



Director's Report October Board Meeting 2018.

2018 Grilse Run

2018 will be remembered for its prolonged drought which started in early May and lasted into September. The length of drought, combined with very high temperatures in early and mid summer, not only gave very difficult fishing conditions but posed a serious threat to fish health. In headwater streams water temperatures were dangerously high and electro-fishing was not possible in some streams because of the threat to fish welfare. In main rivers high temperatures and low flows led to crowding of adult migratory fish and some mortality. Some rainfall in September improved conditions but fish have been slow to move upstream.

Bailiffing

Bailiffs carried out regular patrols of river, shore and sea throughout the summer. A total of 28 people were removed from rivers for fishery offences. Two arrests were made with reports sent to the Procurator Fiscal. Police were again supportive and spoke to parents of juvenile anglers fishing without permission.

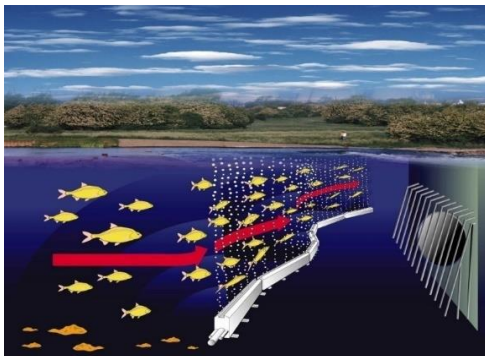
Projects / research works

Electro-fishing surveys

The low flow conditions this summer allowed the Board's contract electro-fishing works to be completed with 78 sites fished. Monitoring sites for the Abhainn na Glasa hydro project were electro fished and juvenile salmon were found as far upstream as the location of the proposed new dam. Electro fishing for the new Scottish Government Conservation Regulation model took place on the Conon, Alness, Allt Graad and Balnagown. Juvenile salmon stocks look healthy, with good numbers of salmon at lower river sites and salmon present throughout the expected range in upper catchment sites. Salmon were found at all sites surveyed upstream of the fish pass at Corriefeol on the river Meig with three year classes present. Salmon were found in good numbers throughout the Alness even in sites of less favourable habitat.

Meig smolt trap project

There has been considerable progress on the planning of the construction of a new smolt trap on the River Meig upstream of Meig Dam. The construction of this trap should allow the trapping, transportation and release of smolts below the hydro scheme, greatly reducing smolt mortality. SSE have agreed to fund the trialing of a bio-acoustic fence to divert smolts into a lade and fish trap. A design has been prepared for the construction of the lade and we are working with Strathconon Estate to progress construction before the 2019 smolt run.



Bio-acoustic fence



Proposed lade construction

Angling Development

Fishery Management Scotland organised a regional start up meeting for the Scottish Angling National Development Scheme. With funding from Scottish Government, Countryside Learning Scotland has been commissioned to help develop national and local angling development plans. We will work with them on both projects and are looking for funding to help deliver a local plan designed to encourage people to take up angling and to increase angling club memberships.



With the help of volunteer coaches from local angling clubs six Junior Angling Club fishing days took place. The Junior Angling Club has had a very successful year, thanks to funding from the SSE Fairburn Wind farm fund. There are more than 60 Junior Angling Club members and each event has been well attended. Many young anglers caught their first trout this year and have become capable flyfishers.

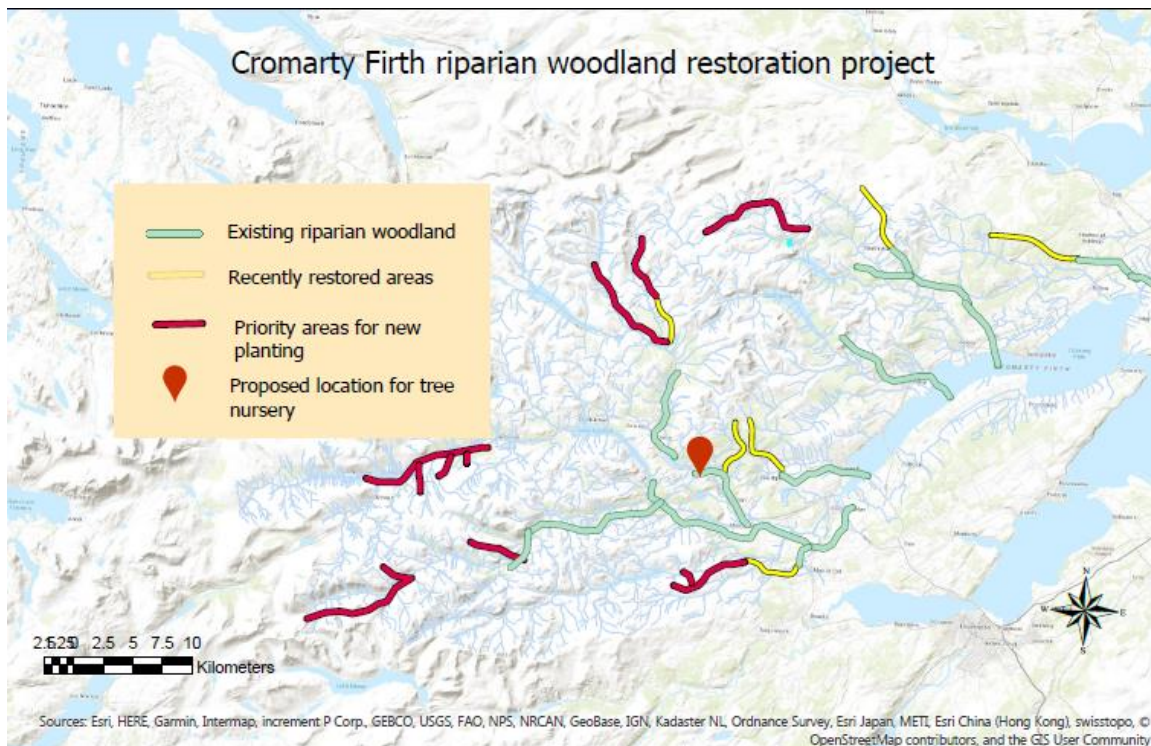
In addition to the Junior Angling Club, fishing days at local stillwaters were organised for local schools as part of the Trust's education programme. Fishing events were also held for a local charity called APEX and a dementia group.

Riverside woodland restoration projects

This year's drought has further highlighted the need for the restoration of native riverside woodland to create shade and reduce river temperatures.

We are in the process of agreeing a programme of riverside restoration works on Forestry Commission ground. Board staff will work with volunteers to remove non-native conifer regeneration along riverbanks and replace them with native trees. The Forestry Commission are to supply trees and materials for native tree planting.

A funding application has been prepared to expand riverside restoration work on private land. A polytunnel has been donated which will be used to propagate native trees from locally collected seed



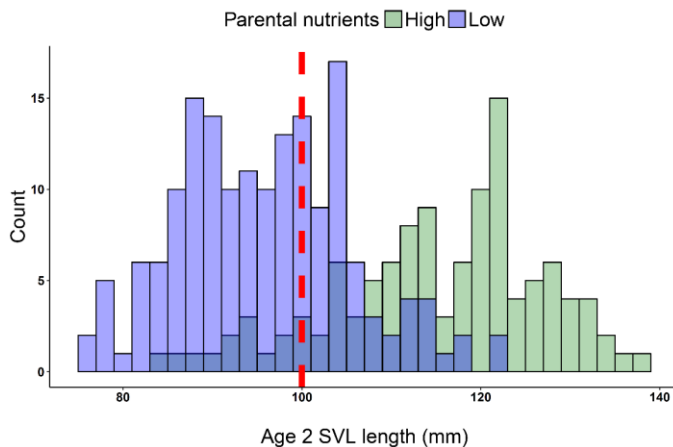
Fishery Management Plan update

The Cromarty Board / Trust has been selected as one of six regions to carry out the trial of a new template for producing fishery management plans. To do this we will be using Geographical Information System techniques to map a range of pressures acting on fish stocks throughout the region.

Nutrient Research update

Papers from the nutrient restoration research work with Glasgow University are being submitted for publication.

The main findings from the research show a 5 fold increase in biomass and abundance of invertebrates in streams which had the addition of nutrients equivalent to a small number of adult salmon carcasses. The effect of this on juvenile salmon populations in treated streams was an increase in size and biomass of fry in year one, which persisted in the parr in year two and also in pre smolts / smolts in year 3. With a minimum smolt typical smolt size of 100mm this means that far more fish will exceed the threshold for smolting after 2 years.



red line shows typical minimum size of smolts

Another important finding of the study shows an increase in genetic diversity in treated streams with more families of fish surviving than in untreated streams.

Proposed new PhD projects

An application has been prepared by Glasgow University for a PhD project to extend the nutrient research programme to look at downstream uptake of nutrients. This is an important step in turning nutrient restoration into an accepted management tool. There is a need to quantify a level of nutrient restoration which will increase fish productivity without changing the nutrient status of downstream waterbodies.

A PhD student from the University of the Highlands and Islands Rivers and Lochs Institute hopes to carry out research into smolt migration on the River Alness. The proposed project will compare the migration of smolts on the Abhainn na Glasa tributary, which have to pass through a loch with that of smolts on the Blackwater which do not pass through a loch.

A PhD project with Glasgow University is being designed to look at the effects of catch and release by anglers on salmon and on the survival of their progeny.

Scottish Invasive Species Initiative

The Scottish Invasive Species Initiative (SISI) is an exciting and ambitious 4-year partnership project set up to tackle invasive non-native species alongside rivers and water courses in northern Scotland. We are one of ten fishery trust/board partners in SISI and are working to deliver the project across our catchments.

Invasive non-native species (INNS) have a significant negative impact on freshwater and riparian environments – they can be responsible for the decline of native species and increase bank erosion. The aim of invasive species management is to halt and control the spread of invasive species, undertake habitat restoration and encourage the return of native wildlife.

The target and priority invasive species

The key target species for the SISI project are Giant hogweed, Japanese knotweed, Himalayan balsam, American skunk cabbage, White butterbur and the American mink. SISI works in partnership with the fishery trusts, to support, train and equip volunteers with the skills and equipment they need to enable control of invasive species at a local level, embedded in the community. The SISI project is funded until October 2021, when we hope that local community control of invasive species will continue - providing a sustainable long-term solution to control.

SISI work is covering five main areas of activity, which we are helping to deliver.

1. [Invasive plant control project](#)

With the help of volunteers, we are pulling out Himalayan balsam and treating Giant hogweed and Japanese knotweed with herbicide.

2. [American mink control project](#)

We are building on previous control work by reinvigorating the programme of monitoring and trapping for removal of mink, with the help of a network of volunteers.

3. [Creating a volunteer network](#)

We are investing time and support in building a network of enthusiastic volunteers, providing them with skills, training and qualifications

4. [Raising awareness of invasive species](#)

Through delivering education programmes for schools and community groups we can engage people in discovering the importance of the river environment and the impacts of invasive species.

5. [Promoting biosecurity](#)

A key part of controlling invasive species (and diseases) is preventing their spread into new areas, so we are all working to promote good biosecurity measures.

With funding from the Heritage Lottery Fund and Scottish Natural Heritage we were able to employ Duncan Fraser as a Seasonal Project Officer to work alongside Lynn and Fishery Board staff to deliver the project

Atlantic Salmon Trust smolt tracking project update

Missing Salmon Project

Since the 1970s the number of salmon in the North Atlantic has dropped from 8-10 million to around 3 million today. This is impacting on the communities of people and wildlife that depend on these fish to survive. At the moment we do not know where the bulk of this mortality is occurring in terms of how many are dying at sea or if they are even failing to make it that far.

When starting to address this problem the Atlantic Salmon Trust looked at how other species had been brought back from the brink. Cod in the Irish Sea were found to be an example of how the fortunes of a species could be turned around with good management. It was done by breaking down the lifecycle of the cod into different stages and bringing together all of the research to form a framework of the likely suspects that were limiting the population. This led in turn to better management of the cod and has started to improve their numbers.

The Atlantic Salmon Trust, with the consensus and support of 40 local and national organisations, is now developing a similar likely suspects framework for salmon. To date this has shown that one of the major gaps in our knowledge of salmon is how they move down rivers and their movement through our coastal waters. Whilst it is known that a large proportion of the fish die during this period, up to 70 % has been suggested, the reasons are not known. The aim of this project is to fill in the gaps in that knowledge so that we can halt and subsequently reverse the downward trend in salmon numbers.

Project

The project will tag approximately 650 young salmon in 2019 as they migrate downstream from the headwaters of seven rivers around the Moray Firth (Figure 1). These tags send out a unique acoustic ping and allow for the progress of the animal to be tracked as they move downstream and out to sea. Once in the Moray Firth the fish will continue to be tracked as they move passed up to three listening arrays, allowing for their movements and survival to be known for up to the first 100 km of their ocean journey. Working with the local Fishery Boards and Trusts information will be collected to understand what may be impacting these fish and help put the tagging results into context.

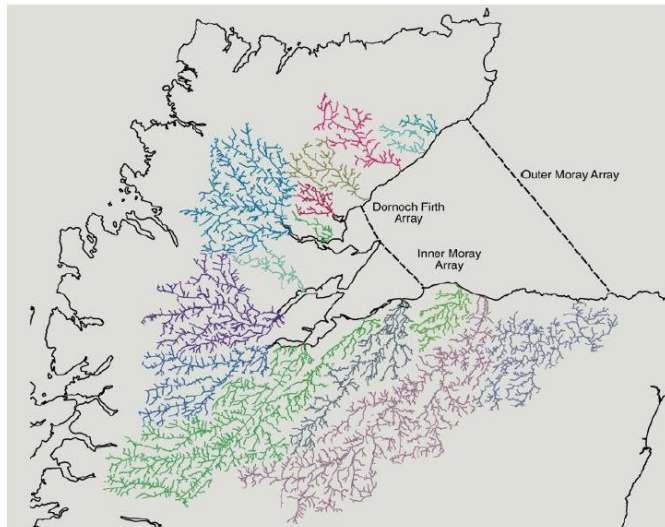


Figure 1. Rivers flowing into Moray Firth and listening arrays.

Timetable

This is a three-year project with the first fish being tagged in spring 2019. The fish will then be followed until late July or until they have left the Moray Firth. The information will then be collated and published in the autumn of 2019. The aim is to disseminate the information to supporters and fishery managers as quickly as possible.

Depending upon the findings from the first year the second and third years will refine specific questions pertinent to local fishery managers.

Project Finances

Year 1 costs comprise the capital costs associated with establishing the listening arrays and the consumable costs associated with tagging the juvenile salmon. These arrays would be utilised in years two and three.

Acoustic Receivers	£625,000
Tags	£89,000
Boat Time	£120,000
Staff Time	£114,000
Travel & Subsistence	£23,000
Contingency (5%)	£49,000
Total	£1,020,000

To date since launching the project in April the project has raised the following finances

Private Donations (individuals and charitable trusts)	£162,000
Glasgow University	£120,000
Scottish Government	£171,000
Industrial (Moray East Wind Farm)	£300,000
Atlantic Salmon Trust	£100,000
Total	£853,000

Years two and three an allowance of £300,000 per annum has been made.

To date the Atlantic Salmon Trust is working with over 40 partners to deliver and fundraise for this project. The Trust is on target to raise the £1.02 million required by autumn 2018 to facilitate the purchase of the equipment in time for deployment in spring 2019.

Overall this project will allow us to fill an important gap in our knowledge of the factors impacting Atlantic salmon. This knowledge will be transferable around the UK so that all salmon rivers can benefit. We will then be able to work with our partners at local, national and international levels to deliver better fisheries management and turn around the decline in this iconic fish.