | 80,000 |
| Number released | 56,000 |
| Number surviving to spawn (85%, based on independent tagging studies) | 47,600 |
| Estimated number of hen fish (50%) | 23,800 |
| Estimated number of eggs laid per hen | 4,500 |
| Estimated number of eggs laid by released salmon & grilse | 107,100,000 |

When you compare the numbers of eggs laid by the fish that have been released by anglers (over 107 million) against the numbers stocked from hatcheries (10.5 million) the latter represents less than 10% of the former.

By releasing one extra hen salmon in a season you can make a significant contribution to fisheries management. An angler who releases several hen salmon in a season is effectively a one-man hatchery, whose contribution to future stocks is likely to far exceed the output from salmon raised under artificial conditions.

Biologically and statistically there is no good reason to operate hatcheries for general fishery enhancement or rehabilitation, especially considering the number of extra eggs laid in Scottish rivers thanks to C&R.

Furthermore, hatcheries pose considerable risks, and it is essential to ensure that progeny from the fish removed from the system are re-seeded where the parent fish would have spawned. C&R, on the other hand, allows fish to spawn in the precise location which they came from – a condition it is impossible to replicate with a hatchery.

Very little evaluation has been done to demonstrate the effectiveness of the various enhancement stocking operations. This situation is made worse by the clearly documented risks of poor stocking practice, which show that hatchery-reared fish are less well adapted to survival in the wild, and that they can be 70%-90% less fit than their wild-bred counterparts.

Current work on the genetic makeup of Scotland's salmon stocks shows there are significant risks associated with stocking, and the well-publicised work at Burrishoole, in Ireland, has demonstrated that disrupting discrete populations within river systems results in a reduction in stock size for generations to come.

As a result of this analysis it is clear that C&R should empower ghillies and anglers to feel they are positively and significantly contributing to fisheries management. Hatcheries should be seen as a last resort.

# The developing role of the water bailiff

SIMON MCKELVEY - *Cromarty DSFB*

Perhaps the most important function of each Board is to deliver effective fishery protection, and this is principally done through the use of water bailiffs. In recent years, the role of the bailiff has evolved and expanded considerably, and they are increasingly professional in the pursuit of a wide range of goals.

This is in part thanks to the rigorous training and testing now required for all bailiffs in Scotland, following the successful collaboration of the Institute of Fishery Management (IFM) and ASFB. Before a bailiff is warranted, and thus endowed with significant powers and responsibilities, they must first complete the IFM Scottish Legal and Bailiffing training course and pass an exam. Successfully completing this process demonstrates a sound working knowledge of current fishery legislation and how best to enforce it. This is essential, as bailiffs must be capable of dealing appropriately with a range of incidents – from the most minor angling infringement to nocturnal poaching by violent gangs.

A bailiff's working routine is typically made up of many hours of tedious surveillance or patrolling, interspersed with brief spells of intense activity. They must be able to recognise when an offence has been committed, know the extent and limit of their powers, and then act appropriately to deal with the offenders. Snap decisions have to be made and followed through, often without the sort of backup police officers are able to rely on. Unfortunately, assaults against those protecting our fisheries are all too common.

Training and co-ordination help to minimise these risks and increase the effectiveness of anti-poaching patrols. Neighbouring Boards often work together to share intelligence and resources and, in the Moray Firth area, joint boat patrols have been carried out using bailiffs from neighbouring Boards. In the past, co-ordinated patrols using a helicopter funded by the Scottish Fishery Protection Agency have been an effective deterrent for illegal netting, while liaison with police Wildlife Crime Officers can also be important – especially now that salmon poaching is increasingly being recognised as a wildlife crime.

In the Inner Moray Firth, illegal coastal netting is still a problem, but it has undoubtedly been reduced. This is largely due to the dedication of bailiffs who patrol the coast on foot and by boat, often at night. If a net is found, bailiffs will take up a concealed position and arrange for the rest of the team to be on standby. Then the long wait begins.

Often many hours pass before the poachers return to their net, frequently passing within a few yards of those lying in wait. Once they start to lift the net the bailiffs will call for back-up, then move in to make an arrest. Once an arrest has been made the offenders are then handed over to the police and charged. These types of surveillance and arrest operations, combined with regular boat patrols to check fishing boats for illegal nets, have led to a significant decline in illegal netting within the area. This has only been possible with the dedication and determination of professionals who are prepared to deal with criminals in remote places at night.

As well as carrying out their core fishery protection duties, water bailiffs are becoming increasingly involved in other aspects of fishery management, and many are involved in habitat management works.

## CASE STUDY

### Edward Rush has been working on the River Conon for 26 years and is now the head bailiff for the Cromarty Firth

'It's changed a lot since I arrived here,' he reflects. 'Back then I was working under two old bailiffs, who had learned their trade under George Mackintosh in the 1950s, and their philosophy was still very much of that time.

'There were more poachers then and the job was very different, with all bailiffs working 7 nights a week from the end of May until the end of October. Apart from our work with the hatchery in the winter, catching poachers was the only activity.

'These days, while our core role is still a traditional one, and we patrol 6 nights on, followed by 2 nights off, between May and October, we're involved in many more things – particularly habit restoration projects, which have allowed us to stock fish into new and far-flung reaches of the system.

'It's been a welcome change and I've picked up plenty of new skills, from chainsaw work to backpack spraying, and it's satisfying to know that we're making a difference and the river will be in a better condition when I retire than it was when I arrived in the 1980s.'

With training in the use of chainsaws and backpack spraying equipment they are often in the forefront of the delivery of the Trusts' Biosecurity Plans. The clearing of invasive non-native plant species from riverbanks has become an important part of their role, and they are also involved in checking mink rafts and traps as part of the Scottish Mink Initiative.

Many bailiffs are also trained to support other fishery management activities – such as electro-fishing, hatchery work and riverside tree planting. This increased variety in their working year has been widely welcomed, as is their involvement in the full range of fishery management activities carried out by Boards and Trusts. Future developments may well come through the Water Framework Directive and there are other tasks – such as water sampling, collection of invertebrate samples and monitoring of compliance with regulations – which bailiffs could also become involved with in the years to come.

The River Hope in North Sutherland. Photo: Andrew Graham-Stewart

# Salmon studies: a historical perspective

RON CAMPBELL - *Biologist, Tweed Foundation*

Concern about climate change has caused scientists in a wide range of fields to try and establish whether current fluctuations are new and man-made or are the results of natural trends and cycles, and the results of these studies are highly relevant for those interested in Atlantic salmon.

One of the key themes of the recent SALSEA-Merge programme was an attempt to establish a link between environmental factors and trends in salmon abundance, and much fascinating and important information has been produced by the project. However, one factor that needs to be further researched is whether current changes are unparalleled or are the results of long-term climatic cycles.

One of the current concerns for fisheries managers is the apparent decline in grilse numbers, as was experienced on many of Scotland's rivers last year. This problem was clearly expressed by a leading fisheries scientist:

*'It has further struck me that these rather reliable signs of decline are occurring in districts where the success of the fishing depends principally upon the supply of Grilse rather than on the supply of adult Salmon. The reduction of netting in rivers and estuaries for the purpose of allowing greater numbers of breeding fish to ascend as well as for the improvement of sport, is much on the increase…But in spite of the reduction of this, the most effective form of netting, the signs to which I refer continue.'*

Although this could almost have been written yesterday, it was actually scripted in 1909 by WL Calderwood, the Inspector of Salmon Fisheries for Scotland, and shows how problems have a tendency to recur. Indeed, there is evidence of repeated alternations between grilse and salmon dominance, as shown by the following graph from the Tweed.

Knowing that there have been several changeovers between grilse and salmon ratios in the last 200 years is a key to understanding the environmental factors that produce these changes – having more than one changeover to match against environment factors makes for more robust analyses.

Another issue of recent concern has been the decline in average smolt age and this, again, can be illustrated from Tweed data:

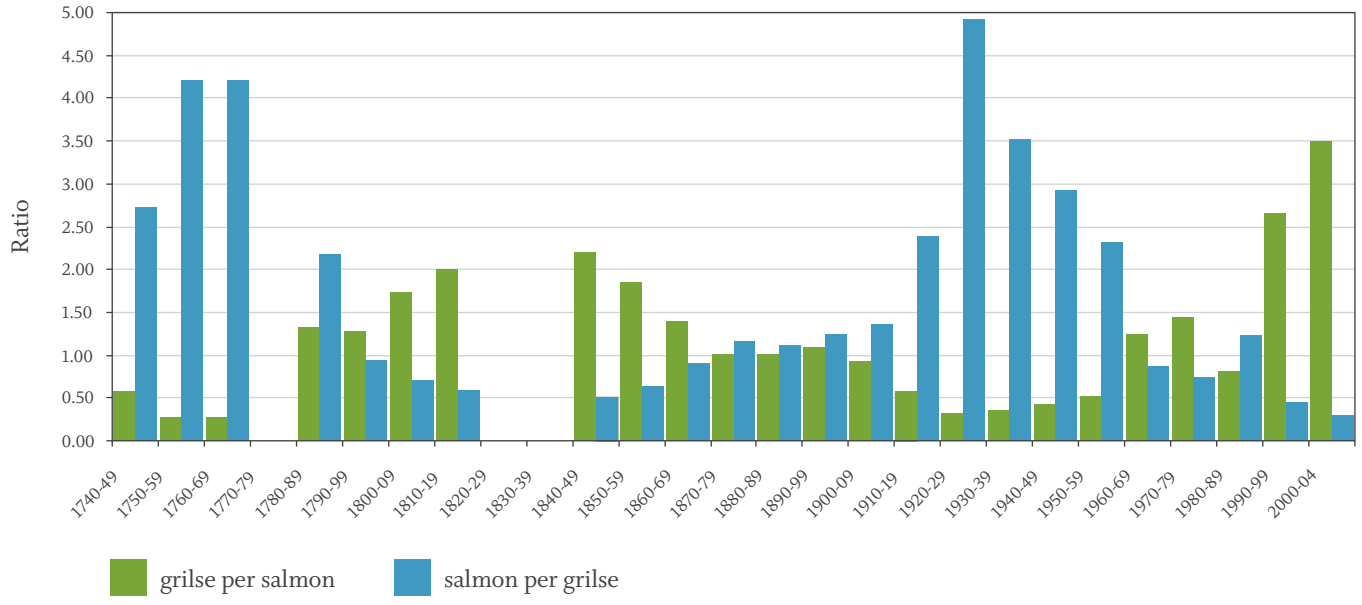
| Tweed Smolt Ages | S1 | S2 | S3 | S4 |
|---|---|---|---|---|
| Present Day | 22.2% | 70.1% | 7.5% | 0.2% |
| DAFS 1960s | 0.0% | 39.9% | 56.3% | 3.8% |

This shows a dramatic decline in S3s – from over 50% to less than 10% of the stock – between the 1960s and the present. However, when historic data is added, the picture becomes more complex:

| Tweed Smolt Ages | S1 | S2 | S3 | S4 |
|---|---|---|---|---|
| Present Day | 22.2% | 70.1% | 7.5% | 0.2% |
| DAFS 1960s | 0.0% | 39.9% | 56.3% | 3.8% |
| MacFarlane 1929 | 5.1% | 92.4% | 2.5% | 0.0% |
| MacFarlane 1930 | 6.4% | 90.9% | 2.7% | 0.0% |

*It should be noted that each survey was based on different types of samples. The 1929-30 survey used scales from net caught fish and therefore excludes later running fish. The 1960s sample was based on netting smolts in the estuary, from March to June, and should thus reflect the whole population. The 1990s samples are from rod-caught fish and should cover almost the whole population.*

TWEED ESTUARY: salmon/grilse ratios in net catches



Today's smolt ages are, in fact, more similar to those of 1929/30 than they are to the 1960s. This may well be because of the run of long winters from the '40s to the '60s, which made the growing seasons for juvenile salmon much shorter than they are now.

Both these examples illustrate that research into historic data is not some dusty irrelevance but is of vital importance to understanding salmon in our ever-changing environment. Salmon have always changed their ages, sizes, smolt ages and run-timings; there are no fixed baselines for these, only long histories of change and variation that are related to their environment.

Care has therefore to be taken in looking at changes in salmon characteristics: taking a baseline of just 10, 20 or even 50 years ago to compare with the present is to fundamentally misunderstand the nature of this species and how it reflects the environment in which it lives.

Man-made climate change is clearly a factor now, especially for sub-Arctic species, but it does not mean that all other elements affecting the environment have ceased, and the usual long-term climate cycles are carrying on at the same time. As a result, it is critical that we differentiate between natural cycles and man-made climate changes – and the starting point for separating these factors is thorough historical research.

We are fortunate in Scotland that we have not only the catch records from generations of boatmen, ghillies, netsmen and proprietors, but also the work of scientists such as Calderwood, Menzies, Nall and MacFarlane.

Despite the economically testing climate of the 1930s these pioneers clearly enjoyed the far-sighted support of the government. This allowed them to undertake what could easily have been dismissed as academic or elitist research, yet the value of their work increases with every passing year.

The Deveron above Huntly. Photo: Andrew Graham-Stewart

# The Scottish Mink Initiative

HOLLIE WALKER - *SMI Project Co-ordinator*

American mink (*Neovison vison*) are a member of the mustelid family, whose other members include otters, badgers, stoats and weasels. They were introduced to the UK to be bred on fur farms for the fashion industry and were first recorded breeding in the wild in the 1950s, following numerous escapes and releases from the farms. This semi-aquatic carnivore has now spread throughout most of the country and is having a devastating impact on native biodiversity.

American mink can adapt their feeding behaviour according to available prey species and, once they have exhausted one food source, can simply switch to another. They can have up to 10 kits a year and have no natural predators in the UK.

The Scottish Mink Initiative (SMI) aims to protect native wildlife – such as water voles, ground-nesting birds and economically important populations of salmon and gamebirds – for the benefit of local communities. The numbers of fish taken by mink are not yet quantified, but spawning salmonids are an ideal food source for this invasive mammal.

The Initiative aims to create a 20,000 km² area free from breeding mink – from north rural Tayside across Aberdeenshire, Moray, the Cairngorms and the Highlands. The broad multi-catchment scale of the project implements the broader strategic approach to mink control proposed and endorsed by SNH's Scientific Advisory Committee, and is supported by research undertaken by the University of Aberdeen.

The Initiative significantly builds on the success of previous mink control projects and incorporates those areas previously covered by the University of Aberdeen's North East Scotland Mink Control Project and the Cairngorms Water Vole Conservation Project. These projects initiated mink control in pockets of north Scotland and SMI is expanding the networks of mink rafts and volunteers to cover much of northeast Scotland and the Highlands. The findings of previous projects have been reviewed and used to help form the adaptive management approach being used by SMI. Research is continuing and methods will be continually adapted if the research indicates changes are needed.

SMI is a partnership project between RAFTS, Scottish Wildlife Trust, Scottish Natural Heritage (SNH), the University of Aberdeen, the Cairngorms National Park Authority and 15 other organisations. The Initiative signals a £920,000 investment in native wildlife conservation, thanks to support from organisations that include: Peoples Trust for Endangered Species, the Scottish Government and the European Community Cairngorms, Highland, Moray, Rural Aberdeenshire and Rural Tayside Local Action Groups LEADER 2007-2013 Programme.

# The Scottish Mink Initiative
*continued…*

The success of the project relies on the support and involvement of local communities and we hope that, by working with residents, landowners, Trusts, Boards and local interest groups, we can deliver real benefits to local communities and safeguard the future of livelihood's which depend on angling, shooting, or wildlife tourism. To ensure the long term sustainability of mink control in the project areas we are setting up co-ordinated transfer of responsibility for mink management to local organisations. The initiative is establishing a strategic monitoring and control zone – extending from the mid-Tay to the South Esk, around the east coast to the River Nairn, and across from Dornoch and Cromarty to Ullapool on the west. This will be achieved by deploying mink rafts and setting cage traps when footprints or any sightings of American mink take place.

SMI will be sharing methods with other organisations who are interested in running their own American mink control programme, so that the effort in Scotland is expanded beyond the work area boundaries.

The project has established itself at a considerable rate, through the efforts of 5 core project staff and over 500 dedicated volunteers. Within the first year, the Cromarty Firth Fisheries Trust has taken on the responsibility of mink control within their area and two more Trusts are set to follow early in 2012. The project has added to the already large number of volunteers (now over 500) and the network of monitored rafts (now over 800 rafts active) from the previous projects. Since April 2011 more than 100 mink have been removed from the SMI control area. The new volunteer and local networks that have been established comprise of over 100 organisations and groups. The Initiative continues to raise awareness about the problems mink cause and the aims and achievements of SMI.

Mink Control Officers from the Scottish Mink Initiative are looking for keen volunteers across the area, to assist with monitoring and removal of American mink. Volunteers can report sightings, monitor a mink raft to record mink signs and/or check traps daily. Please contact us if you are interested or require more information.

### Aberdeenshire
mink@rafts.org.uk 07825 180 319

### North Tayside
ann-marie@rafts.org.uk 07825 186 043

### Cairngorms and Moray
cat@rafts.org.uk 07825 185 178

### Highlands
gunnar@rafts.org.uk 07825 184 080

www.scottishmink.org.uk

## Mink: in the eyes of the experts

**Rob Raynor**, a SNH mammal specialist and a member of the project Steering Group, said: 'Mink can have a devastating effect on the biodiversity of Scotland.

'Community involvement is vital to this project and we hope to create a network of informed volunteers who will participate in mink control and eradication.

'We rely on the involvement of volunteers and local rivers and fisheries Trusts, with their network of ghillies, water bailiffs and gamekeepers, who we believe are central to making this a success. And the various economic studies have shown that mink can also have a serious effect on our local economy by depriving our biodiversity of many of its features.

'This is the first stage in implementing a strategic approach to managing the spread of mink in mainland Scotland and SNH is happy to be providing substantial financial support as a major funder of the work.'

**Jamie Urquhart**, a biologist from the River Don Trust, agrees that it is a valuable project: 'Being previously involved in various forms of the SMI, I was delighted to be asked to be part of the SMI steering group. Here I've witnessed first-hand the project going from strength to strength over the past nine months. The new MCO's and Management have got to grips with the project, consolidating existing work and expanding rapidly, with various handovers to local organisations already underway. I'll be looking forward to a very promising future for the SMI project and the research associated with it for the forthcoming months,'

Top: Mink with a brown trout Photo: John McAvoy. Above: A mink raft. Photo: Sarah Atkinson

# Scotland's Aquaculture and Fisheries Bill

DR ALAN WELLS - *Policy and Planning Director, ASFB*

The consultation period for the forthcoming Aquaculture and Fisheries Bill ended on 2nd March, and we believe that the Bill will be introduced to Parliament after the summer recess, making 2012 an interesting year for wild fisheries management in Scotland.

Below is a summary of our reactions to key points in the consultation document.

## Aquaculture

The Association has long been of the opinion that the aquaculture industry can, in certain locations and at certain times, present significant risks to wild fish. We are therefore supportive of the following proposals:

- **The introduction of 'a legal requirement to participate in farm management agreements (FMAs)'** – a coordinated approach to stocking, fallowing and treatment of sea lice and other disease outbreaks within (appropriately sized) FMAs has the potential to lower the potential risks to wild fish.
- **The introduction of 'powers to revoke consents/to require SEPA to reduce biomass consents'** – as our understanding of the potential interactions between aquaculture and wild salmonids improves, a power to revoke consents (which are currently permanent), or to reduce biomass, becomes increasingly important.
- **The addition of 'powers to determine a lower threshold for sea lice levels above which remedial action needs to be taken'** – the absolute number of sea lice released in an area is dependent on farm size and number of farms in an area and we welcome the possibility that treatment thresholds might reflect these factors.
- **Introducing 'a Scottish technical standard for finfish farm equipment'** – this should lessen the number of escapes, although many escapes occur due to human error, so improved training is also required.
- **'Powers to take or require samples of fish from fish farms, for tracing purposes'** – this should help to identify the source of escaped fish.
- **We also welcome that the Government has sought views on the most appropriate approach for the collection and publication of sea lice data** – a key issue for wild fishery interests. Full public access to lice data in Scotland would allow assessments to be made of lice control strategies and subsequent impacts on wild fisheries. In addition, full access to lice data would allow the Fish Health Inspectorate to prioritise limited resources on 'problem' sites as part of the on-going farm inspection process.

We have also been working hard to progress and develop new projects. There are too many ideas to report properly here, but amongst the most significant are:

## Structure of the DSFBs

The current DSFB organisational structure provides highly effective management of our Atlantic salmon and sea trout fisheries. Its strengths lie in its local self-financing structure, which is highly respected and envied. It is capable of reacting swiftly to changing circumstances, and yet no changes to individual's rights can be made without the sanction of the Minister. We believe that this principle of local management remains the foundation of effective fisheries management in Scotland.

The consultation aims 'to ensure management structures that are fit for purpose in the 21st Century'. There are a number of proposals designed to increase transparency in the function of DSFBs, potentially via the Code of Good Practice. The Association agrees that all DSFBs, as with all bodies, should act fairly and transparently – indeed our Code of Good Practice, which has recently been updated, is designed to ensure just that. We welcome many of the proposals laid out in this section as we are confident that DSFBs can demonstrate accountability and transparency via the Code. We are comfortable with the availability of additional powers to Scottish Ministers, but we believe that these should provide a safety net, not a parallel management framework.

## Tagging and analysis

We particularly welcome the proposal to introduce a statutory carcass tagging system and to take fish and/or samples for genetic or other analysis. As set out in the 2011 review, such a scheme forms a key part of the Association's overall policy on mixed stock fisheries.

It is important that, similar to other schemes operating across the UK, numbered tags are used, and details of the fish and the tag reference numbers are recorded in a log-book and available for inspection. Genetic analysis is a key tool in modern fisheries management. A key issue with regard to mixed stock fisheries is that, without knowledge of what proportion of the catch comes from which river, it is not possible to know the impact of the catch on individual catchments or to apply targeted conservation measures. Access to this information will enable rational management decisions on net fisheries to be made.

## Conclusions

Although the content of the Bill has yet to be finalised, if the above proposed changes do occur, 2012 should prove to be a pivotal year. Watch this space.

Fish farm cages in Sutherland. Photo: Alan Wells

# Interactions with aquaculture

ROGER BROOK - *Chairman, Argyll DSFB*

Relationships between wild fish interests and aquaculture have been strained over many years. It has been extremely difficult to have a constructive relationship given our certainty that their business activities have contributed to a decline in populations of migratory salmonids on the west coast, over and above the decline evident elsewhere in Scotland. The fish farmers' industry representative body, the SSPO, has an equally firmly held view that there is no proof of an impact on wild fish populations.

There appeared to be a breakthrough in 2011, when RAFTS published a paper showing that salmon catches in west coast rivers had declined significantly more than those of the north and east coasts of Scotland, where there is no salmon farming. This was immediately supported by a similar analysis from the government's own freshwater fish scientists who, in the past, had declined to support such an opinion. However, the SSPO so far continues to have difficulty recognising the potential threat posed by salmon aquaculture to wild salmon fisheries.

There have been three initiatives during the last year. Firstly, a committee was formed by the fishery organisations representing wild fish, in order to share knowledge and co-ordinate their various initiatives and campaigns. The organisations represented are RAFTS, ASFB, S&TA, AST and Fish Legal. This committee meets regularly to exchange views and agree strategy.

Secondly, a group has been set up to manage aquaculture projects in the areas covered by the six west coast fisheries Trusts. These projects have been financed by the Scottish Government, under the title of the 'Managing Interactions Working Group'. The projects are co-ordinated and managed by RAFTS, and there have been three projects during the first year of the group:

- Sampling sea trout post-smolts to assess lice levels and their relationship to farm proximity.
- Genetic sampling to test for farmed fish introgression.
- Building a database of scientific evidence to provide locational guidance for the positioning of farms.

It is hoped that governmental financial support for these initiatives will continue over the coming years.

Finally, the Scottish Government invited the wild fish interests to enter facilitated discussions with the salmon farming industry, in order to try to develop a more constructive relationship between the two parties, with a focus on joint problem solving. We readily agreed to join in these discussions, the first stage of which should be completed by the time this review goes to press.

Wild fisheries organisations believe, given the wide body of knowledge accumulated in Scotland and in other wild salmon producing countries, that intensive salmon farming can cause a significant negative impact on wild migratory salmonid fisheries.

This is principally through the impact sea lice numbers, which are amplified by intensive farmed salmon production, have on post-smolts and through problems associated with introgression between wild and farmed salmon.

The most likely opportunity for introgression of farmed salmon genes into the wild population is through escapes of farmed smolts being reared in open freshwater cages where there is an existing salmon run.

*'A recent paper showed that salmon catches in west coast rivers had declined significantly more than in the east.'*

The above problems will persist until lice numbers are adequately controlled and containment standards, particularly in freshwater, improve. Progress in understanding and resolving these problems has to be dependent on recognising these risks and consequently taking appropriate actions to manage them. It is hoped that, out of these facilitated discussions, some form of genuine commitment can be made by both parties to resolve these problems.

Until such times, the objective – of ensuring healthy sustainable stocks of wild salmon and sea trout can operate alongside a successful salmon farming industry in the West Highlands – will continue to elude us.

Top: A fish farm off the west coast. Photo: Alan Wells
Above: Checking for lice damage. Photo: Andrew Graham-Stewart

# Barrier removal

ELIZABETH CLEMENTS - *RAFTS Project Co-ordinator*

2011 has been a year for planning, preparation and positive progress on the gradual physical restoration of Scotland's rivers.

Weirs and other man-made structures continue to present significant obstacles to fish migration in some rivers – negatively affecting ecological processes, reducing habitat connectivity and significantly impacting population viability of a diverse range of aquatic biota, including migratory salmonids. In addition, the presence of a barrier on a watercourse downgrades its Water Framework Directive (WFD) classification. Therefore, the easement and/or removal of these structures is perhaps the most important single restoration priority shared by fishery managers and SEPA. For fisheries managers, action will increase juvenile production and improve fishery performance; for SEPA, it will support WFD targets.

Since its inception the SEPA WFD restoration fund has been utilised by RAFTS and by individual fishery Trusts and Boards to assess redundant structures and improve fish passage through barrier removal or fish pass installation projects. As the financial resources within the fund offer an unprecedented opportunity to take forward this kind of work, RAFTS, with member Trusts, has continued to compile collaborative applications to commission feasibility studies at structures identified as problem areas. In 2011, £60,500 was secured to complete feasibility assessments at 19 structures across 10 Trust areas, and significantly larger applications are planned in 2012 and beyond.

These feasibility studies provide an initial indication of the works required to ease fish passage, recommend the most appropriate action and provide an indicative cost of the work required. RAFTS and SEPA have worked together to move these reports on to the next stage of detailed design and additional survey work, where costs can be more accurately determined and physical work progressed. Twenty barriers on three catchments – the Tyne, Almond and Don – have been have been highlighted for either complete or partial removal, or addition of a fish pass where removal is not appropriate.

Over the years RAFTS and individual Trusts have been very successful in securing grants from the WFD fund. By necessity these applications have been largely driven by obstacles known to our organisations but have been part of applications made on a somewhat ad hoc basis. In 2011 SEPA confirmed a more strategic and rationalised catchment approach to obstacle assessment. They need to ensure that current funds are spent to deliver maximum benefit and allow the case to be made to protect and possibly increase future funding. Continuing with the submission process RAFTS and Trusts have used to date was not going to be sustainable.

As a result RAFTS is undertaking a national obstacle prioritisation exercise. This will collate information on known obstacles, together with environmental and electro-fishing data. In addition, where there are gaps in the electro-fishing data, surveys will be completed to obtain porosity scores for the obstacles, in line with recognised assessment protocols.

RAFTS has developed a spreadsheet to allow capture of knowledge on obstacles in relation to current fisheries data and using GIS mapping of all barriers held within SEPA's current obstacle database. The data collated will help us to understand the obstacle and the impact in a way that we can replicate across Trust areas. Each obstacle will be assessed, effectively ranking and prioritising each individually.

By doing this we will be able to:

- Identify obstacles where Controlled Activity Regulations (CAR) licence reviews by SEPA would provide most benefit to fisheries.
- Identify obstacles where restoration fund projects would provide most benefit to fisheries.
- Identify other obstacles where future restoration regulations would provide most benefit to fisheries.
- Allow us to calculate combinations of obstacles where removal or easement by CAR, restoration fund and/or restoration regulations would, together, provide most benefit to a catchment.
- Identify upstream limits of migratory fish.

As further assessment and survey work is carried out on obstacles the list will be continually updated.

*'The easement and/or removal of these structures is perhaps the most important single restoration priority shared by fishery managers and SEPA.'*

Developing a prioritised list of obstacles across Scotland will allow RAFTS and individual Trusts to access the restoration fund more effectively, as barriers which currently present the biggest problems can be promoted for funding ahead of those where impacts and benefits are less significant. Clearly, other factors – such as landowner agreement, the confirmation of match funding and designated site status – may change the initial prioritisation but, in a situation where funds are limited and where obstacles are numerous, it is essential that we work together to deliver the biggest benefits to our rivers, fish and fisheries.

Trust staff being trained to assess the passability of barriers

# The Sustainable Inshore Fisheries Trust

BOB YOUNGER - *Solicitor with Fish Legal*

While most anglers are partial to a good moan now and again, we should not be ashamed of recognising that many of Scotland's important salmon rivers have performed very well in recent years with some record catches being recorded. It should be acknowledged that the DSFB system has made a great contribution to these ongoing successes. In particular the establishment of the Tweed Foundation in the early 1980s and the subsequent development of the Trust network has proved to be an important component of that success. The availability of science at a local level has allowed Boards to develop an 'ecosystem approach', which increasingly is allowing management decisions to be based upon a detailed knowledge of the local catchment. Most Boards can claim to be adopting genuinely sustainable management through habitat conservation and stock monitoring and management. I believe that we can convincingly argue with good reason that we have some of the best managed salmon fisheries anywhere in the world.

Unfortunately, the same cannot be said of the current state of Scotland's inshore fishery – a publicly-owned resource that is managed by the Scottish Government. Over the last three decades this once massively prolific fishery has almost completely collapsed and, within many inshore areas, the commercial fin fish catch has disappeared. The decision by the British Government in 1985 to allow trawling and dredging in Scotland's inshore waters (after a ban of nearly 100 years) has resulted in the destruction of much of the flora and fauna of the inshore benthos or sea bed. Recent research is showing the importance of inshore benthic habitat to the life cycle of commercial fish species and combined with the high levels of by-catch associated with inshore prawn trawling it is little wonder that there is no longer any significant catch of commercial fin-fish in our inshore waters.

There are several reasons why the salmon fishing community should take an interest in our inshore waters. Trawling and dredging may well impact upon salmonids that also periodically inhabit inshore habitats. These waters provide important feeding grounds for sea trout populations and it may well be that habitat loss and changes in the composition of plankton caused by intensive trawling will have an impact. Furthermore, salmon fishers are part of a larger 'brotherhood of the angle' and should be moved by the plight of our recreational sea-angling brethren. Recreational sea angling like salmon fishing is very dependent upon having a target species willing to be caught. As the fish have disappeared from inshore waters, so too have many jobs associated with recreational sea angling. Finally, our inshore fishery is a public fishery in which we all have a stake and thus we all have an interest in ensuring that an ecosystem approach to management is adopted, which will allow recovery of the inshore benthic habitat and hopefully facilitate recovery of the productivity of the entire ecosystem.

During 2011 Fish Legal helped to found the Sustainable Inshore Fisheries Trust (SIFT) with the avowed intention of promoting genuine sustainable management of our inshore fisheries. Although it is still in its infancy, SIFT has already received significant funding and has some key projects in development. SIFT's most important message is that a sustainable fishery will ultimately create more wealth and more jobs than an unsustainable fishery, both now and in the future. Its first move was to commission an economic report by Alan Radford of Glasgow Caledonian University on the costs benefits of trawling and dredging on the Firth of Clyde. Early drafts of this report show a clear benefit of banning trawling and establishing a static gear reserve inside the 3 mile limit. It is hoped that this report accompanied by a public campaign will present a powerful case for a change of policy.

SIFT has identified the lack of inshore monitoring of commercial fish species as a key failure of governance. It is currently investigating the feasibility of developing a scheme for west coast fishery Trusts to carry out a programme of monitoring inshore waters, building on the work that they already do with sea trout. Such a scheme could provide a hugely important asset for future inshore fisheries management and could provide a valuable additional income stream for Trusts. Early discussion with west coast Trusts met with an enthusiastic response.

Fish Legal, or the ACA as it used to be, was founded as a radical campaigning organisation to address widespread pollution in English rivers; a problem that is now much reduced. In the same radical spirit, Fish Legal has created SIFT to address the appalling state of Scotland's inshore fishery and we very much hope that Boards, Trusts and the wider angling community will be able to support us in this endeavour.

# Wet, wet, wet – a look back at 2011

ANDREW RETTIE - *Strutt & Parker*

While, to many, the title of this article suggests the name of a well-known pop band – best remembered by many for their theme tune for Four Weddings and a Funeral – it will almost certainly remind others of last year's weather in Scotland. Indeed, although April was a fantastic month, it seemed like it rained incessantly from then until the exceptionally dismal end of the year.

This has caused a major challenge for owners, ghillies and tenants of salmon fishings on virtually every river. Water levels went up and down for many months, which created very awkward fishing conditions. It has also caused significant problems from flooding, and the inevitable tidying up required thereafter.

## Tay extension

The decision by Tay proprietors to extend the season by a fortnight, from 15 October to 31 October, on a three-year trial basis, was potentially one of the most interesting developments of 2011, as it created opportunities to rent previously unavailable beats on the lower and more productive

part of the system. However, it has been difficult to gauge the success of this experiment so far, due to the very high water levels.

### Fishing sales

It is pleasing to report that, despite the continuing turmoil in the world's financial markets, those owners who have elected to put their beats of salmon fishings up for sale have, in most instances, been rewarded with success. Examples of sales successfully handled by Strutt & Parker include the Lower Blackhall beat, the Kinneskie beat, and the Lower Dess beat – all on the Dee. At the time of writing, we are also marketing another beat, Invery and Tillquhillie, on the same river.

It has to be said, however, that not every beat has found a buyer. At the time of writing, the Mayen Estate, and also the Marnoch Estate – both on the River Deveron – remain available, despite a marketing campaign. In addition, there are beats for sale on the Tay and Tweed.

Perhaps not surprisingly, the sector which has faced the most severe pressures on prices is the timeshare market. Demand for individual rods and/or weeks on a shared ownership basis continues to mirror the state of the economy. When buyers have money in their pocket as a result of their core businesses going well, demand rises. However, the current position is that a number of owners of timeshares are keen to sell them to raise capital and to avoid on-going and annual management charges.

### Looking ahead

Looking ahead, it is difficult to see anything other than a similar picture emerging during 2012. Let us sincerely hope we are not deluged by another really wet, wet, wet year – and that the Coalition Government in the UK manages to start to get a grip of the country's finances so that profits can be earned in the corporate sector for spending on salmon fishings in Scotland.

# A salutary tale

ROBERT SCOTT-DEMPSTER - *Gillespie Macandrew*

Against the tide of anguished cries from many of Scotland's landed interests which heralded the enactment of the Land Reform (Scotland) Act in 2003 I rashly went on record to say that there might just be a silver lining when it came to rafters in rivers.

I pointed to the provisions in the Act that deal with access, which empower Councils to make bye-laws to regulate competing interests, and was bold enough to opine – on paper – that this might encourage compliance by rafters with existing voluntary agreements. In a moment of unbounded optimism I even went so far as to say: 'we should expect that the rafters will abide by such agreement, because if they do not and they act irresponsibly the Council should step in'.

May I here and now apologise to the incensed river proprietor who, on reading my article, wrote me a stinging letter accusing me of gross naivety. You were right Sir.

It is a sad story and no more so than on the Upper Tay, where there are now 5 rafting companies in operation. Rather than being encouraged to abide by voluntary agreements, the rafters have become emboldened to the extent that such agreements are almost completely disregarded. To quote from a Fish Legal press release: 'The Upper Tay has been swamped by rafters since the introduction of the Land Reform (Scotland) Act in 2003, making fishing virtually impossible. Fishermen, beleaguered by an incessant tide of rafts, no longer fish the waters. Catches have collapsed and as a result the capital and rental values of the fisheries have plummeted.'

It is easy to get hot under the collar and to blame the rafting businesses. However, rafting is popular, it provides a valuable source of income to fragile local businesses and, in these days of adventure tourism, will no doubt grow in popularity. There is little doubt that the rafting companies have acted aggressively, but they are merely seeking to exploit a commercial opportunity. The real anger should be directed at those who introduced the legislation and those empowered to regulate the exercise of responsible access.

Efforts have undoubtedly been made. For five years negotiations were conducted through the Perth and Kinross Outdoor Access Forum (PKOAF) to secure raft-free periods for fishermen. No agreement could be reached.

Having failed to agree a position PKOAF were asked to come up with their recommendation. PKOAF is established by the Perth and Kinross Council, its members (who represent a wide range of interested parties) are appointed by Perth and Kinross Council and its role is to advise Perth and Kinross Council on the exercise of access rights and assist in the resolution of disputes. It recommended that the fishing interests should be given three raft-free days per week. Given that the salmon fishing is not permitted in Scotland on Sundays (but rafting is) it is difficult to see this as anything other than generous to the rafters.

Not only was this recommendation rejected by the rafters as the basis for a voluntary agreement, but when the Tay DSFB (represented by Fish Legal) applied to the Local Authority for a bye-law to regulate such an arrangement, this too was rejected. Worse still, the rejection was made without Fish Legal being given the opportunity to submit evidence, notwithstanding the fact that the Council claim to have received no evidence to demonstrate that rafting companies are acting irresponsibly or that commercial fishing interests have suffered economically as a result.

At the end of the day the Council has discretion over whether to introduce a bye-law, but there are clearly questions to be answered over how they reached their decision. Dare I say it, it also helps to shed some light on the stance taken by the rafting companies to date. With the door seemingly open, and safe in the knowledge that the Council will not enforce an agreement, why not push for what you can get?

So is this the end of the road? We must all hope not. The initial decision of the Sheriff in an action raised by Aberfeldy Angling Club that the rafters' access rights should extend to a four day week (per the recommendations of the PKOAF) was supportive. Unfortunately, that decision has since been recalled by the Sheriff Principal and the matter will be reconsidered later in the year, when the rafters' arguments will be heard.

We must all cross our fingers that this is successful but, goodness me, what a shame that it has come to this.

# Mixed fortunes in 2011

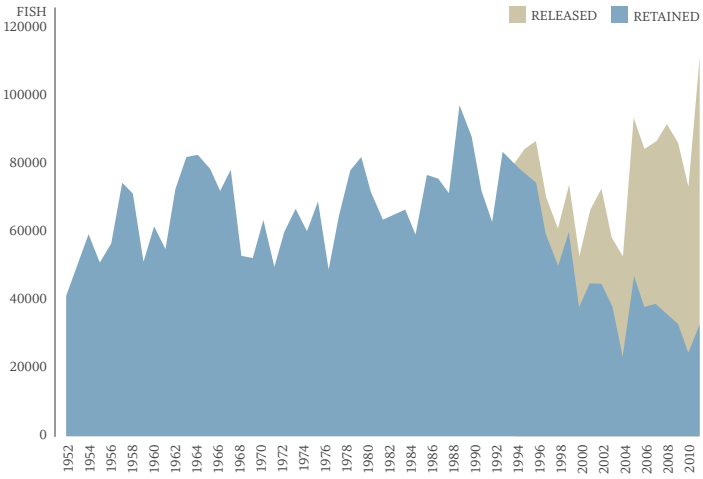
ANDREW WALLACE - *Chairman, RAFTS*

It was perhaps inevitable after the euphoria of 2010, which was witness to the best rod catches 'since consistent records began in 1952' (at nearly 110,000 fish), that 2011 would be a bit more of a curate's egg. The official statistics for 2011 will not be published until September, but there was a slow early spring, a largely encouraging late spring run, followed by uninspiring runs of grilse and then a generally slow autumn. Despite reasonable runs of MSW fish, it is likely to have been an average, or slightly below average, catch around the mid-80,000s.

After the very cold winter and a generally dry early spring, fishing started late but, when it did, many of the traditional spring rivers reported high numbers of heavy, well-conditioned springers. This was encouraging, and the fact that some of our MSW fish seem to be faring quite well in comparison with the poorly conditioned and generally thin runs of grilse, reinforces the argument that the different feeding grounds for grilse and salmon must be the over-riding factor in deciding the ultimate condition of their stocks.

A further issue, thrown into sharp relief by this year's catches, are the vagaries associated with rod catches as a means to assess salmon stocks. All over Scotland, as we have examined counter data in comparison with rod catch, we have witnessed the frailty of catch as a means of estimating actual numbers of returning fish.

Those fishing the Tweed in 2011, after the astonishing record-breaking rod catch of over 23,000 fish the previous year, might have concluded that a catch of 16,500 reflected a much poorer run.




NATIONAL SALMON/GRILSE ROD CATCH STATISTICS SCOTLAND, 1952-2010
SOURCE - MARINE SCOTLAND SCIENCE

However, it is possible that this is far too simplistic an analysis. First, let us not forget that 16,500 is still Tweed's second highest rod catch on record. Moreover, the river's autumn run came very early this year, resulting in surprisingly low catches in the traditional fishing months of October and November, when the river was full of stale fish which simply could not be caught. Some experienced Tweed hands are suggesting that the 2011 run was possibly as strong or stronger than 2010.

This simple fact of run-timing not only made a huge difference to the Tweed catch but is also likely to have caused an almost 10% reduction in the entire Scottish catch. Such is the distorting impact of a river of this size.

On the other side of the country the Awe/Orchy system has the benefit of a reasonably accurate fish counter, which has brought some less encouraging information to light.

*'Alarmingly, it is on the imperilled rivers with low stocks where these impressions are most distorted.'*

Although the count in 2011 (1,583) was only up 31% on the previous year (1,208), the catch was up a remarkable 100%. If you had chosen to judge the river on the catch alone, 2011 was the third best year in 22 years – all apparently was well. However, if you had judged the river on the count, the run was 40% down on the norm. Furthermore the catch, when compared with the counter, was 35% of the run – a much higher rate than normally used to predict exploitation by rod fisheries (the standard estimate is 10%).

There are two further disturbing by-products of this information. Catch and release policies could, with very high exploitation rates, further inflate assessments of stock, due to released fish being re-caught; they could also enhance the impression of the success of stocking programmes.

On rivers with large runs of fish these factors may be less important when trying to determine management responses to trends. Alarmingly, it is on the imperilled rivers with low stocks where these impressions are most distorted and where the information we are getting may not be all that it appears.

These distorting effects require further work but the take-home message is that, in any one year, catch may be a very poor reflector of stock. And, when used in isolation, it is most unlikely to help us make informed decisions about management. The inevitable consequence of this is to continue to adopt a highly precautionary approach to any form of salmon exploitation until we better understand these emerging idiosyncrasies of salmon stocks.

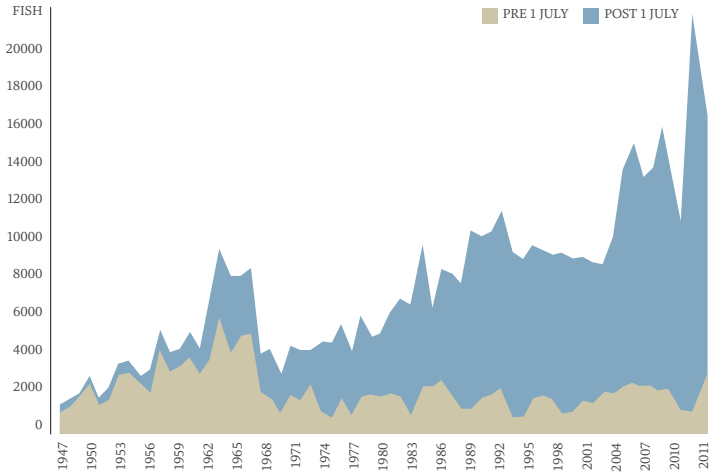
# Tweed

Nick Yonge - *Director, Tweed Commission and Foundation*

Salmon catches were higher in every month from May to August than in recent years and were extremely high in September, at almost 4,000 fish. However, catches in October were below average and were very low in November, despite large numbers of fish being seen in all parts of the river. There was a lack of grilse, salmon were much larger than usual and there was a preponderance of hen fish. The bailiff team were involved in predator surveys and scaring/control activities, assisting staff with electro-fishing, debris removal at caulds and surveying of habitat sites to report any damage and updating photographic records. Additionally, two major works at caulds were monitored at Powburn and Selkirk, both of which involve the installation of new fish passes. The 2011 season was the first year in which catch and release for salmon was compulsory for the whole of the spring season. The in-river nets also agreed not to kill salmon in those months in return for compensation.

| | 2011 total | Nets | 10 yr rod average | Release rate | Largest fish |
|---|---|---|---|---|---|
| Salmon | 16,682 | 4,154 | 14,722 | 68% | 35lb |
| Sea Trout | 2,499 | 3,109 | 2,026 | 45% | n/a |

*Season dates: 1 Feb – 30 Nov*




TWEED ROD CATCH STATISTICS 1947-2011
SOURCE - RIVER TWEED COMMISSIONERS

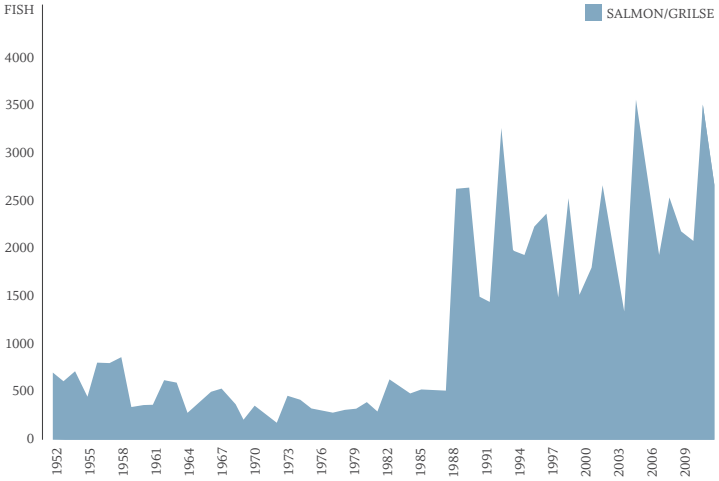
# Forth

Patrick Fothringham - *Director, Forth DSFB*

The spring catch was good, while the grilse run by contrast was very poor, with relatively few summer fish being caught across the District. Fortunately, the autumn fishing was much better, though dependent on MSW fish. Once more the River Almond had a very good season and the lower Teith scored particularly heavily. Sea trout runs were reasonably solid, though once more the Allan Water appears to have had a poor season for both salmon and sea trout. In 2012 the Board and Trust will be carrying out numerous conservation projects as actions from each of the District's river management plans start to be delivered. These will include habitat work, monitoring work on barriers to fish migration and the delivery of an ambitious project covering invasive species issues. It is still of particular importance that spring salmon are given a measure of protection, to which end the Board has recommended total catch and release of spring salmon across the District in 2012.

| | 2011 total | Nets | 10 yr rod average | Release rate | Largest fish |
|---|---|---|---|---|---|
| Salmon | 2,612 | 59 | 2,559 | 85%, 65%* | 30lb |
| Sea Trout | 1,181 | 101 | 892 | 72% | 7lb |

*Season dates: 1 Feb – 31 Oct*
** Percentages are as shown – spring / summer.*




FORTH DISTRICT ROD CATCH STATISTICS 1952-2011
SOURCE - FORTH DSFB

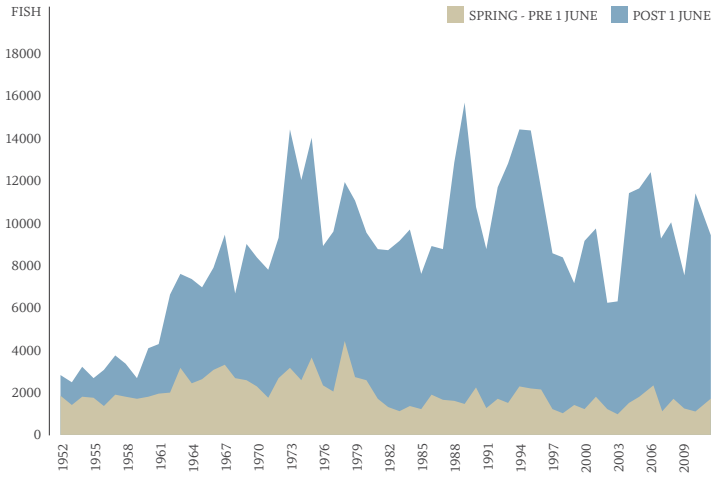
# Tay

Dr David Summers - *Director, Tay DSFB and Tay Foundation*

There were better numbers of 3SW fish at the start of the season than for some time, with a number over 30lb. Poor fishing conditions in the late spring meant the catch was low on the main river, but the Pitlochry counter registered the most 2SW salmon since the 1970s and the River Lyon had its best catches since the 1980s. Good numbers of salmon continued until late August and fell off thereafter. Even with a 2-week trial extension in the lower and middle Tay, the overall catch was down on 2010, reflecting a lack of grilse. In 2012 Marine Scotland decided to close its fish farm at Almondbank, with its ground-breaking kelt reconditioning programme. However, the Board managed to secure a lease of the facility and aim to produce up to 1.5 million spring salmon eggs for stocking new areas. For the second year in a row 100% catch and release was asked for to the end of May and for all females thereafter.

| | 2011 total | 10 yr average | Release rate | Largest fish |
|---|---|---|---|---|
| Salmon | 9,516 | 9,435 | 80% | 40lb |
| Sea Trout | 819 | 1,266 | 90% | n/a |

*Season dates: 15 Jan – 15 Oct*

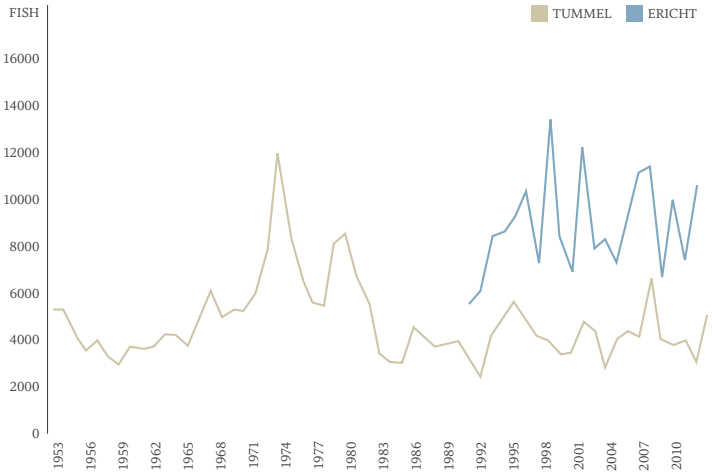



TAY ROD CATCH STATISTICS 1952-2011
SOURCE - TAY DSFB

# Tay catchment counters

Dr David Summers - *Director, Tay DSFB and Foundation*

Sadly our counter on the River Ericht is no longer in operation, but the annual count on the Tummel, at Pitlochry Dam, was one of the highest in the last 30 years. The total count for months dominated by MSW salmon was the highest since at least 1979. This welcome upturn in salmon is particularly interesting because the 2010 Tummel grilse count was poor, unlike many rivers. Did the would-be grilse just stay at sea for another year? If they had, then the proportion of male 2SW salmon might have been expected to have increased but, instead, salmon broodstock caught upstream of the dam in the autumn were overwhelmingly female. Some other explanation will, therefore, be needed, unless the males return as 3SW salmon in 2012. Time will tell.




RIVER TUMMEL (PITLOCHRY) UPSTREAM COUNT 1953-2011
SOURCE - SCOTTISH & SOUTHERN ENERGY
RIVER ERICHT UPSTREAM COUNT 1990-2010
SOURCE - TAY DSFB

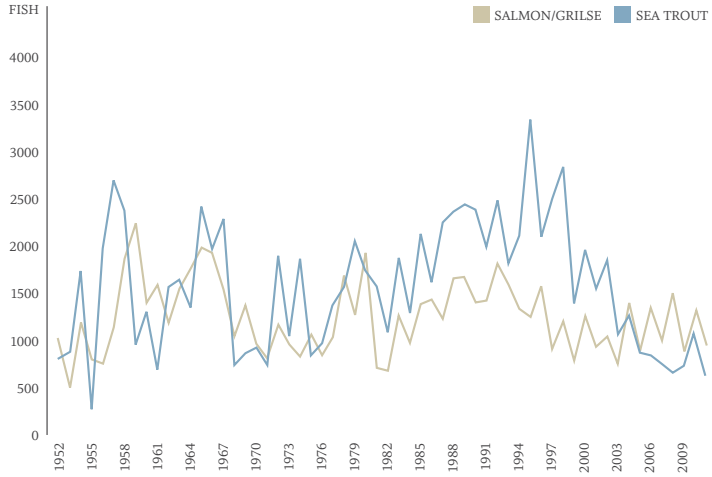
# South Esk

Dr Marshall Halliday - *Esk Fishery Board and Trust*

Conservation measures to protect the river's early-running salmon have extended the status quo until 2014, while a voluntary agreement prevents coastal netting until 1st May. The Board sought the co-operation of all proprietors and anglers to reduce the exploitation of MSW salmon and sea trout through catch and release. The Scottish Government has initiated a radio-tagging/genetics project to establish the general spawning locations of early-running salmon and to investigate the stock composition of the fish caught by Usan Salmon Fisheries. Other work includes river channel improvements and the Trust has now developed a restoration plan for the canalised section of the Rottal Burn. This involved extensive survey work and is the most ambitious project so far tackled by the ERFT. Considerable survey work was undertaken in 2011 on behalf of a LIFE Bid, which will address the issues of canalisation, silt input and diffuse pollution in the upper catchment. An unexpected initiative from the Scottish Government has paved the way for a three year license for a net fishery to operate in the first two weeks of September.

| | 2011 total | 10 yr average | Release rate | Largest fish |
|---|---|---|---|---|
| Salmon | 895 | 1,241 | 79% / 66%* | n/a |
| Sea Trout | 544 | 978 | 74% | n/a |

*Season dates: 16 Feb – 31 Oct*
** Percentages are as shown – spring / summer.*




SOUTH ESK ROD CATCH STATISTICS 1952-2011
SOURCE - ESK DSFB

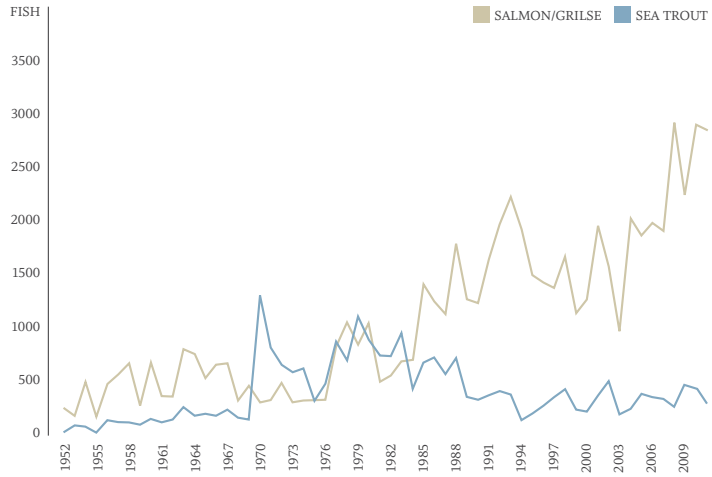
# North Esk

Dr Marshall Halliday - *Esk Fishery Board and Trust*

The Trust has eradication/control measures for Japanese knotweed and giant hogweed in all four catchments. Work on the Bervie, which produced an encouraging total of 12 salmon and 56 sea trout this season, has surpassed expectations in respect of achieving a very significant reduction in the knotweed, which had colonised both banks of the lower 25km of the river. The Trust participates actively in the Scottish Mink Initiative and, after concentrating on the Lunan and South Esk in 2011, the work is being extended to the North Esk and Bervie in 2012. Voluntary catch and release measures to reduce the exploitation of MSW salmon and sea trout are well supported in the catchments of the North Esk and Bervie.

| | 2011 total | 10 yr average | Release rate | Largest fish |
|---|---|---|---|---|
| Salmon | 2,853 | 1,860 | 89% / 62%* | n/a |
| Sea Trout | 295 | 479 | 71% | n/a |

*Season dates: 16 Feb – 31 Oct*
** Percentages are as shown – spring / summer.*

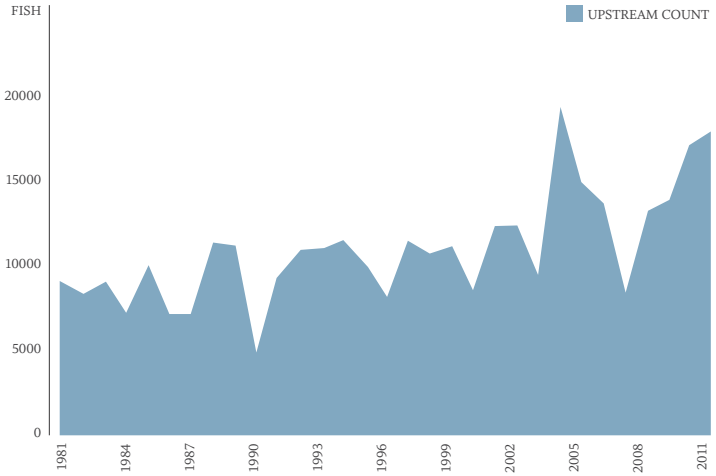



NORTH ESK ROD CATCH STATISTICS 1952-2011
SOURCE - ESK DSFB

# Logie counter (North Esk)

Dr Marshall Halliday - *Esk Fishery Board and Trust*

The Logie counter on the North Esk recorded the second highest number of salmon (18,340) since records began in 1981. This compares with a 10-year average of 15,239. The 2011 season was characterised by strong salmon runs from mid-April onwards, with the best month being May. However, grilse were very disappointing, being late and few in number. This was in direct contrast to the strong runs of grilse experienced in 2010. Sea trout, after two good years, were back to pre-2009 runs, which was surprising as cold winters were thought to improve sea survival and growth. The rapid and inconsistent changes in the status of stocks emphasises the unpredictable nature of marine salmon survival and growth. There is, however, some indication from marine observations that the areas which favour MSW salmon (West Greenland) are in much better condition than those which favour 1SW salmon.




NORTH ESK UPSTREAM COUNT 1981-2011
SOURCE - MARINE SCOTLAND SCIENCE

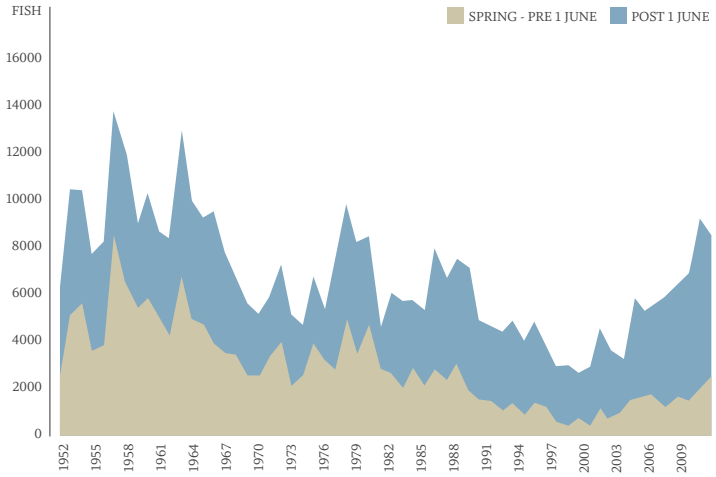
# Dee

Mark Bilsby - *River Dee Director*

2011 was the best spring catch for over 20 years, aided by good river levels. The overall catches during the summer and autumn were very good. Although there was an apparent lack of grilse, scale readings indicate that some of them may actually have been larger than usual and misclassified as salmon. Overall 2011 was the second best year in the last 30, just beaten by 2010. The programme of easing obstacles continues, with 19 of the river's 31 man-made obstructions now improved, and surveys indicate that fish are rapidly re-colonising previously inaccessible areas. The local farming community is being supported with a Trust grant to enable them to reduce the impact of diffuse pollution. This has been backed up by top-up funding from the Dee DSFB, to ensure that effective buffer strips are installed. Planning for the Upper Dee Riparian Scheme, an initiative to protect 50 miles of upland riverbank from increasing water temperatures, is continuing and has been included within a large European LIFE Project application.

| | 2011 total | 10 yr average | Release rate | Largest fish |
|---|---|---|---|---|
| Salmon | 8,686 | 5,787 | 99% | 31lb |
| Sea Trout | 1,826 | 2,068 | 95% | 7lb |

*Season dates: 1 Feb – 30 Sep*

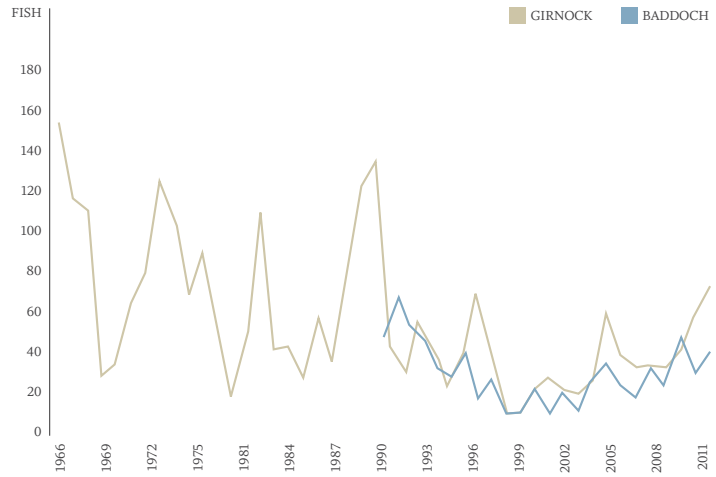



DEE ROD CATCH STATISTICS 1952-2011
SOURCE - DEE DSFB

# Girnock and Baddoch counters (River Dee)

Ross Glover - *Marine Scotland Science*

Marine Scotland's Freshwater Fisheries Laboratory operates two trap sites on tributaries of the upper Dee – the Girnock and Baddoch burns. These tributaries produce predominantly MSW early-running spring salmon, the group of fish that has been of most concern in recent decades. From the condition and timing of the males captured at the trap, we consider that male fish seek additional spawning opportunities by visiting more than one tributary, hence female numbers are a more reliable indicator of local abundance. The number of females returning to the Girnock was the highest for 23 years, and the return to the Baddoch was the sixth highest year since trapping operations commenced in 1988. Both adult numbers and the survival of smolts to returning adults have increased from an all-time low in 1997 to a level above the average recorded from 1966-2011.




GIRNOCK & BADDOCH FEMALE UPSTREAM BURN TRAP COUNTS 1966-2011
SOURCE - MARINE SCOTLAND SCIENCE

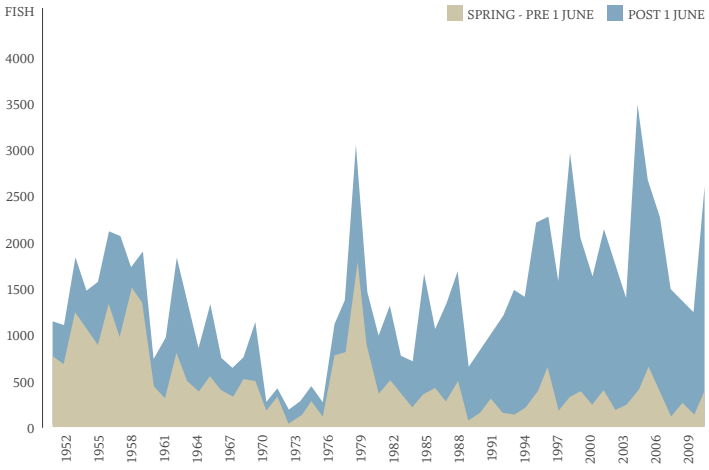
# Don

Jon Davison - *Chairman, Don DSFB*

The final 2011 catch retunrs are not in yet but it was an average season, with roughly 2,300 salmon caught. It started well, but low water in April and May resulted in very few fish entering the river system. From June onwards fishing effort picked up as the river level started to increase and good numbers of sea trout were seen and caught. September and October recorded good catches. Our hatchery continues to support the wild stock, with approximately 311,000 salmon eggs and 36,000 sea trout eggs planted out. The Trust has completed the first three years of its Fishery Management Plan and now has a firm foundation from which to implement restoration projects. 2012 will also see new beats open to anglers, but the development of two hydro schemes on the main river and two more on tributaries are causing concern.

| | 2010 total | 10 yr average | Release rate | Largest fish |
|---|---|---|---|---|
| Salmon | 2,474 | 1,942 | 82% | 27lb |
| Sea Trout | 394 | 600 | 80% | 7lb |

*Season dates: 11 Feb – 31 Oct*




DON ROD CATCH STATISTICS 1952-2010

SOURCE - DON DSFB

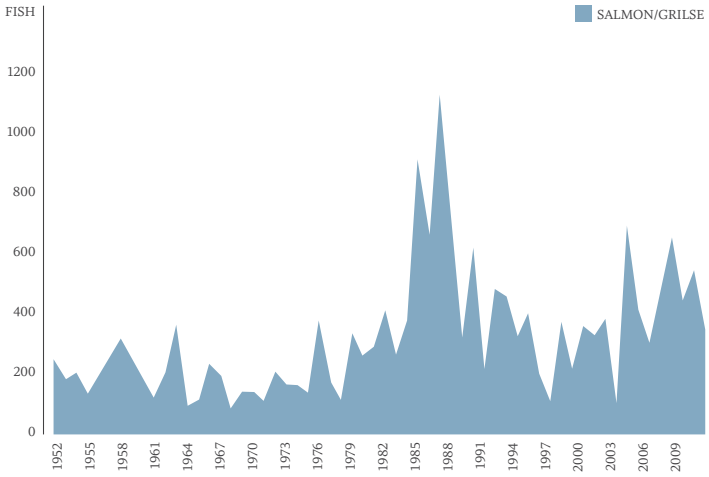
# Ythan

Mark Andrew - *Ythan DSFB*

This was a slightly disappointing year for salmon, while – although the sea trout total was decent – this was partially due to the high degree of effort, particularly in the estuary. Although, on certain days, some anglers had to stop fishing because they were catching too many fish, the fishing was generally less prolific than last year. Meanwhile, the low water conditions on the river meant the angling effort was limited until late on in the season when water levels rose, and fresh fish were still entering the river in November. The Trust has concluded the River Management Plan and the draft biosecurity plan is currently being considered. This will result in actions to control invasive species, as well as attempts to remove some obstacles in the river. In line with the plan all spring salmon and all sea trout caught in October must be returned.

| | 2011 total | Nets | 4 yr rod average | Release rate | Largest fish |
|---|---|---|---|---|---|
| Salmon | 337 | 207 | 509 | 66% | 32lb |
| Sea Trout | 2,122 | 74 | 1,456 | 69% | 7lb |

*Season dates: 11 Feb – 31 Oct*




YTHAN ROD CATCH STATISTICS 1952-2011

SOURCE - YTHAN DSFB

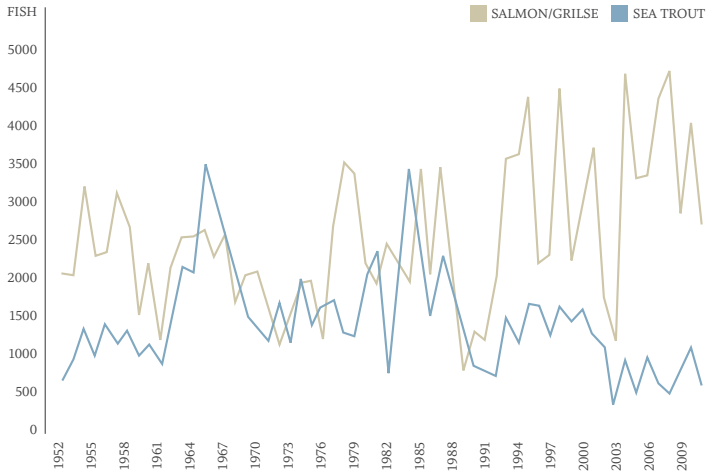
# Deveron

Richie Miller - *Senior Biologist, Deveron, Bogie & Isla Rivers Charitable Trust*

Last season's total was a significant decrease on 2010. The spring catch totalled 153 salmon to the end of May, with 116 (75%) returned to the river. Summer catches of salmon were again lower than average, partly due to a later and smaller run of grilse and prolonged low water conditions. Late August brought more fruitful angling conditions and catches increased steadily. During September and October there was a tremendous number of salmon within the system but they proved to be elusive. A notable salmon of 48.6 inches long, estimated around 40lb, was successfully caught and returned. The sea trout catch decreased from 1,354 to a total of 592, ranging from 3 to 8lb. The Board has recommended that all salmon caught before 31st May this year are returned to help conserve spring stocks. All sea trout under 6" and over 3lb will continue to be returned, with no sea trout to be retained after the end of July.

| | 2011 total | 10 yr average | Release rate | Largest fish |
|---|---|---|---|---|
| Salmon | 2,710 | 3,283 | 61% | 40lb |
| Sea Trout | 592 | 753 | 83% | 8lb |

*Season dates: 11 Feb – 31 Oct*




DEVERON ROD CATCH STATISTICS 1952-2011

SOURCE -DEVERON DSFB

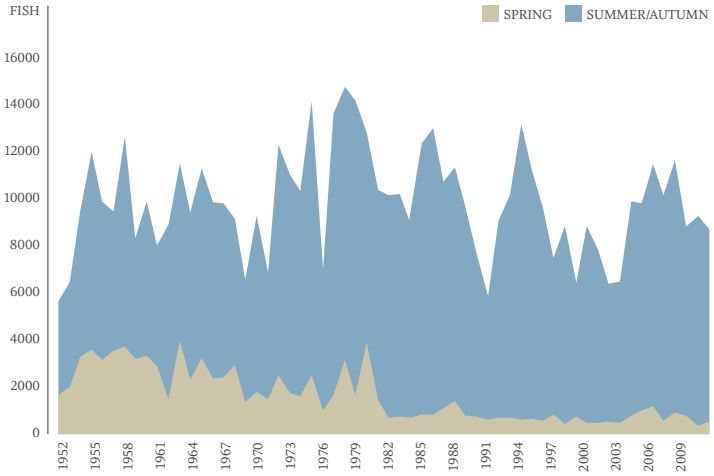
# Spey

Roger Knight - *Director, Spey Board and Trust*

The early part of the season saw good catches, with 3,850 salmon landed between February and June. There were more summer salmon than in recent years, but the grilse failed to arrive in significant numbers. The Board remains concerned by high levels of water abstraction, particularly in the upper catchment. The largest abstractor is Rio Tinto Alcan, which is licensed to divert water from Spey Dam to Fort William. The Board believes that the compensation flows released at Spey Dam are insufficient to allow adult salmon to migrate up to and above the dam to spawn, or to allow smolts to migrate down-river to sea. Meanwhile Scottish & Southern Energy, which already diverts water from the Rivers Tromie and Truim into the Tay catchment, is proposing to further reduce the flow down these two important spring salmon spawning tributaries, which is another major concern.

| | 2011 total | 10 yr average | Release rate | Largest fish |
|---|---|---|---|---|
| Salmon | 8,607 | 9,142 | 82% | n/a |
| Sea Trout | 1,975 | 2,732 | 69% | n/a |

*Season dates: 11 Feb – 30 Sep*




SPEY ROD CATCH STATISTICS 1952-2011

SOURCE - SPEY DSFB

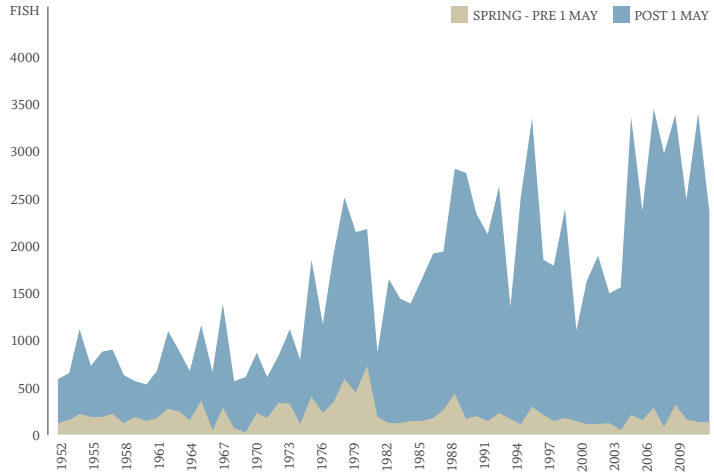
# Findhorn

Alasdair Laing - *Chairman, Findhorn DSFB*

The season saw a continued decline in spring fish – only 3 of the last 10 years have had catches over the 10-year spring average. Meanwhile the total salmon catch continues to be above average, while the grilse again ran late and in low numbers. A quite severe Saprolegnia outbreak in April and May killed significant numbers of salmon but, thankfully, there was still a decent stock of good sized fish in the upper river at end of season. Several windfarm applications are currently with the planners and the Board and Trust continue to engage with developers, planners and statutory authorities to protect river interests. Finally, the catch and release policy exceeded its aims, with all fish over 9lb, 70% of other salmon and 50% of grilse returned, which was encouraging, as was the fact that the Trust has received approval for a major spend on INNS over the next 5 years.

| | 2011 total | 10 yr average | Release rate | Largest fish |
|---|---|---|---|---|
| Salmon | 2,315 | 2,672 | 74% | n/a |
| Sea Trout | 64 | 136 | 76% | n/a |

*Season dates: 11 Feb – 30 Sep*




FINDHORN ROD CATCH STATISTICS 1952-2011

SOURCE - FINDHORN DSFB

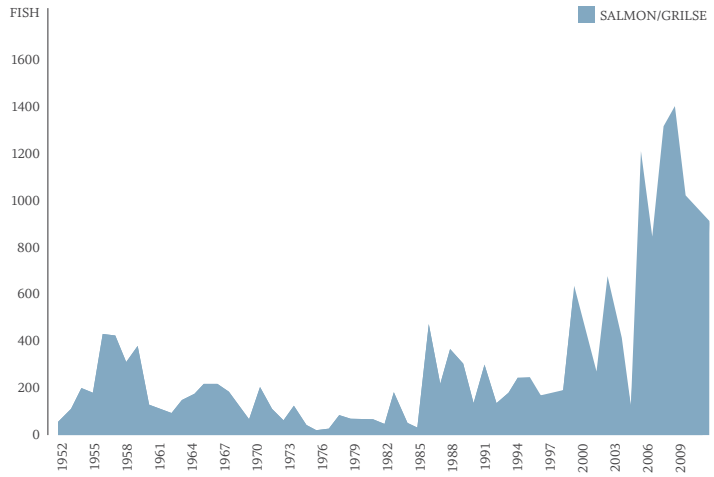
# Nairn

Peter Loutit - *Clerk, Nairn DSFB*

It seems there was a higher proportion of MSW fish in the system than for many seasons past. Fishing conditions were good throughout the season, thanks to the wet weather, although catches were poor to begin with and picked up as the season progressed. The grilse run was very late, not showing up until mid-August. Mink project trapping was undertaken throughout the year, at an increased level, and has resulted in over 60 mink being accounted for. Crayfish trapping also continues and, between the river bailiff and Nairn AA, in excess of 200 have been removed, apparently containing the upstream spread, as no evidence of them has been recorded higher than the Geddes Burn. Throughout last season, INNS surveys have been undertaken and a programme of spraying will commence this spring.

| | 2010 total | 10 yr average | Release rate | Largest fish |
|---|---|---|---|---|
| Salmon | 910 | 923 | n/a | 23lb |
| Sea Trout | n/a | n/a | n/a | n/a |

*Season dates: 11 Feb – 7 Oct*




NAIRN ROD CATCH STATISTICS 1952-2010

SOURCE - NAIRN DSFB

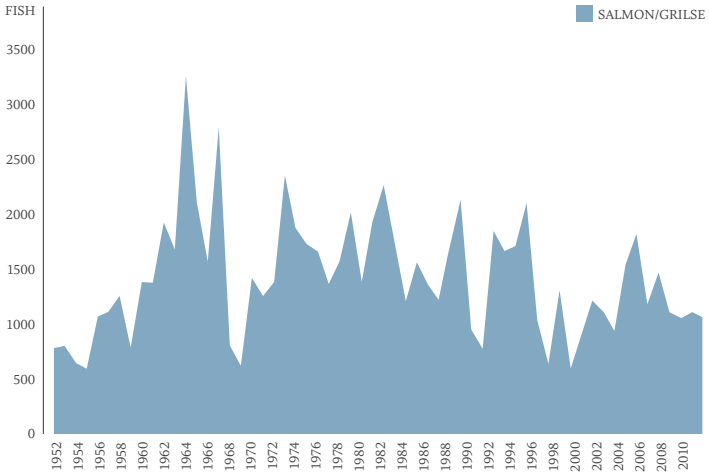
# Ness

Graham Mackenzie - *Ness DSFB*

Other than the River Moriston, the system again suffered a very disappointing spring, with most salmon being caught in late April and May; this has led the local Trust to try to conduct research on the upper Garry in an attempt to reverse the decline. Grilse runs were virtually non-existent, while the summer salmon didn't arrive in numbers until September, and most weekly totals on River Ness beats failed to reach double figures. Fish cages within the freshwater lochs remain high on the list of concerns, as escapees continue to be reported throughout the system. Plans for a proposed hydro scheme will also need to be closely examined. For 2012, all fish caught before the end of June are to be returned and all beats will need to achieve a minimum return rate of 50 per cent thereafter. Restrictions on worm fishing are also going to be imposed in certain areas.

| | 2011 total | 10 yr average | Release rate | Largest fish |
|---|---|---|---|---|
| Salmon | 1,033 | 1,357 | 75% | 28lb |
| Sea Trout | n/a | n/a | n/a | n/a |

*Loch Ness, River Moriston, River Oich & River Garry 15 Jan - 30 September.*
*River Ness 1 Feb - 15 Oct*




NESS ROD CATCH STATISTICS 1952-2011
SOURCE - NESS DSFB

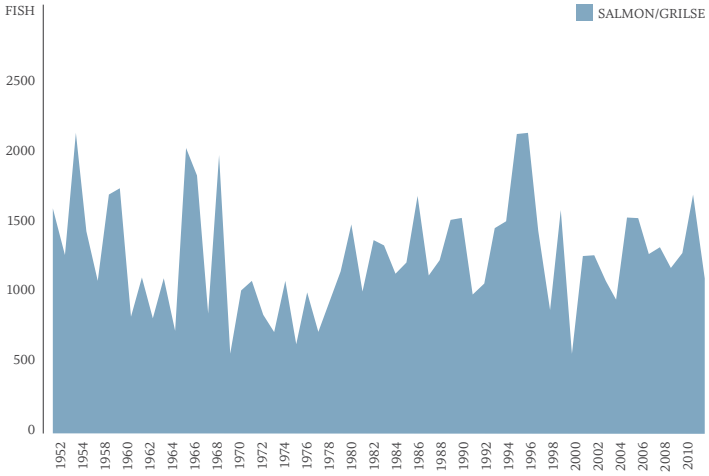
# Beauly

Nick McAndrew - *Chairman, Beauly DSFB*

Catches were disappointing compared to 2010, largely due to the scarcity of grilse. The lower syndicate caught 641, of which 78 per cent were returned, while the upper caught 67, returning 85 per cent. The hatchery has now been closed for two years. In the autumn of 2009, 5,000 parr were fin-clipped and released. Only one of these was caught this year, in good condition and weighing 5lb, but it is hoped that more may appear in 2012. Either way, it will be a good indication of whether the release of parr from the hatchery has been a worthwhile project for the rod fishery.

| | 2011 total | 10 yr average | Release rate | Largest fish |
|---|---|---|---|---|
| Salmon | 1,100 | 1,426 | 80% | n/a |
| Sea Trout | n/a | n/a | n/a | n/a |

*Season dates: 11 Feb – 15 Oct*

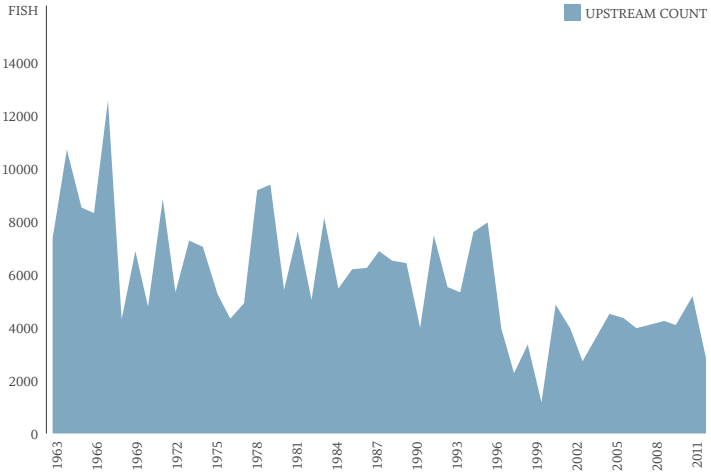



BEAULY ROD CATCH STATISTICS 1952-2011
SOURCE - BEAULY DSFB

# Beauly counter

Nick McAndrew - *Chairman, Beauly DFSB*

The upstream count at the Aigas dam was 2,800, well below both last year's 4,840 and the 5-year average of 4,230. As a result of this, catches for the Beauly's two main tributaries – the Glass and Farrar – were down on the previous season, with the former dropping from 500 to 280 and the later to around 100 from 150.




BEAULY (AIGAS) UPSTREAM COUNT 1963-2011
SOURCE - SCOTTISH AND SOUTHERN ENERGY

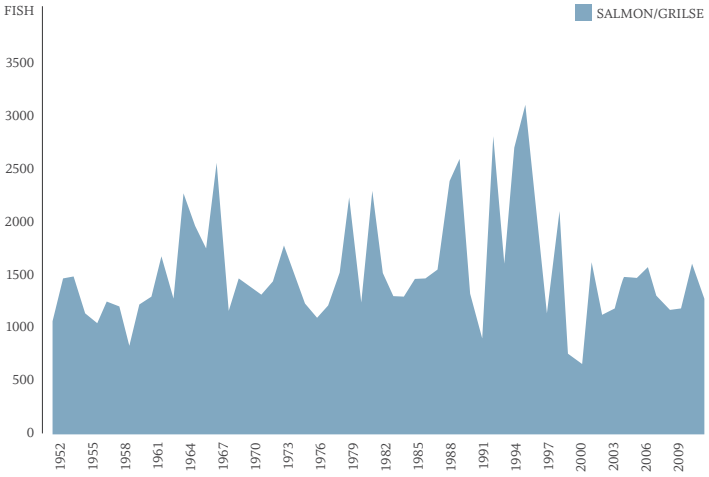
# Conon

Simon McKelvey - *Cromarty DSFB*

The season saw much stronger runs of MSW salmon in both the spring and summer, but very few grilse, while the sea trout run was again better. There has been a remarkable change from a period of grilse abundance to salmon abundance. This has been documented by the trap data on the River Blackwater, where the entire run of fish has been captured every year for the last 50 years. Ten years ago the Blackwater was essentially a grilse river, but this year the ratio of salmon to grilse was almost 3:1. Because the salmon have been in good condition they are depositing more than three times as many eggs as each grilse, so 90% of the eggs were of MSW origin. Works to restore access to the headwaters of the Rivers Orrin and Meig have resulted in some natural spawning in the Upper Meig and the return of adult salmon to the River Orrin, while a catchment-scale restoration programme is ongoing on the Peffery.

| | 2011 total | 10 yr average | Release rate | Largest fish |
|---|---|---|---|---|
| Salmon | 1,275 | 1,333 | 71% | 25lb + |
| Sea Trout | 122 | n/a | 61% | n/a |

*Season dates: 10 Feb – 31 Sep*




CONON ROD CATCH STATISTICS 1952-2011

SOURCE - CROMARTY DSFB

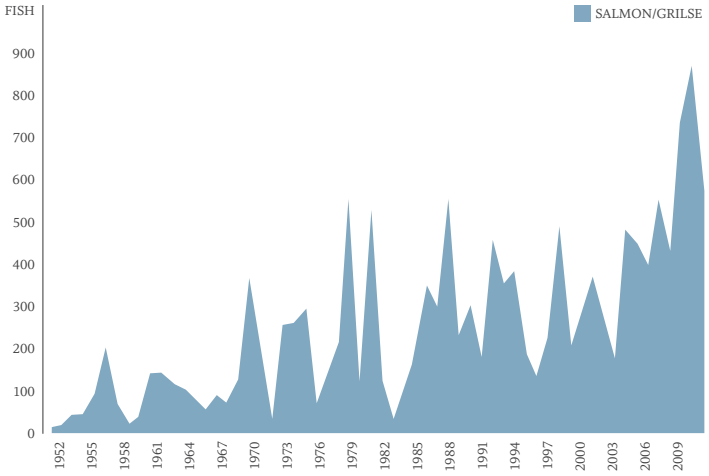
# Alness

Roger Dowsett - *Novar Fishings Manager*

The spring run looked to be the best for many years, with 50 salmon landed before the end of June, but the grilse were late to arrive and numbers seemed significantly down on previous years. By contrast, MSW summer salmon numbers appeared to be excellent, and of greater average size. Indeed, the grilse catch was only about 65% of the average from 2005-2009 while the MSW catch was almost double. The Board is still attempting to resolve the problems caused by a poorly designed road culvert, which prevents salmonid access to the Allt na Seasgaich and its tributaries, which have 8,000 square meters of habitat suitable for salmonid production. Approaches have been made to HRC Highways Department to resolve this problem, but there has been no progress to date and, for various reasons, there has also been no restocking of this burn for the past three seasons.

| | 2011 total | 10 yr average | Release rate | Largest fish |
|---|---|---|---|---|
| Salmon | 578 | 696 | 61.8% | 20lb + |
| Sea Trout | n/a | 75 | n/a | n/a |

*Season dates: 10 Feb – 31 Oct*




ALNESS ROD CATCH STATISTICS 1952-2011

SOURCE - CROMARTY DSFB

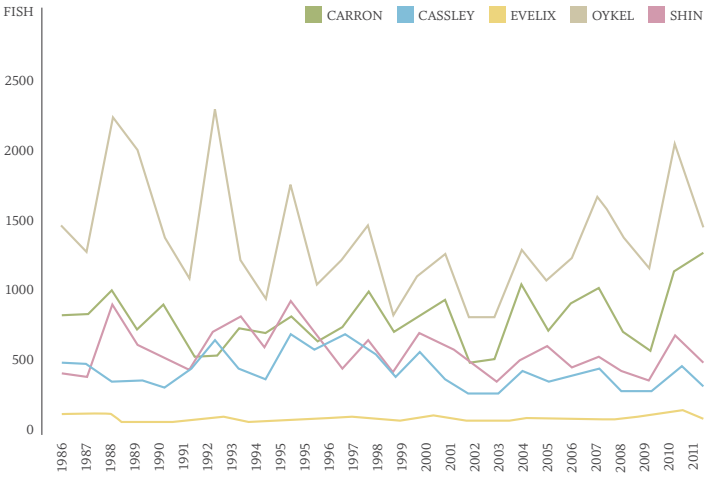
# Kyle of Sutherland

Iain McMyn - *Director, Kyle DSFB*

The season was dominated by catches of MSW salmon, while the grilse did not turn up in any numbers. Hydro impacts on the Carron and Shin systems remain a concern, while the Carron has benefitted from habitat improvement work. Looking ahead, the Board will be buying out the nets at Bonar Bridge during 2012. Although not fished since 1995, as the Board has paid rent to keep them closed, we can now ensure they never open again. As of last season we have introduced a conservation policy that intends to see the return of all MSW fish, while all sea trout and grilse caught before 15 June should be returned and at least 80 per cent of these released thereafter. The Board is also committed to providing education and training for anyone who requests it.

| | 2011 total | 10 yr average | Release rate | Largest fish |
|---|---|---|---|---|
| Salmon | 3,840 | 3,230 | 85% | 30lb |
| Sea Trout | 694 | n/a | n/a | 5lb |

*Season dates: 15 Mar – 31 Oct*




KYLE OF SUTHERLAND ROD CATCH STATISTICS 1986-2011

SOURCE - KYLE DSFB

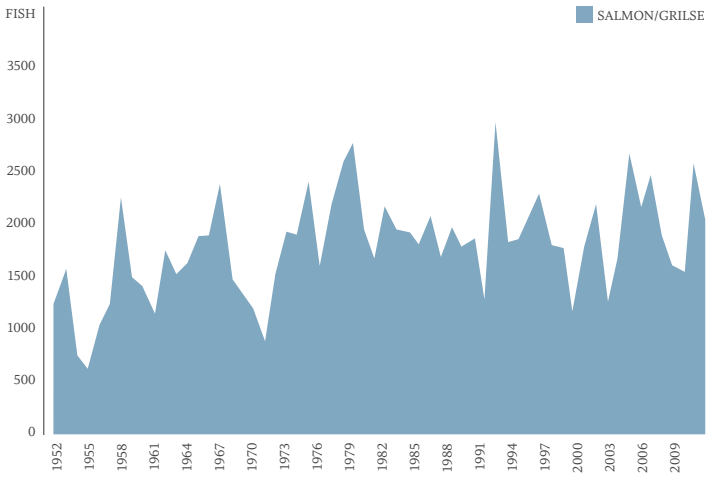
# Helmsdale

Michael Wigan - *Fishery Manager, Helmsdale DSFB*

According to the counter on the river, the biggest run of fish occurred in May. The May run and catches then outperformed any recent year. The Board has been trying to manage for springers and this increase is encouraging. Fish sizes were above averages, a fact accentuated by the lack of grilse with lower weights. Larger MSW fish continued running the river steadily right through mid-summer. Intermittent rain helped anglers and there were few lifeless periods. Grilse were scarce, as they were everywhere else. By September the river was full of fish and catches were high. Five weeks without rain coincided with the November spawning. Next year will see the continuing encouragement of catch and release.

| | 2011 total | 10 yr average | Release rate | Largest fish |
|---|---|---|---|---|
| Salmon | 2,023 | 1,835 | 81% | 30lb |
| Sea Trout | n/a | n/a | n/a | n/a |

*Season dates: 11 Jan – 30 Sep*




HELMSDALE ROD CATCH STATISTICS 1952-2011
SOURCE - HELMSDALE DSFB

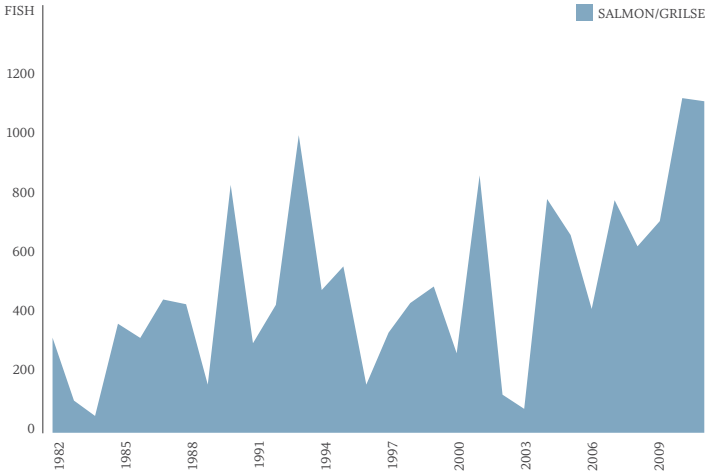
# Wick

John Mackay - *Secretary, Wick Angling Club*

This was our second best season on record, and was only beaten by the 2010 returns. We normally have a low spring catch, but this year it more than doubled, with some 99 fish caught before the end of June. The summer run was late in arriving but there was a prolific run in August, and the 654 caught made it the best August on record. Fresh fish continued running the river until the end of the season and three fish fresh out of the sea were caught in the spawning nets in mid-November. Judging from the catch returns and the spawning nets there were more salmon and less grilse than usual in the system.

| | 2011 total | 10 yr average | Release rate | Largest fish |
|---|---|---|---|---|
| Salmon | 1,114 | 647 | 28% | 25.5lb |
| Sea Trout | 14 | n/a | 14% | 3.5lb |

*Season dates: 11 Feb – 31 Oct*




WICK ROD CATCH STATISTICS 1982-2011
SOURCE -RIVER WICK

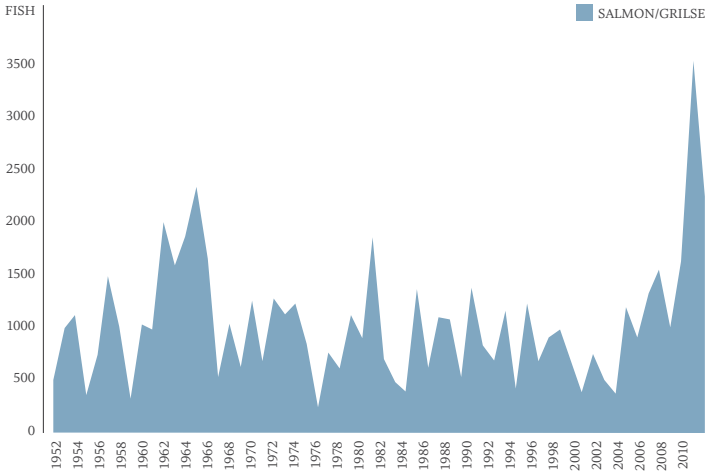
# Thurso

Eddie McCarthy - *Thurso River Manager*

With lowish water conditions until mid-May catches were initially slow, but with the arrival of good water the fish came in in decent numbers and there were some very big fish among them. The summer saw a steady procession of fish and culminated in a very late and depleted number of grilse arriving through to the end of the season. A formal Conservation Strategy has been adopted by Thurso River Limited in respect of Beats 2-13. The primary focus is on spring fish.

| | 2011 total | 10 yr average | Release rate | Largest fish |
|---|---|---|---|---|
| Salmon | 2,210 | 1,325 | 66% | 27lb |
| Sea Trout | 104 | n/a | 66% | 11lb |

*Season dates: 11 Jan – 30 Sept*




THURSO ROD CATCH STATISTICS 1952-2011
SOURCE - THURSO RIVER MANAGEMENT

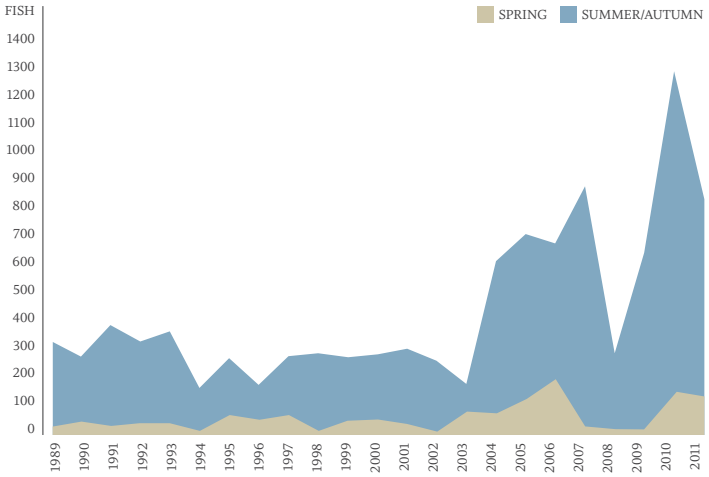
# Halladale

John Salkeld - *Halladale Partnership*

The spring salmon run again started late, with low water in April, but May was very good, with improved water levels. Water levels were again poor from mid-June to early August and the grilse run was about 3-4 weeks late. Excellent water levels to the end of the season saw very good catches in August and September, which slightly flattered the numbers of fish entering the river. The MSW salmon were mostly in excellent condition, although the grilse were not as good. Spawning was late, due to unseasonably warm weather, but overall about average. Felling forestry to waste has become an issue in the catchment, as the resulting release of phosphates and nitrates has been shown to continue for much longer than was originally estimated.

| | 2011 total | 10 yr average | Release rate | Largest fish |
|---|---|---|---|---|
| Salmon | 956 | 663 | 71% | 24lb |
| Sea Trout | 6 | n/a | n/a | n/a |

*Season dates: 12 Jan – 30 Sep*




HALLADALE ROD CATCH STATISTICS 1989-2011
SOURCE - HALLADALE PARTNERSHIP

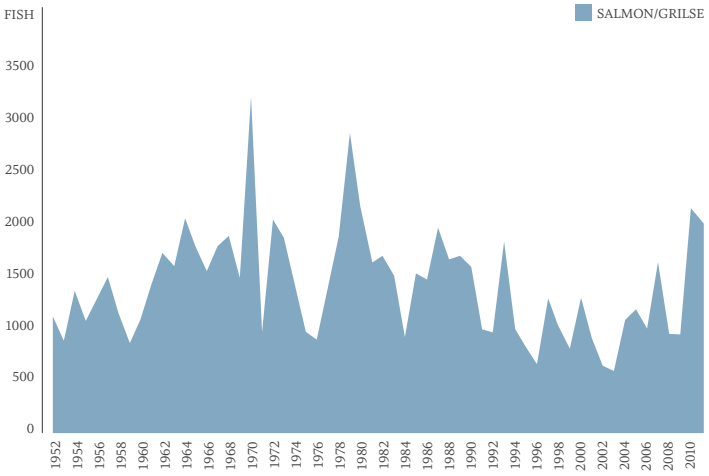
# Naver

Chris Conroy - *Superintendent and Biologist, River Naver Fisheries*

The total number of salmon and grilse recorded across the District was the second best year since 1980. The 1,077 MSW salmon exceeded the total recorded in 2011 (1,000 fish), but the numbers of grilse were significantly reduced – falling from 1,022 to just 831. A total of 154 spring fish were recorded, just ten fish lower than in 2010. However, a record drought occurring in April is thought to have delayed many springers. Conservation measures vary throughout the Naver District. However, the River Naver Fisheries, which control approximately 20 miles of main river, have a Conservation Policy which aims to protect and conserve the vulnerable spring component. The current policy states that 'all fish over 61cm or 6lbs are to be released throughout the season'. The number of fish below this size limit that can be taken varies throughout the season and the policy is reviewed on an annual basis.

| | 2011 total | 10 yr average | Release rate | Largest fish |
|---|---|---|---|---|
| Salmon | 1,908 | 1,156 | 84% | 25lb |
| Sea Trout | 432 | n/a | 57% | 5.5lb |

*Season dates: 12 Jan – 30 Sep*




NAVER ROD CATCH STATISTICS 1952-2011
SOURCE - NAVER MANAGEMENT

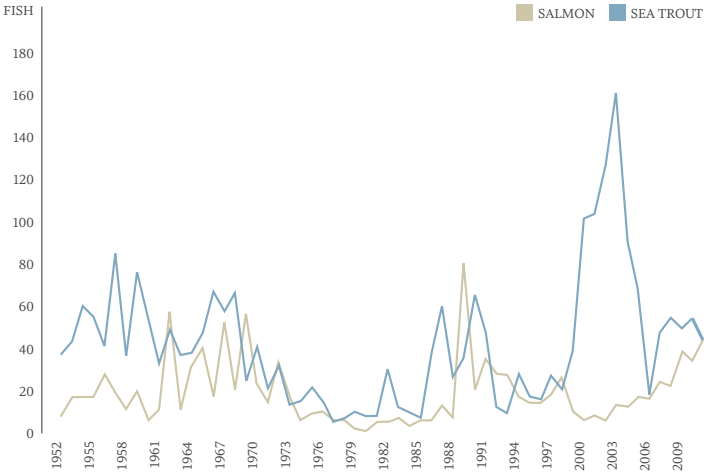
# Polla

Charles Marsham - *Chairman, North and West Sutherland Board and Trust*

We only fish on average two rods from the end of June to end of September on the river and the total catch was 44 sea trout, at an average of 2.5lb, and 44 salmon and grilse averaging about 5lb for grilse, and in the region of 8lb for salmon. There appears to be a shift in the proportion of sea trout and salmon. Traditionally the catch ratio has been roughly 66% sea trout 33% salmon, while it is now 50/50, with sea trout declining while salmon numbers have increased. The current catch and release rate is marginally below our goal of 75 per cent.

| | 2011 total | 10 yr average | Release rate | Largest fish |
|---|---|---|---|---|
| Salmon | 44 | 22 | 60 - 70% | 27lb |
| Sea Trout | 44 | 50 | 60 - 70% | 8lb |

*Season dates: 1 Jun – 30 Sep*




POLLA ROD CATCH STATISTICS 1952-2011
SOURCE - NORTH AND WEST SUTHERLAND DSFB

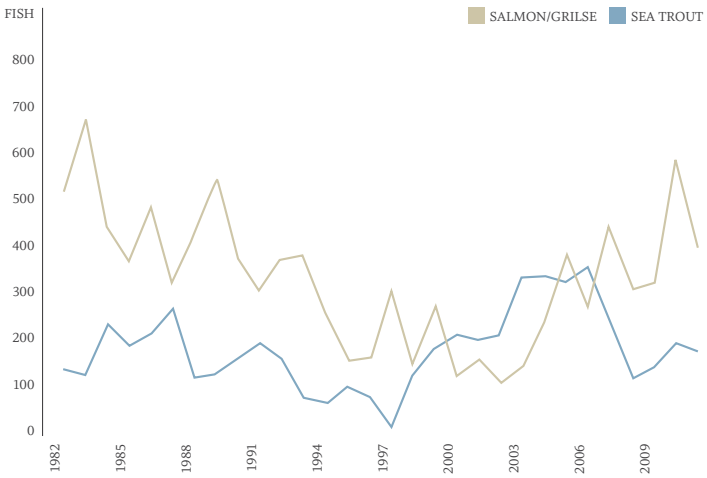
# Dionard

Jim Allingham - *North and West DSFB*

The season featured good water in late May, when more MSW salmon than for many years entered the river. There then ensued a dry spell which lasted until the second week in August when, with water, the first grilse appeared. Some of these were very small and a few had red vents but the average weight was quite good. The overall number of salmon caught, while less than in 2010, was slightly above the average for the previous five years. However, the average weight was significantly better, helped by a much higher than usual number of fish of over 7lb, almost all of which were released. A few much larger than usual salmon were caught, including a fairly fresh hen fish of 42 inches in length and estimated to weigh at least 28lb. This is believed to be the largest salmon ever taken from Gualin Estate.

| | 2011 total | 10 yr average | Release rate | Largest fish |
|---|---|---|---|---|
| Salmon | 401 | 245 | 76% | 28lb |
| Sea Trout | 179 | 322 | 92% | 5lb |

*Season dates: 11 Feb – 31 Oct*




DIONARD ROD CATCH STATISTICS 1982-2011
SOURCE - NORTH AND WEST DSFB

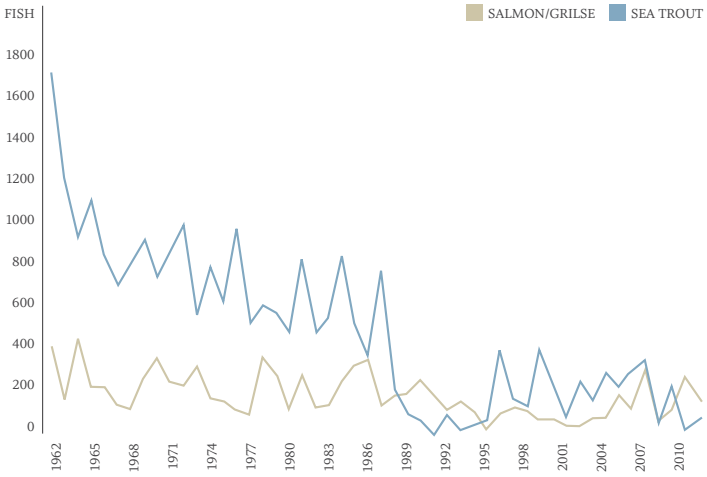
# Laxford

Shona Marshall - *Biologist, West Sutherland Fisheries Trust and Reay Forest Estate*

The 2011 season was another good year for salmon – yielding a rod catch of 254, up to 22lb. The first fish was caught in April. There were fish caught each month but the greatest catch was in August when the rain came. There was an encouraging 79% release rate within the river. Sea trout numbers on the other hand remain poor, although better than 2010, with a total of 108 fish. The largest sea trout from the River Laxford was 3lb 8oz, but two thirds of the overall catch was finnock. The low catch is of concern and goes against recent trends.

| | 2011 total | 10 yr average | Release rate | Largest fish |
|---|---|---|---|---|
| Salmon | 254 | 185 | 79% | 22lb |
| Sea Trout | 108 | 231 | 98% | 3.5lb |

*Season dates: 11 Feb – 31 Oct*




LAXFORD ROD CATCH STATISTICS 1962-2011
SOURCE - WEST SUTHERLAND FISHERIES TRUST

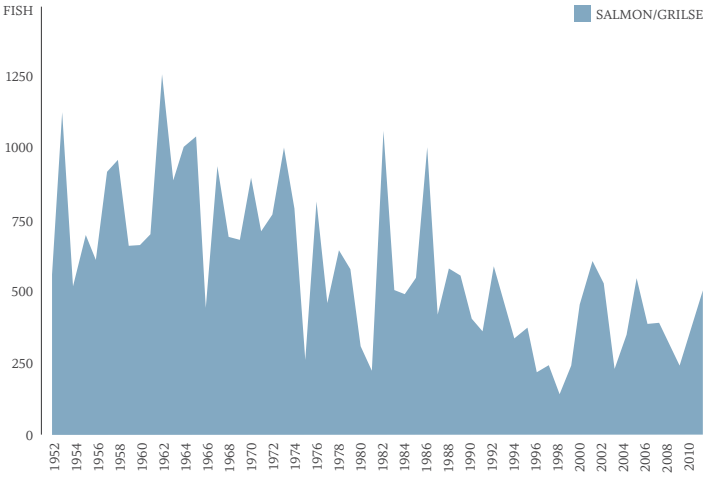
# Grimersta

Simon Scott - *Director, Outer Hebrides Fisheries Trust*

This was a very good season and an improvement on the 5-year average. Rare spring salmon were recorded as early as February. The main run of grilse arrived in mid-July and thereafter weekly returns were remarkably consistent. The August return of 168 salmon and grilse is the best for 22 years, the 145 salmon and grilse caught in September are the best figures for 19 years and the season's sea trout total unsurpassed for 27 years. The improved aquaculture management regime in Loch Roag may be a contributory factor in the return of sea trout in the last three years. We are encouraging the publication of a Management Plan for the Langavat Special Area of Conservation (SAC). Grimersta operates a policy of voluntary catch and release and the figure of 86% returned is the best to date.

| | 2011 total | 10 yr average | Release rate | Largest fish |
|---|---|---|---|---|
| Salmon | 518 | 402 | 86% | 15lb |
| Sea Trout | 389 | 144 | 100% | n/a |

*Season dates: 3 Jun – 15 Oct*




GRIMERSTA ROD CATCH STATISTICS 1952-2011
SOURCE - WESTERN ISLES DSFB

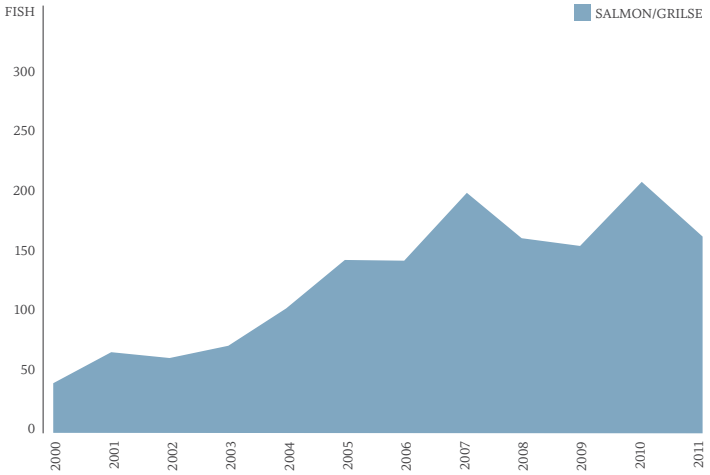
# Snizort

Derek Dowsett - *Snizort River Manager*

Last season was atypically dry, with only one good spate in July and two in August. Catches during these two prime months reflected the poor river conditions. However, very large numbers of salmon and sea trout were seen during these months in the estuary of the river in Loch Snizort Beag. With the onset of steady rainfall from September to the end of the season the catches improved markedly. Most rewarding, however, was the large percentage of double-figure hen fish caught, in prime condition carrying very few sea lice. Sea trout were also found to be carrying very few lice and were in generally good condition. The re-stocking programme continues, although we have little baseline scientific data to say whether the recovery of salmon in the river is benefitting from the programme. The catch figures, however, do point to a steady recovery, although this may also be thanks to our strict catch and return policy.

| | 2011 total | 10 yr average | Release rate | Largest fish |
|---|---|---|---|---|
| Salmon | 157 | 116 | 99.5% | 22lb |
| Sea Trout | 37 | 56 | 98.5% | 4lb |

*Season dates: 11 Feb – 15 Oct*




SNIZORT ROD CATCH STATISTICS 2000-2011
SOURCE - SKYE DSFB

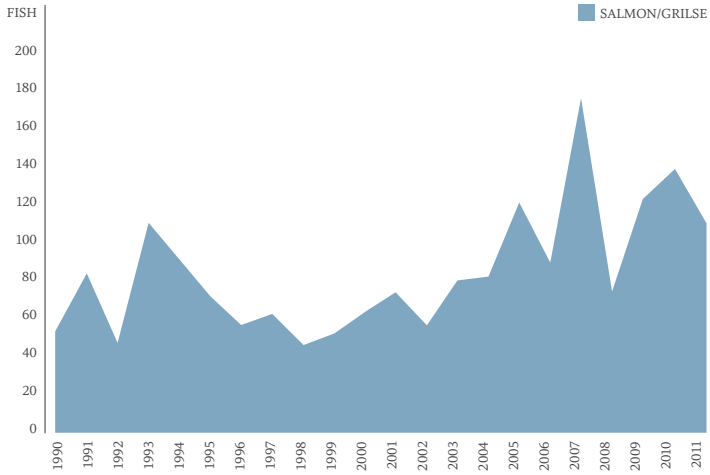
# Little Gruinard

Graeme Wilson - *Manager, Little Gruiniard*

Although we were up on our average, we were down on last year's total of 135. This was mainly due to a noticeable lack of grilse, which accounted for only around two thirds of the catch this year, but was also caused by the low rainfall and strong north winds in July. An electro-fishing survey carried out this year by the Wester Ross Fisheries Trust found the river to be in good overall condition, with encouraging numbers of fry and parr in all the surveyed areas. The river was sold by the Van Vlissingen family to Gordon Crawford of Eilean Darach Estate in June. He would like to continue letting the fishing on a catch and release basis.

| | 2011 total | 10 yr average | Release rate | Largest fish |
|---|---|---|---|---|
| Salmon | 108 | 104 | 100% | 18lb |
| Sea Trout | n/a | n/a | 100% | n/a |

*Season dates: 11 Feb – 31 Oct*




LITTLE GRUINARD ROD CATCH STATISTICS 1990-2011
SOURCE - LITTLE GRUINARD MANAGEMENT

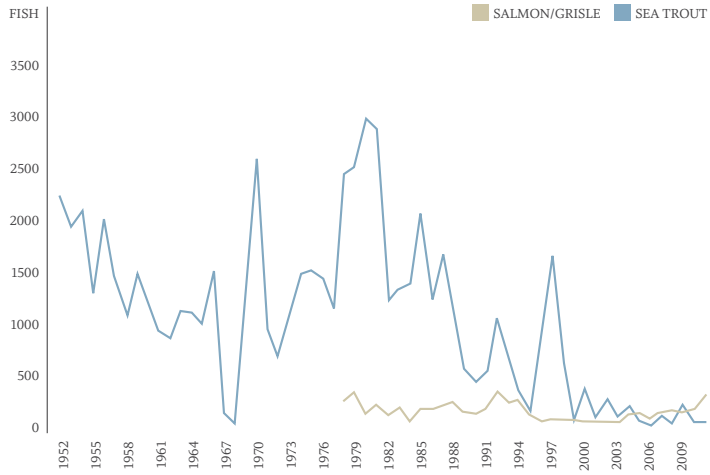
# Ewe and Loch Maree

Peter Cunningham - *Biologist, WRFT*

The system had its best salmon season since 1992, yielding 340 salmon and grilse. A big difference compared to 2010 was of a much larger catch of MSW fish in May and June, although the grilse numbers were down on last year's. I have not compiled figures for sea trout yet, but anecdotes suggest it has been another poor year, with no fish of over 4lb reported. Issues potentially affecting the system over the past year include proposal for a large scheme to take water from the River Ewe. Monitoring of fry and parr shows that wild salmon have not successfully spawned in the upper Bruachaig since the 1990s, but a joint project with local estates and WRFT is attempting to reverse this trend. Another on-going concern is the push by the salmon farming industry to increase production within the area, with recent applications to expand in the Loch Alsh/Duich area, Loch Carron and Loch Torridon.

| | 2011 total | 10 yr average | Release rate | Largest fish |
|---|---|---|---|---|
| Salmon | 340 | 202 | 91% | 25lb |
| Sea Trout | n/a | n/a | n/a | n/a |

*Season dates: 11 Feb – 31 Oct*




RIVER EWE SALMON ROD CATCH STATISTICS 1978-2011
LOCH MAREE SEA TROUT ROD CATCH STATISTICS 1952-2010
SOURCE - WESTER ROSS FISHERIES TRUST

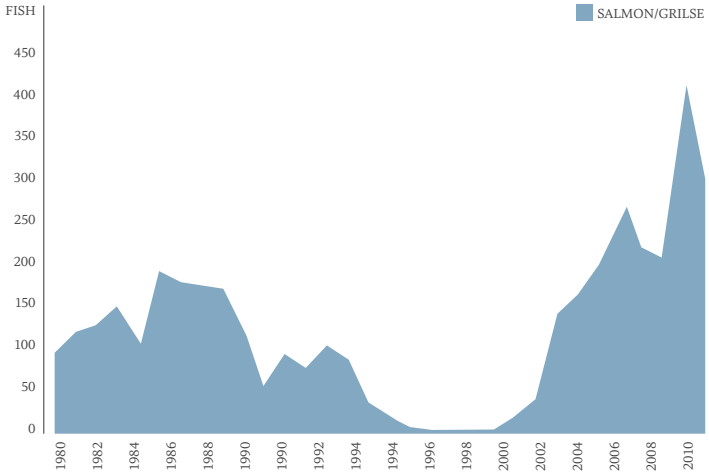
# Carron (Wester Ross)

Bob Kindness - *Carron River Manager*

The grilse catch was well down on 2010 but the salmon catch was the best since records began in 1952. The average size of the salmon was also well ahead of anything recorded in the past – at over 10lb – while eight were caught at 20lb and over. Of particular interest this season was the presence of a strong spring run, the first of any significance in living memory. These fish were of exceptional quality, with several being tagged stocked fish. Sea trout catches were similar to the last two seasons, with good numbers present in the sea pools in the spring, while decent numbers ran the river from July onwards. Throughout the season the sea trout were in good condition, with few signs of lice. A total catch and release policy is in place, apart from tagged fish and those retained as broodstock. Stock produced from these brood fish has been instrumental in restoring the river.

| | 2011 total | 10 yr average | Release rate | Largest fish |
|---|---|---|---|---|
| Salmon | 303 | 198 | 93% | 24lb |
| Sea Trout | 191 | 130 | 100% | 4lb |

*Season dates: 11 Feb – 31 Oct*




CARRON ROD CATCH 1980-2011
SOURCE - RIVER CARRON MANAGEMENT

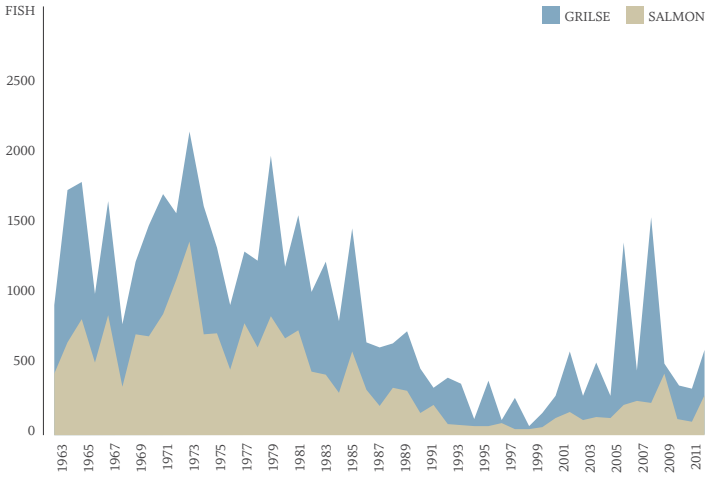
# Lochy

John Veitch - *Lochy River Manager*

2011 was a good season in many ways, with the overall rod catch being the third best in the last 10 years, while it was best year for MSW salmon since 1988. Our average salmon weight was just under 13lb, with five over 25lb. Grilse numbers were also encouraging, just topping the numbers of MSW fish and averaging 4.6lb. A total of 35 hatchery-reared salmon and grilse, which were stocked as smolts in 2009, were taken. This equates approximately to a 2% survival rate, or 360 extra fish, and added an estimated 1 million extra eggs to the system. Although this can be seen as a low return, it has been estimated that smolts that have grown entirely in the wild will fare no better than this given the problems of aquaculture in the area. Also, this is the 'untreated' survival rate – we will know at the end of next year what the 'lice treated' rate is. From 2012 between 50,000 and 100,000 lice-treated smolts will be stocked each year, along with a healthy stocking of fry in underutilised areas of our catchment. We are looking forward to the results of this project.

| | 2011 total | 10 yr average | Release rate | Largest fish |
|---|---|---|---|---|
| Salmon | 575 | 589 | 89% | 29lb |
| Sea Trout | 50 | n/a | n/a | 4lb |

*Season dates: 15 May – 15 Oct*




LOCHY ROD CATCH STATISTICS 1963-2011
SOURCE - LOCHY ASSOCIATION

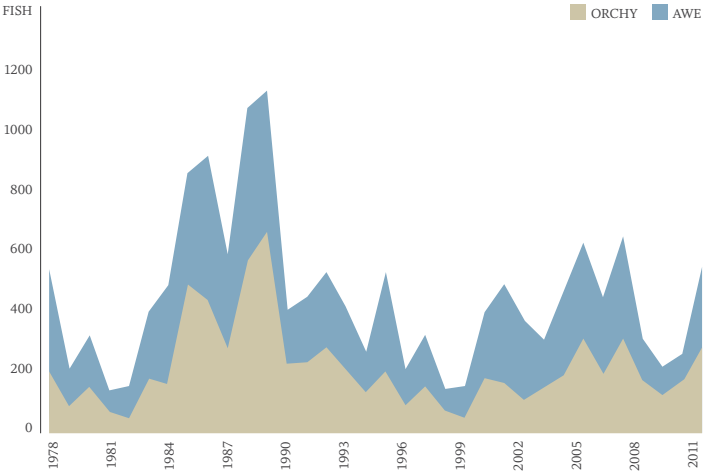
# Awe and Orchy

Roger Brook - *Chairman, Argyll DSFB*

Although the Awe system does not have a spring run of any note, many more fish were caught before the end of May than is usual. The summer run arrived on time but there were very few grilse compared with normal. The season's catch was twice last year's, despite the counter registering an increase of only 31% in the number of fish in the river. This might be explained by the fact that a very wet summer and autumn created better fishing conditions than normal, while the catch rate may also have been improved if salmon are catchable over a longer period than grilse. There are permanent conservation rules on the river to protect the spring salmon and most of the grilse. In the previous two seasons it was necessary to put a total ban on killing fish as soon as the counter made it clear that the run was very poor. It is notable that, despite no special rules being imposed last season, the release rate remained at its highest level achieved of 95%.

| | 2011 total | 10 yr average | Release rate | Largest fish |
|---|---|---|---|---|
| Salmon | 547 | 424 | 95% | n/a |
| Sea Trout | n/a | n/a | n/a | 4lb |

*Season dates: 11th Feb - 15th Oct*

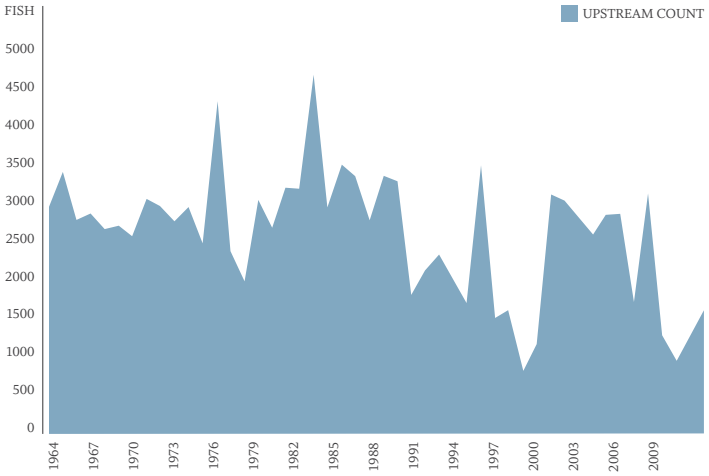



AWE & ORCHY ROD CATCH STATISTICS 1978-2011
SOURCE - ARGYLL DSFB

# Awe counter

Roger Brook - *Chairman, Argyll DSFB*

The Barrage count, at 1,583, was up by a third over the previous year and double the count of 2009, but was poor compared with the long term average of 2,600. It is now five years since we have had a run of fish that compared well with the average for the river. The summer run arrived on time in mid-June, as it always does on the Awe, but its grilse component was very low. Considering the improvement over recent years, the Board did not impose any special conservation measures, but anglers continued to return almost all the fish caught.




AWE BARRAGE UPSTREAM COUNT 1964-2011
SOURCE - SCOTTISH AND SOUTHERN ENERGY

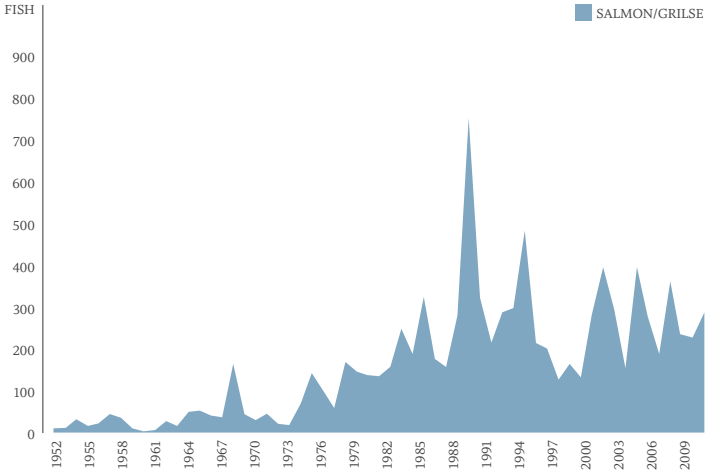
# Irvine and Garnock

Stuart Brabbs - *Ayrshire Rivers Trust*

Along with other Ayrshire rivers the Irvine suffered from a lack of grilse, while MSW salmon were common. There was a good early run of fish with fish being caught regularly from May, especially on the lower river. The wettest autumn for many years reduced the number of days available to anglers, and the upper reaches reported a very poor back end to their season. On a more optimistic note, catch and release statistics from 2010 were the best since records began in 1994. Furthermore, work is currently underway on the Kilmarnock Water to ease fish passage over the notorious Black Rocks Waterfall. This natural obstacle was modified during the 1960s following a drowning, which led to the falls becoming virtually impassable to salmonids, as well as a poaching hotspot. Further upstream, the Dean Ford (a series of perched pipes) is next in line for improvement and a bridge is planned for construction during 2012.

| | 2010 total | 10 yr average | Release rate | Largest fish |
|---|---|---|---|---|
| Salmon | 287 | 284 | 37% | n/a |
| Sea Trout | 29 | n/a | 14% | n/a |

*Season dates: 15 Mar – 15 Nov*




IRVINE/GARNOCK - ROD CATCH STATISTICS 1952-2010
SOURCE - AYRSHIRE RIVERS TRUST

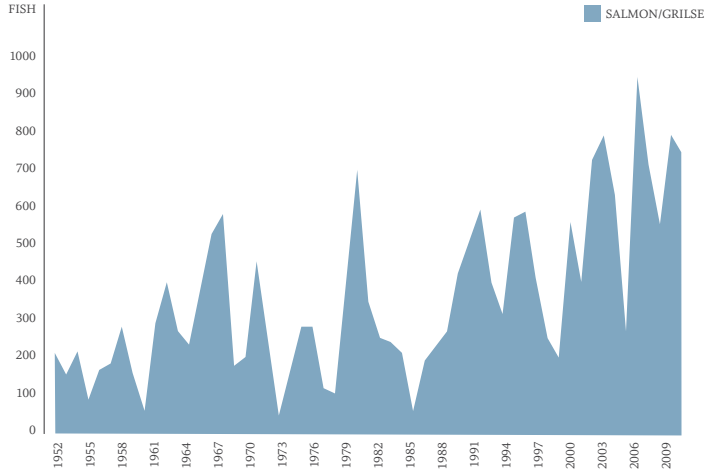
# Ayr

Stuart Brabbs - *Ayrshire Rivers Trust*

The 2011 returns were not available at the time of writing, but overall it was a disappointing season. Few salmon showed up until late May, but these were generally of a good size, with several around 15lb reported. The grilse run was very poor and late, not arriving until well into August, but these fish were in better condition than last year's. Sea trout were few and far between. Spate conditions prevailed for much of the autumn and catches declined as a result. Open-cast coal mining continues to be a source of concern, but modifications to the lower Ponesk Burn in the upper catchment – to enable the extraction of substantial coal reserves – should open up several miles of high quality habitat for migratory species. The Board recommend that all salmon caught before 1st June are returned.

| | 2010 total | 10 yr average | Release rate | Largest fish |
|---|---|---|---|---|
| Salmon | 734 | 755 | 20% | n/a |
| Sea Trout | 54 | n/a | 91% | n/a |

*Season dates: 11 Feb – 31 Oct*




AYR ROD CATCH STATISTICS 1952-2010
SOURCE - AYRSHIRE RIVERS TRUST

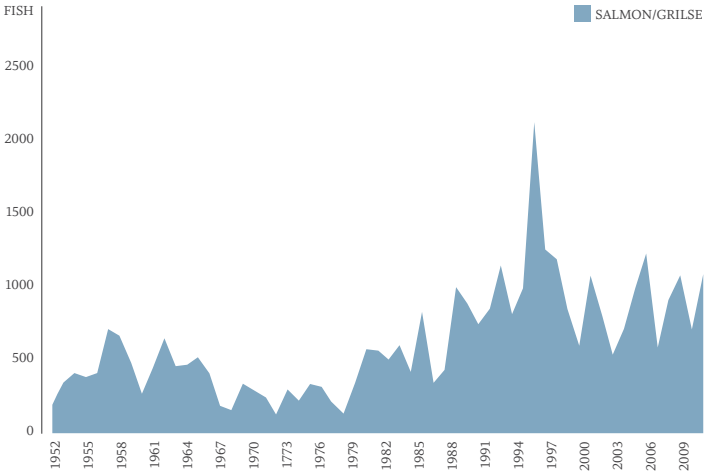
# Doon

Stuart Brabbs - *Ayrshire Rivers Trust*

The 2011 catch returns were not available at the time of writing, but it seems to have been a decent season. The earliest fish caught was from the middle reaches in May, while others were reported in the upper river in June. Grilse typically arrive in numbers in July and most beats had sport but, as elsewhere in Ayrshire this season, larger fish seemed to be common, with fish up to 25lb being recorded. Some middle beats did well in low water during August, but the wettest September in 10 years, followed by the wettest October in more than a century, didn't help the final catch figures. The Save the Doon campaign, which opposed cuts to the river's compensation flow, achieved its goal in 2011 and all plans for future water cuts have now, thankfully, been dropped.

| | 2010 total | 10 yr average | Release rate | Largest fish |
|---|---|---|---|---|
| Salmon | 1,077 | 539 | 51% | 25lb |
| Sea Trout | 11 | n/a | 82% | n/a |

*Season dates: 11 Feb – 31 Oct*




DOON ROD CATCH STATISTICS 1952-2010
SOURCE - AYRSHIRE RIVERS TRUST

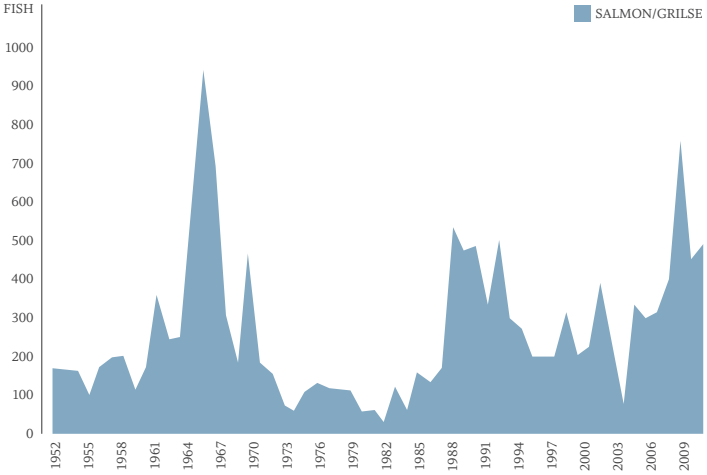
# Girvan

Stuart Brabbs - *Ayrshire Rivers Trust*

The 2011 returns were not available at the time of writing, but early indications are that the season was even better than last year, which was 26% above the 10-year average. The Water of Girvan got off to a good start, with the earliest reported salmon captured in March and, as the season progressed, the lower and middle reaches fished well, with several fish nearing 20lb. As with other Ayrshire rivers, the grilse run was poor, but there was no shortage of salmon in the 10-12lb range. September and October were largely dominated by spate conditions, although those that ventured out had some success. Some encouraging signs for the future were that 57% of all salmon landed were released and the fish passage at the Girvan Dykes was improved by the addition of a notch fish pass in each of the two weirs. Before construction was completed, fish were seen moving through the upper pass in low flow conditions.

| | 2010 total | 10 yr average | Release rate | Largest fish |
|---|---|---|---|---|
| Salmon | 498 | 393 | 57% | 25lb |
| Sea Trout | 45 | n/a | 93% | n/a |

*Season dates: 25 Feb – 31 Oct*




GIRVAN ROD CATCH STATISTICS 1952-2010
SOURCE - AYRSHIRE RIVERS TRUST

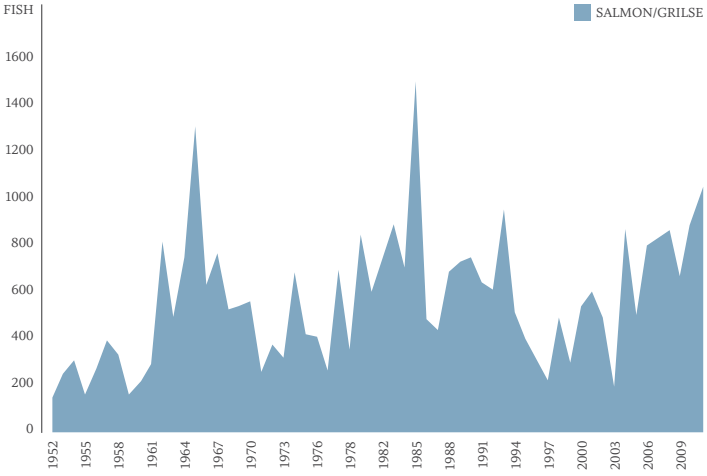
# Stinchar

Stuart Brabbs - *Ayrshire Rivers Trust*

The Stinchar had an excellent run of MSW salmon from May onwards, continuing until the end of the season, while few grilse arrived until September and these were small and scarce. The volume of water suited the upper beats at the expense of the lower river and helped create an excellent and memorable season overall, helped by the quality and abundance of larger fish. The Board and the Ayrshire Rivers Trust continue to make improvements to riparian habitat in smaller tributaries and to protect the many areas of good habitat. Co-ordinated and strategic control of invasive weeds throughout the catchment will begin in 2012. Overall catch and release rates for salmon have been on target in recent years, and there is almost universal acceptance of the need to conserve the fragile sea trout stocks.

| | 2011 total | 10 yr average | Release rate | Largest fish |
|---|---|---|---|---|
| Salmon | 1,010 | 657 | 50% / 60%* | 27lb |
| Sea Trout | 60 | 71 | 95% | 4lb |

*Season dates: 25 Feb – 31 Oct*
** Percentages are as shown – spring / summer.*




STINCHAR ROD CATCH STATISTICS 1952-2011
SOURCE - AYRSHIRE RIVERS TRUST

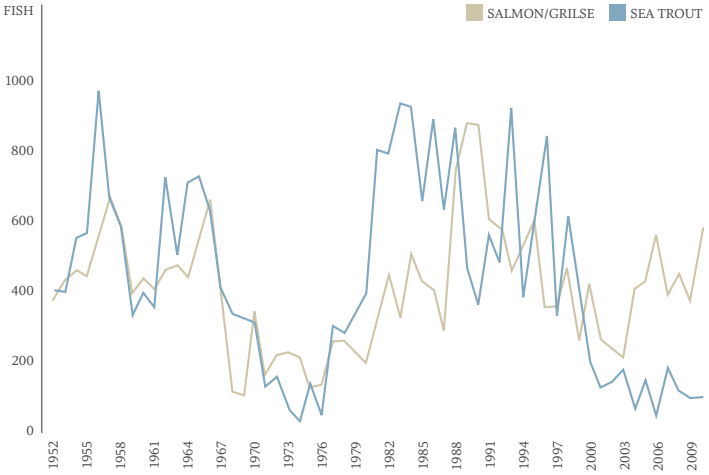
# Cree

## Galloway Fisheries Trust

The 2011 returns were not available at the time of writing but the Cree saw good numbers of fish throughout the season, and the lack of grilse was made up for by the increased abundance and size of MSW salmon, while good water flows made most of the river fishable. Acidification continues to result in large areas of the headwater nursery areas being devoid of juvenile salmon and the Trust is therefore undertaking liming trials, via the creation of limestone gravel spawning beds, in a bid to try to combat the problems caused by low pH. Looking ahead, various new conservation measures are to be introduced in the 2012 season – all sea trout and spring salmon will have to be released, limits are going to be placed on the number of salmon kept, and worming is going to be further regulated.

| | 2010 total | Nets | 10 yr rod average | Release rate | Largest fish |
|---|---|---|---|---|---|
| Salmon | 608 | 396 | 396 | 68% | n/a |
| Sea Trout | 98 | 69 | 129 | 72% | n/a |

*Season dates: 1 Mar – 24 Oct*




CREE ROD CATCH STATISTICS 1952-2010
SOURCE - GALLOWAY FISHERIES TRUST

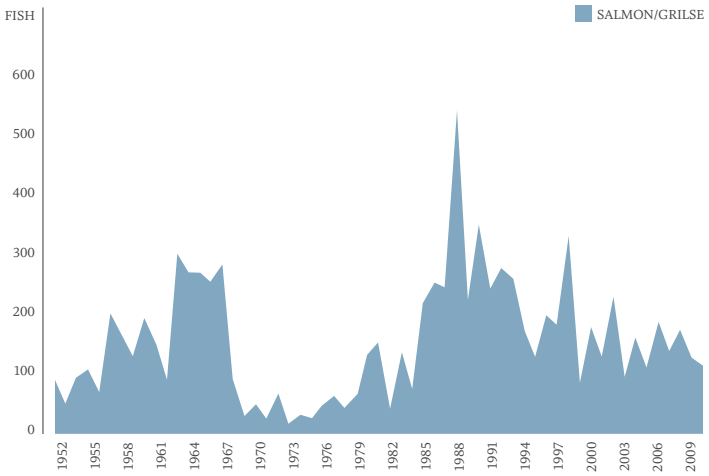
# Bladnoch

## Galloway Fisheries Trust

The 2011 returns were not available at the time of writing but this season was a lot more encouraging than the previous year and good numbers of springers were caught which were also substantially larger than normal. Salmon ran throughout the season, due to suitable flow conditions and were larger than normal, with a number of fish caught over 20lb, although grilse were scarce. Depressingly, the headwater areas of the river, which used to be key production areas for the system, are now too acidified to support juvenile salmon, due to large-scale afforestation with Sitka spruce. In a bid to improve stocks, all fish caught before June should be released, no hen salmon are to be killed in the last month of the season, and Rapalas will be limited to two trebles. There will also be some limitation on when worming is permitted and, finally, in the important spawning area of Tarff, both cocks and hens are to be returned in the last month of the season.

| | 2010 total | 10 yr average | Release rate | Largest fish |
|---|---|---|---|---|
| Salmon | 116 | 149 | 65% | n/a |
| Sea Trout | 0 | 2 | n/a | n/a |

*Season dates: 11 Feb – 31 Oct*




BLADNOCH ROD CATCH STATISTICS 1952-2010
SOURCE - GALLOWAY FISHERIES TRUST

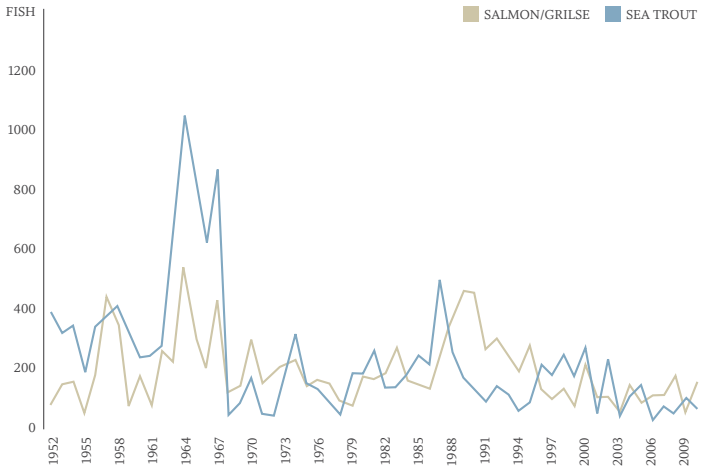
# Luce

## Galloway Fisheries Trust

The 2011 returns were not available at the time of writing. The first sea trout were caught in June, while a good run of salmon and sea trout was experienced throughout the season, with numerous double-figure MSW salmon, some of which were over 20lb, caught. There are still some water quality concerns on the river, especially those caused by the acidification of the upper Cross Water of Luce. However, apart from this issue with forestry plantations, it seems to be a fairly healthy system. All the main fishing beats are fly only and in the last month of the season no hen fish are to be killed.

| | 2010 total | 10 yr average | Release rate | Largest fish |
|---|---|---|---|---|
| Salmon | 158 | 124 | 21% | n/a |
| Sea Trout | 73 | 109 | 40% | n/a |

*Season dates: 25 Feb – 31 Oct*




LUCE ROD CATCH STATISTICS 1952-2010
SOURCE - GALLOWAY FISHERIES TRUST

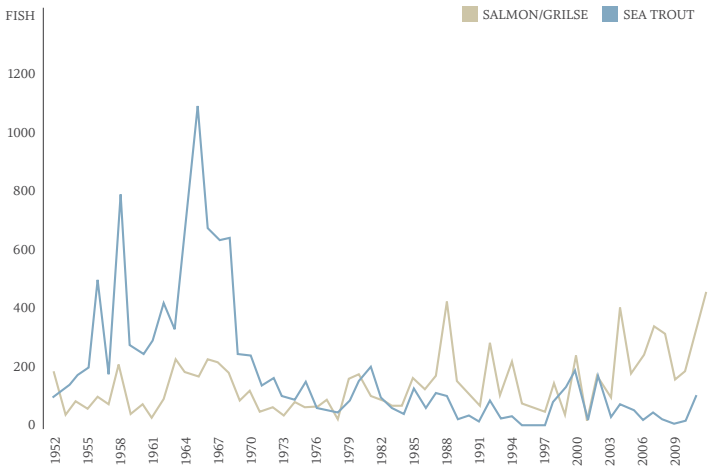
# Urr

Richard Bellamy - *Secretary, Dalbeattie Angling Association*

There seemed to be a decline in numbers of grilse and an increase in the numbers of MSW summer salmon, which mirrors a trend in many other rivers. The persistent high water conditions in the last two months of the season made it difficult to ascertain what fish were coming into the system, but the catch returns seem to indicate that we still enjoy healthy runs. The lower Urr is prone to large scale gravel movements, so big spates can cause significant shifts in the substrate in some pools, as well as shallowing. The two huge floods in November, which came close to the highest water in recent years, have undermined a number of mature trees, with some sizeable ones ending up in the water. The angling association has pretty tight catch limits in place – typically an angler may keep no more than 2 salmon per day, or no more than 3 in a week, plus 1 sea trout per day or 2 per week.

| | 2011 total | 10 yr average | Release rate | Largest fish |
|---|---|---|---|---|
| Salmon | 421 | 256 | 58% | 18lb |
| Sea Trout | 80 | n/a | 61% | 3lb |

*Season dates: 25 Feb – 30 Nov*




URR ROD CATCH STATISTICS 1952-2011
SOURCE - GALLOWAY FISHERIES TRUST

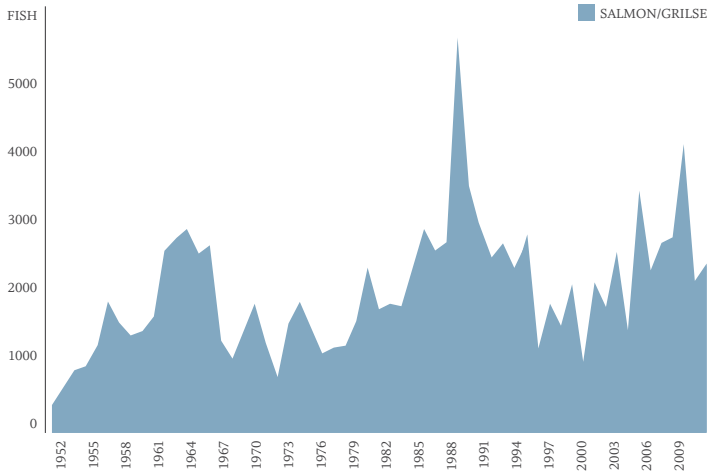
# Nith

Jim Henderson - *Director, Nith Board and Trust*

There was a better spring run than last year, while the average size of salmon was at least 2-3lb heavier, although the grilse run was poor. The sea trout run was much the same as 2010, although there were larger individuals present. There are concerns about the number of micro hydro proposals and about biosecurity. We continue to invest in habitat improvements and are addressing existing invasive species and continue to educate and engage with the general public on appropriate fishery matters. The Board has now brought out a new angling code which states that all salmon caught prior to 1st June must be returned, all hen salmon caught in November must be returned, all sea trout under 10" and over 3lb must be returned, and no more than 2 salmon and 2 sea trout are to be kept in a day.

| | 2011 total | 10 yr average | Release rate | Largest fish |
|---|---|---|---|---|
| Salmon | 2,184 | 3,323 | 30% | 34lb |
| Sea Trout | 604 | 1,274 | 32% | 9lb |

*Season dates: 25 Feb – 30 Nov*




NITH ROD CATCH STATISTICS 1952-2011
SOURCE - NITH DSFB

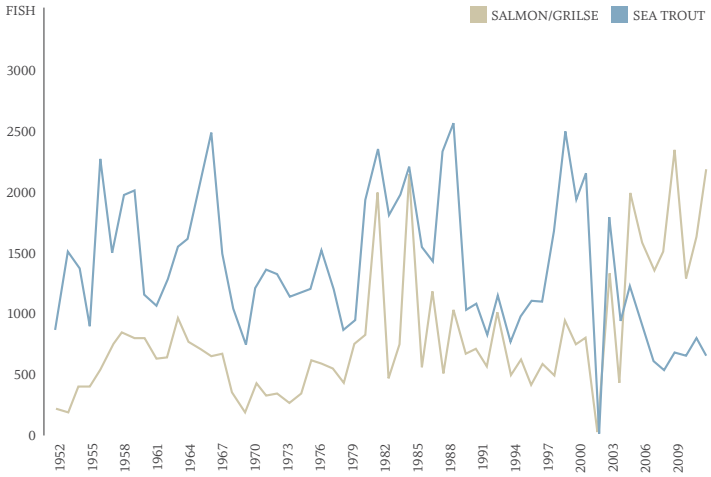
# Annan

Nick Chisholm - *Director, Annan Board and Trust*

The season's total was the second highest on record and the fish arrived about six weeks earlier than normal. The run seemed to have a high percentage of hen fish within it - when catching for the hatchery we recorded a 3:1 ratio. There also seemed to be a larger than normal number of 3SW fish, with a smattering over 20lb. The general feeling is that we would have had a record year if we had not lost over 40 days to floods. We also extended the season until the end of November on a 100% catch and release basis, which yielded about 80 fish, most of which were fresh. The situation with the sea trout is grave, but we hope that we can get some answers from the Celitc Sea Trout project. Working with SNH and the Clyde Foundation we spent a £50k grant on the construction of a barrier to stop crayfish migrating in from the Clyde. We have now also treated over 80% of the Japanese knotweed in the system and removed most mink from the upper reaches.

| | 2011 total | 10 yr average | Release rate | Largest fish |
|---|---|---|---|---|
| Salmon | 2,255 | 1,575 | 51% | 30lb |
| Sea Trout | 659 | 875* | 62% | 14.5lb |

*Season dates: 15 Feb – 15 (30) Nov*
** Sea Trout average over 5 years*




ANNAN ROD CATCH STATISTICS 1952-2011
SOURCE - ANNAN DSFB

# Fisheries management in Scotland – facts and figures

| | |
|---|---|
| Number of District Salmon Fishery Boards | 41 |
| Revenue generated by DSFBs | £4,383,726 |
| Expenditure incurred by DSFBs | £4,259,126 |
| Financial support provided to trusts by DSFBs | £582,264 |
| Total rateable value of fisheries | £3,692,693 |
| Number of accredited water bailiffs (as at 31 Dec 2011) | 328 |
| Number of ghillies associated with salmon fishings | 428 |
| DSFB staff (full time equivalents) | Remunerated - 84, voluntary - 99 |
| Number of Scottish charitable fisheries Trusts | 25 |
| Revenue generated by Trusts | £2,661,251 |
| Expenditure incurred by Trusts | £2,783,522 |
| Trust staff (full time equivalents) | Remunerated - 62, Voluntary - 61 |

DSFBs & Trusts - Operational data

| | |
|---|---|
| Nets seized | 150 |
| Offences reported | 64 |
| Numbers of surveys conducted: | |
| *Habitat* | 161 |
| *Invertebrate* | 1,370 |
| *Electro-fishing* | 1,759 |
| *Invasive species* | 63 |
| Number of school projects | 173 |
| Other educational projects | 65 |

The data below has not been collected previously and therefore we present a cumulative total for works carried out until 31 December 2011:

| | |
|---|---|
| Habitat restored/protected | 1,020km |
| Cost of above schemes | £4,006,080 |
| Man-made barriers assessed and cost | 166 (£165,200) |
| Man-made barriers eased and cost | 97 (£462,505) |
| Access gained above eased barriers | 2,186km |
| Length of watercourses treated for invasive species | 517km |
| Grants distributed to Trusts | £313,417 (£506,544) |
| ASFB turnover 2010 (2009) | £111,213 (£113, 470) |
| RAFTS turnover 2010 (2009) | £1,099,453 (£977,421) |

**ASFB management**

**Chairman:** Alan Williams
**President:** Andrew Douglas-Home
**Executive Committee:**
Ian Scott (Dee)
Andrew Wallace (RAFTS)
Sir Edward Mountain (Spey)
David Summers (Tay)
Roger Brook (Argyll)
James Henderson (Nith)
Nick Yonge (Tweed)
Giles Curtis (Western Isles)

**RAFTS management**

**Chairman:** Andrew Wallace
**Treasurer:** Roger Brook
**Board:**
Roger Brook (Argyll)
Mary Nicolson (Galloway)
Nick Yonge (Tweed)
Mark Bilsby (Dee)
Colin Adams (Loch Lomond)
Simon Scott (Outer Hebrides)
Patrick Fothringham (Forth)
Diane Baum (co-optee)
Shona Marshall (co-optee)
Alan Williams (co-optee)
Ron Woods (co-optee)

**ASFB staff**

**Policy & Planning Director:** Alan Wells
**Operations Director (with RAFTS):**
Brian Davidson
**Office Manager (with RAFTS):** Stephen Harris
**Press Officer (with RAFTS):**
Andrew Graham-Stewart
**Legal Adviser:** Fish Legal

**RAFTS staff**

**Director:** Callum Sinclair
**Operations Director (with ASFB):** Brian Davidson
**Office Manager (with ASFB):** Stephen Harris
**Press Officer (with ASFB):**
Andrew Graham-Stewart
**Legal Adviser:** Fish Legal
**Invasives & Bio-security Project Manager:**
Chris Horrill
**Project Co-ordinator:** Elizabeth Clements

**FASMOP Genetics Project:** Mark Coulson

**Scottish Mink Initiative**
**Project Co-ordinator:** Hollie Walker
**Mink Officers:** Sarah Atkinson, Ann-Marie Macmaster, Gunnar Scholtz, Cat Robinson

**Aquaculture:** Managing Interactions Project
**Aquaculture Officers:** Diane Kennedy, Donna-Claire Hunter

National economic data*

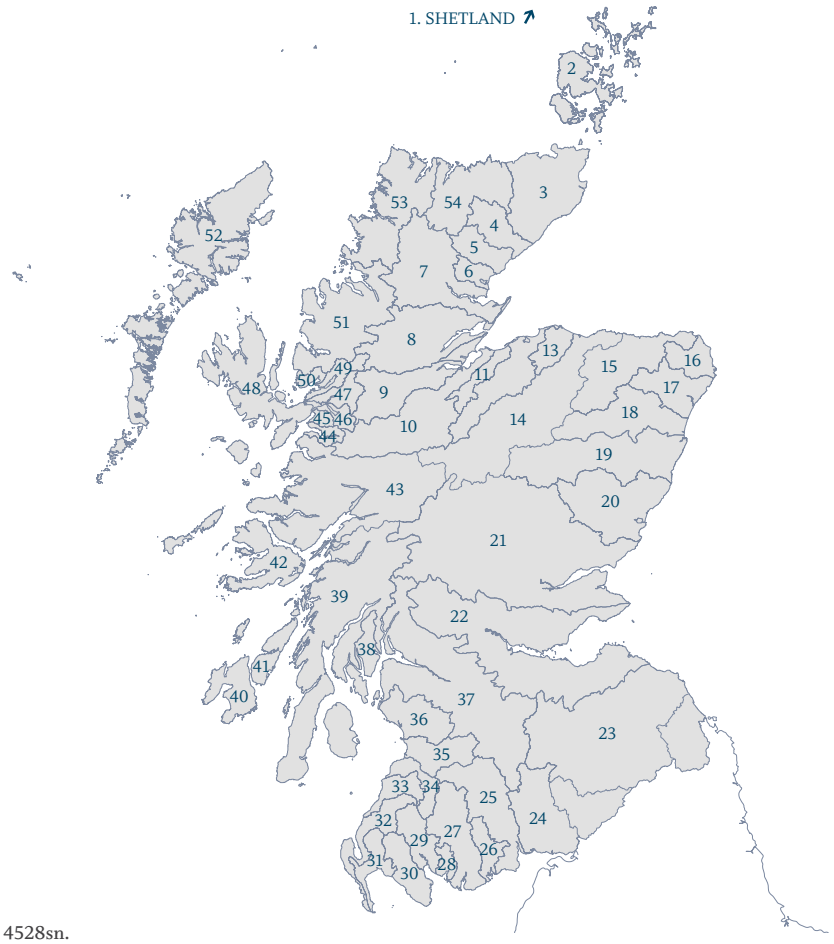
Annual value of salmon fisheries to Scottish economy (Scottish Government statement 2008) **£120M** Jobs supported* **2,800 FTE**

*Research Report: The Economic Impact of Game and Coarse Angling in Scotland, Alan Radford, Geoff Riddington, John Anderson, Glasgow Caledonian University, Hervey Gibson, Cogentsi Research International Ltd Prepared for Scottish Executive Environment and Rural Affairs Department, 2004.

| | 2010 | | | | 2009 | | | |
|---|---|---|---|---|---|---|---|---|
| | Rod catch | Released overall | Released spring | Net catch | Rod catch | Released overall | Released spring | Net catch |
| Salmon | 110,496 | 70% | 86% | 27,315 | 72,595 | 70% | 82% | 12,855 |
| Sea trout | 27,704 | 72% | n/a | 11,023 | 23,725 | 66% | n/a | 9,378 |

# Salmon Fishery Districts

1 Shetland
2 Orkney
3 Caithness
4 Helmsdale
5 Brora
6 Fleet (1)
7 Kyle of Sutherland
8 Conon
9 Beauly
10 Ness (2 part)
11 Nairn
12 Findhorn
13 Lossie
14 Spey
15 Deveron
16 Ugie
17 Ythan
18 Don
19 Dee (1)
20 Esk
21 Tay
22 Forth
23 Tweed
24 Annan
25 Nith
26 Urr
27 Dee (2)
28 Fleet (2)
29 Cree
30 Bladnoch
31 Luce
32 Stinchar
33 Girvan
34 Doon
35 Ayr
36 Irvine and Garnock
37 Clyde (and Leven)
38 Eachaig
39 Argyll
40 Laggan and Sorn/Islay
41 Inver (Jura)
42 Mull
43 Lochaber
44 Arnisdale
45 Glenelg
46 Crowe and Shiel
47 Loch Long
48 Skye
49 Carron
50 Kishorn
51 Wester Ross
52 Western Isles
53 North and West
54 Northern




Sources:

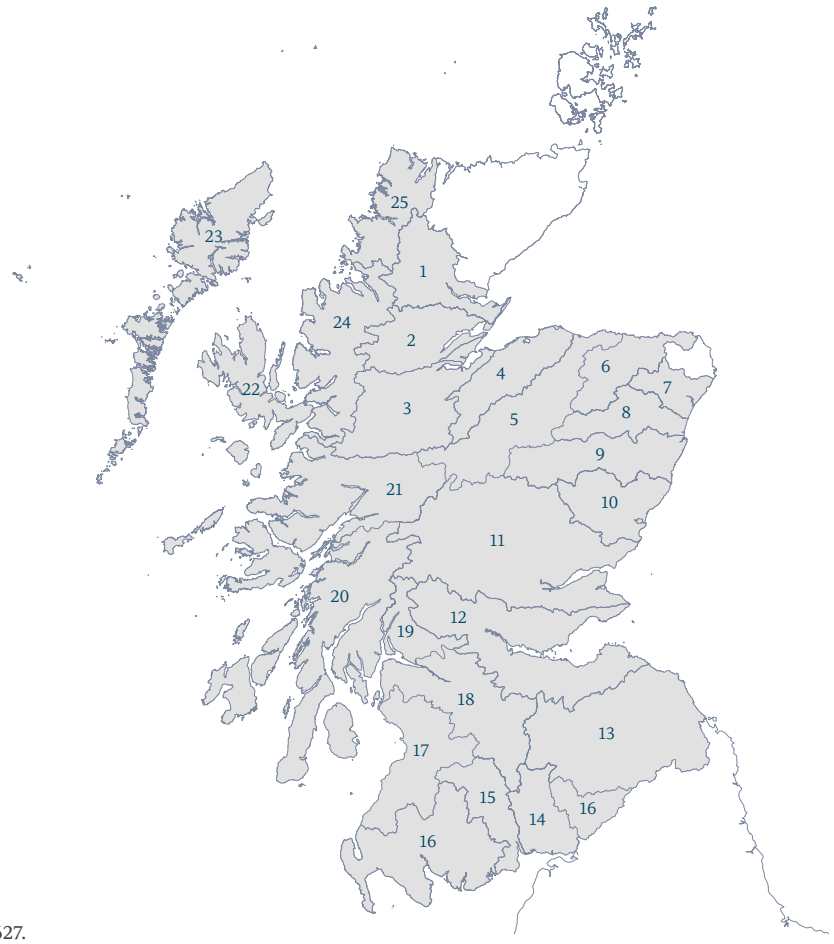
Salmon Fishery Districts - Scottish Government 2006.

Licence number: 100020540 2009.

Scottish Government GI Science & Analysis Team - January 2009, Job 4528sn.

# Fisheries Trusts

1. Kyle of Sutherland Fisheries Trust
2. Cromarty Firth Fisheries Trust
3. Ness & Beauly Fisheries Trust
4. Findhorn, Nairn & Lossie Trust
5. Spey Foundation
6. Deveron, Bogie & Isla Rivers Charitable Trust
7. River Ythan Trust
8. River Don Trust
9. River Dee Trust
10. The Esks Rivers Fisheries Trust
11. Tay Foundation
12. Forth Fisheries Trust
13. Tweed Foundation
14. River Annan Trust
15. Nith Catchment Fisheries Trust
16. Galloway Fisheries Trust
17. Ayrshire Rivers Trust
18. Clyde River Foundation
19. Loch Lomond Fisheries Trust
20. Argyll Fisheries Trust
21. Lochaber Fisheries Trust
22. Skye Fisheries Trust
23. Outer Hebrides Fisheries Trust
24. Wester Ross Fisheries Trust
25. West Sutherland Fisheries Trust



Sources:

Fisheries Trust Boundaries, SG MS and SEPA (2011).
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Scottish Government Marine Scotland GIS team, February 2012, gj0627.

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