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The River Deveron District
Salmon Fishery Board

Deveron, Bogie and Isla
Rivers Charitable Trust

DEVERON
BOGIE
ISLA

www.deveron.org

RAFTS

The Scottish Government




Deveron District Fishery Management Plan
Summary Report 2008-2012

"To conserve, protect and rehabilitate salmon, sea trout and trout and other indigenous species of animal, bird, insect and plant life and more generally to promote the ecological cycle for the benefit of the inhabitants of the Deveron." *Deveron, Bogie and Isla Rivers Charitable Trust's mission statement*

Supporters and funding

The Deveron, Bogie and Isla Rivers Charitable Trust (DBIT) would like to take this opportunity to thank all supporters and funding organisations who have helped implement our district fisheries management programme. We particularly recognise the invaluable assistance from the Scottish Government for the development and delivery of our Fisheries Management and Biosecurity plans.
The DBIT would also like to thank The Scottish Environmental Protection Agency, Scottish Natural Heritage, The River Deveron District Salmon Fishery Board, Longcliffe Quarries, Avochie Estate, Membership of the Deveron, Bogie and Isla Rivers Charitable Trust, Mr Robert McConnell (Hon Membership Secretary), Rivers And Fisheries Trusts Of Scotland, Deveron Fishery Proprietors and many other private donors which have supported various projects between 2008-2012. The list of organisations and names below are just some of those who have assisted and we are very grateful to them:

Aberdeenshire Council
Moray Council
John Dewars & Sons
Longcliffe Quarries
Chivas Regal
BMF Group
Marine Scotland Science
Huntly Fishings
Turriff Angling Association
Celebrations of Turriff
Banff and Macduff Angling Associaton
Turriff Tackle and Trophies
Jo Walters Trust

Volunteers (River Champions)
We thank all volunteers who have given up their own time to help with projects such as the Deveron Fishing Festival, River Opening Ceremony, Control of American Mink, Invasive plant control, Bird Counts and the Hatchery Programme.

The River Deveron District Salmon Fishery Board
Board Members (past and present) M.C. Hay (Chairman), R.J.G. Shields, J. McNeil, H. Oliphant, A. G. Morison, Mrs H.C. Hall , Mrs J. A. Player, C.R. Marsden, G.D. Manson, D. A. Galloway, J. McNeil, F. Henderson, R. Breakell, D. Borthwick, Mrs A. Stancioff, Sir Malcolm Innes, Lord Marnoch, N. Wilson.
Board Personnel J. Christie (Clerk), J. Minty (River Superintendent), C. Grant (Electrofishing Operations).

The Deveron, Bogie and Isla Rivers Charitable Trust
Honorary Life President Prof D.W. Mackay OBE
Trustees R.J.G. Shields (Chairman), M. McDonald, M.C. Hay, J. McNeil, F. Henderson, R. Polson, J.S. Cruickshank OBE,
Trust Personnel R.C. Miller (Senior Biologist), R. Vasey (Project Officer), A. Fenn (Biosecurity and Fisheries Development Officer), Jan Basan (Hatchery Assistant), Mrs S. Paxton (Administrator), R.F. McConnell (Hon Membership Secretary) and N. Stephen (Acting Ghillies Rep).

Ghillies and Estate Workers
We thank all the Deveron Ghillies and Estate workers who have helped with many aspects of managing the fishery from assistance with Fish Eating Bird Surveys, Scale Sampling, obstacle removal and Biosecurity measures.

The River Deveron District Salmon Fishery Board


River Deveron at Netherdale

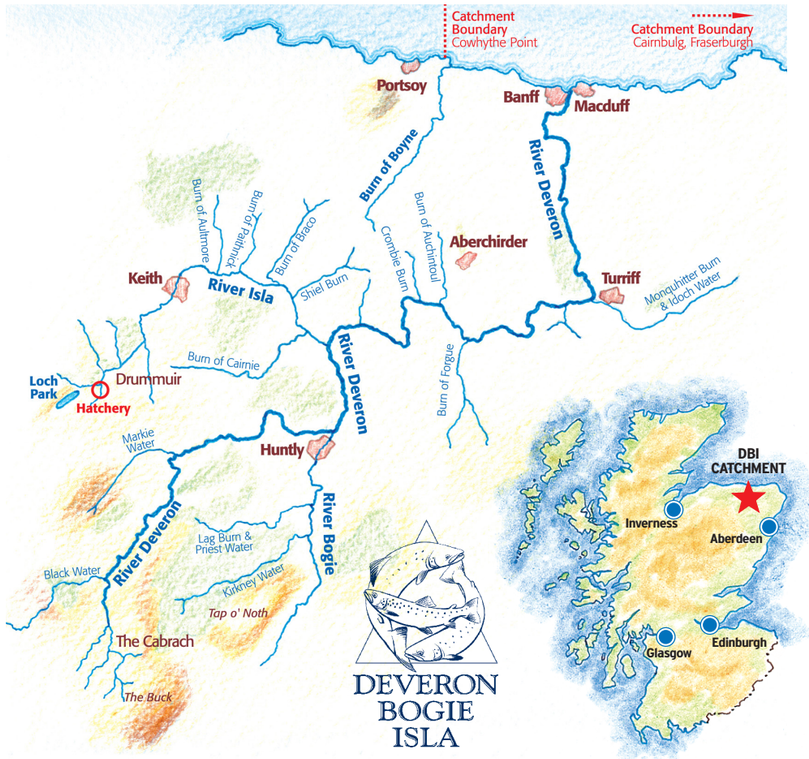
The River Deveron District Salmon Fishery Board (RDevDSFB) and Deveron, Bogie and Isla Rivers Charitable Trust (DBIT) work together to manage, conserve and improve the Deveron fishery and its surrounding habitats. The RDevDSFB was originated by the Salmon Fisheries Act of the 19th century and provides fishery protection by enforcing salmon fisheries legislation and funding restoration programmes. The DBIT is a Scottish Charity founded in 2001 which delivers conservation work, scientific advice and environmental education on behalf of the RDevDSFB and others across Aberdeenshire and Moray.

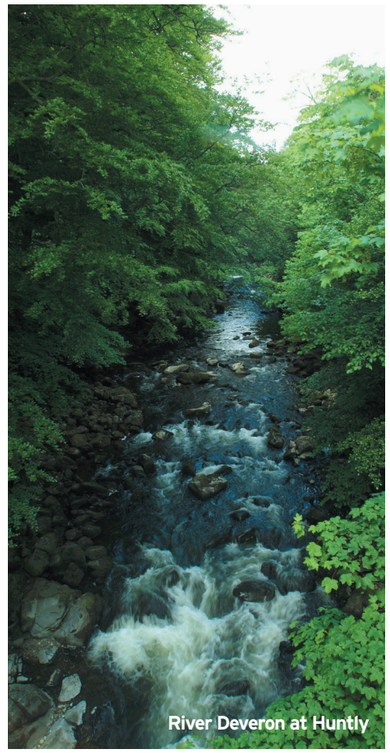
The Deveron District Fishery Management Plan was published in 2008, following full public consultation. It indicates the local fisheries management priorities of the Deveron district, and was prepared as part of a national programme of plans supported by the Scottish Government and prepared by fishery trusts across Scotland under the co-ordination of Rivers and Fisheries Trusts of Scotland (RAFTS). These plans link national, regional and local priorities for all-species fish management across Scotland for the first time.

As part of the national priorities the DBIT has taken part in Focusing Atlantic Salmon Management On Populations (FASMOP), a nationally coordinated, but locally prioritised, programme of salmon genetic sampling and analysis to better understand locally distinct salmon populations.

In addition to the FMP we prepared a Biosecurity Plan in 2009 to control and prevent the spread of Invasive non-native species to protect key areas of habitat and manage target species. Together the fisheries management and biosecurity plans have helped encourage a range of projects delivering their priorities and allowed the DBIT in partnership with the RDevDSFB to successfully lead fisheries management in its area. In doing so we have formed important partnerships with Scottish Government, SNH, SEPA, Aberdeenshire and Moray Councils, LEADER and RAFTS. We have further developed connections with local communities, angling clubs, individuals and volunteers (River Champions). Such partnerships have allowed links with The Water Framework Directive, conservation designations and other national priorities and have supported partnerships with bodies involved in these. Both plans can be downloaded from our website **www.deveron.org.**

The Fisheries Management Plan is a working document and as such will be assessed in 2013 to determine what actions have been completed, what information has been gained and to determine any changes in priorities within the area. At this stage a revised Plan will be produced for the next 5 years (2014 - 18). This revised plan will also involve discussion and agreement with our partner organisations and all our stakeholders.




River Deveron at Huntly


River Deveron at Rothiemay

The River Deveron is a famous and prolific salmon, sea trout and brown trout fishery and, in terms of catches, is consistently the fifth highest in Scotland. The Deveron is situated in North East Scotland within the counties of Aberdeenshire and Moray and has an overall catchment area of 1266km^2 and a length of 96kms. The Deveron district is comprised of the river Deveron and its tributaries and all other watercourses which discharge into the Moray Firth on Aberdeenshire's north coast, between Cowhythe Point and Cairnbulg Point. The fishery district's four coastal river systems are namely the Boyndie Burn, The Water of Philorth, Burn of Boyne and the Tore of Troup.

The Deveron rises on the edge of the Grampian Mountains (600m above sea level) in the heather moorland of the Cabrach. The upper Deveron is classified as from its source to Huntly and is characterised as a narrow, fast flowing river through a steep sided valley with only one large tributary entering, named the Blackwater. The middle Deveron runs from the confluence with the river Isla (Rothiemay) to the confluence of the Turriff water (Turriff). The surrounding land use changes here to mixed farming with arable and stock. The Lower Deveron flows from Turriff to the estuary at Banff where it discharges into the Moray Firth. The land use within this area is predominatly arable. The two main Deveron tributaries are the river Bogie[1] which joins at Huntly and the river Isla[2] which joins just prior to Milltown of Rothiemay.

The Burn of Boyne rises at Badenyouchers, itself backing on to the Isla catchment at Edingight. It flows for 10km via Canterbury Bridge at Muir of Canterbury through Milton of Tillynaught and Lintmill Bridge before discharging into Boyne Bay, adjacent to Cowhythe Head which is at the western extremity of the RDevDSFB's purview. The Tore Burn, also known as the Tore of Troup, rises in the Moss at Glasslaw and discharges some 6km later into Cullykhan Bay. The Water of Philorth rises on the northern slopes of Waughton Hill to the south of Fraserburgh. It flows northeast for 12km, receiving the Water of Tyrie, and enters the Moray Firth at the eastern end of Fraserburgh Bay. The Boyndie Burn rises at Cairns of Ord. It flows north east for 7km via Inverboyndie and enters the Moray Firth at Boyndie Bay. The Deveron catchment contains 8 small lochs with the largest of these being Loch Park situated in the Isla catchment.

1. The River Bogie rises on the eastern edge of the Cabrach moorland and flows through predominatly arable and grazing land. Many of its tributaries are relatively small in size with the exception of those such as the Kirkney water and Ness bogie which rise within the heavily afforested area known as Clashindarroch.

2. The River Isla rises at Drummuir and flows north through Keith where the Distillery industry extracts water for cooling processes. Strath Isla has a variety of tributaries which flow over a multitude of land types including heather moorland, arable and grazing land.

The DBIT has carried out numerous habitat protection and restoration projects over the last ten years to the benefit of important local species such as Salmon, Water Vole and Otter. The majority of habitat work (riparian fencing, alternative cattle waterings) has historically been undertaken by farmers and landowners under the Countryside Premium Schemes and the Rural Stewardship Schemes (RSS). This process was facilitated by the DBIT identifying problem areas and collaborating with farmers to include these areas in their funding applications. Problematic areas were identified from the 1998 Habitat Survey commissioned by RDevDSFB. Bank revetment work using the 'log and Christmas tree' technique has also been deployed, along with 'Willow spilling' on the Isla and Bogie rivers to halt two areas of chronic bank collapse. Hard standing cattle waterings have been installed where stock have caused bank collapse.

CASE STUDY 1 Fishrie Burn

In 2009 the Trust received a Water Environment Fund grant (formerly SEPA restoration fund) to improve the habitat of the Fishrie Burn. The Fishrie Burn is a tributary of the King Edward an important spawning burn for salmon and sea trout. The grant was to improve 370m of vital salmon and sea trout habitat and was split into three phases.

PHASE 1 Weir Removal

In 2009, following negotiations with the two riparian land owners the redundant weir above was removed to facilitate the free access of migratory fish. The removal of the weir was overseen by the DBIT. The weir was destroyed and removed completely from the watercourse. An alternative watering (a trough) was then installed on the left bank for livestock as an alternative from drinking directly from the burn.

PHASE 2 Parr Habitat Restoration

The second phase of the project entailed placing boulders at locations along the 370m stretch to reinstate in- stream habitat for salmon/trout parr and aquatic invertebrates. Immediately after these first two phases we suffered two very damaging spates in September and November 2009. The flood conditions caused catastrophic bank collapse over a 350m length upstream of the old weir location.

PHASE 3 River Bank Restoration

The final phase was therefore to protect the burn from more erosion and bank collapse whilst protecting the adjacent valuable farmland from further flooding. The final plan proposed by SEPA was to create a flood terrace to widen the flood channel whilst building a flood bank behind to protect the farmland. The work required a digger to lower the adjacent damaged river bank to create a 2m wide terrace without removing any in- stream habitat, allowing the burn to retain its original course. The soil removed formed the flood bank of approximately 2 metres high. Once the terrace was formed, coir matting was placed along the terrace and grass seed sown which provided natural vegetative cover and protection from erosion. Finally larch logs were piled vertically along the edge of the bank to allow the burn to spill during flood events but not flood the adjacent land. Before 2009 electrofishing surveys of this location found very low populations of juvenile salmon suggesting that the weir was a partial obstacle to migratory fish. Subsequent electrofishing surveys in 2011 have found juvenile salmon 3km upstream of the old weir site and increased trout numbers. SEPA'S entomologists carried out pre and post works invertebrate surveys which also showed a positive increase.

CASE STUDY 2 Cunning Burn

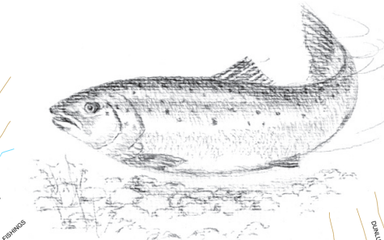
In 2010 the DBIT, funded by the Scottish Government through RAFTS, commissioned a scoping report to restore fish access to the Cunning burn. The report by Fishway Engineering concluded that partial-removal of the old dam would be the most cost-effective solution for fish access and would also retain the favourable spawning habitat formed upstream of the old weir. 3.3Km of watercourse is now newly accessible to salmon and sea trout. Fifty per cent of the dam was retained to secure existing spawning habitat upstream.

Fish Passage

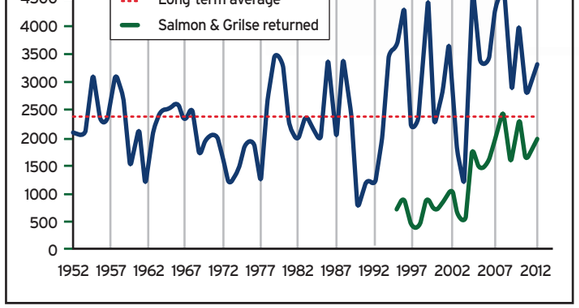
Redundant and/or artificial barriers to fish migration are a threat to the sustainability of local fish populations, restricting their distribution by denying access to important areas of spawning and juvenile habitat. The DBIT have successfully removed and modified 12 significant obstacles to fish since its formation. For a full list see www.deveron.org

The River Deveron

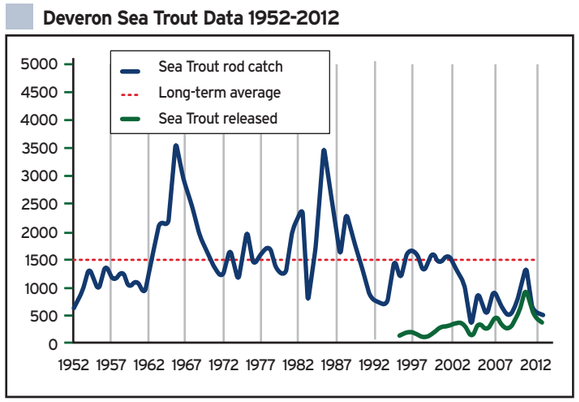
The Tom Ingleby Bequest Map



Deveron Salmon & Grilse Data 1952-2012



Deveron Sea Trout Data 1952-2012



MONITORING

The DBIT carries out significant annual monitoring to allow evidence based management and conservation work. This work informs management techniques such as habitat improvement, stocking and also feeds into environmental impact assessments (EIA's) for local developments, such as hydro schemes or wind farms. Our work is assisted by interacting with fishery proprietors, ghillies and government agencies such as SEPA.

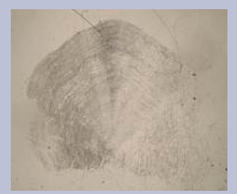
Salmon Parr 1+

Scale Reading

A scale sampling programme has been in operation since 2004, allowing the DBIT to assess the age structure of juvenile trout and salmon within the freshwater environment as well as returning adults. The data from the scale sample programme allows the DBIT to, for example, assess the age of the resident brown trout stock, salmon stocks and monitor for the presence of any farmed salmon. Together with rod-catch returns, scale reading has been used to determine the characteristics of the different fish populations. We thank all anglers and ghillies for contributing to this data.

Juvenile surveys

Electrofishing is the technique used for surveying juvenile salmon and trout in rivers and provides information on their distribution within the district and trends in abundance. Every year we survey between 60-80 sites within the district. This data is used to inform habitat restoration schemes, commercial forestry plans and our stocking programme. Electrofishing surveys are also commissioned by commercial developers as part of planning regulations. Invertebrate surveys at each electrofishing site helps monitor water quality.



A scale from a 21lb Deveron spring salmon age 2.3

Catch Data

Information on adult salmon and sea trout catches is available in the form of rod and net catch data compiled by Marine Scotland Science at Montrose. Since 1952, the annual collection of this data records the progress of fisheries in Scotland. The data are now collected by statute under the Salmon and Freshwater Fisheries (Consolidation) (Scotland) Act 2003. Data of fish caught and returned are published in the statistical Bulletin, Fisheries Series by Marine Scotland on behalf of the Scottish Government. This information is used extensively by the DBIT and RDevDSFB with other data sets to monitor the abundance of the district's fish stocks and ultimately inform the Deveron conservation code.

Deveron District Fishery Management Plan Summary Report

Along with habitat restoration and fisheries research, a significant part of the DBIT's remit is to educate the public and raise people's awareness of local fish populations and surrounding biodiversity. This is achieved through various means from our schools project – 'Salmon goes to school' - to public meetings, ghillies gatherings, newsletters, website (www.deveron.org) and social media (twitter, facebook). Supplying information to the Deveron District Salmon Fishery Board, river proprietors, ghillies, government agencies, developers and anglers on current fish stocks, fisheries research and best-practice management techniques is a vital part of our work.

CASE STUDY 3 Salmon goes to School

There are approximately 36 primary schools in our district area ranging in size from three pupils in the Cabrach to over 100 in the larger urban schools. The DBIT invites up to six schools and interested community organisations to participate in our salmon goes to school educational project each year. The project starts with a slide show explaining the life cycle of salmon, the type of habitat that is ideal for juvenile fish, the predators that fish encounter in the rivers and at sea and the importance of good water quality.

The children are presented with a mini hatchery (aquarium) with 100 salmon eggs which they look after for several weeks whilst the eggs hatch into alevins. They check the water temperature 3-4 times a day and keep the water temperature as cool as possible using a small chilling unit.

Once the fish are strong enough, the children release them in their local burn. Some weeks later the children are shown how we monitor fish populations by electro-fishing and they find some of the salmon fry that they reared and released. During this same outing, they carry out kick tests to find and identify the 'bugs and beasties' (inverts) that young fish prey on during the fresh water phase of their life cycle.

The children enjoy the experience of taking the responsibility of looking after the fish and learn many aspects of the natural world that they may not encounter in the class room. We hope that some of them may retain their interest in conservation and even develop a desire to try fishing themselves and become life-long anglers. They will have learnt that water is our most precious natural resource. They will also have learnt the importance of caring for their environment by not discarding litter and rubbish and not to dispose of any substance that will cause pollution.

The DBIT is grateful to funding from **Scottish Natural Heritage**, **The Scottish Government** and **The Jo Walters Trust** who have all contributed to the costs of this project.

IMAGES COURTESY OF THE PORTSOY SALMON BOTHY

The Deveron system and the coastal rivers have a diverse and complex make up of fish stock components and run-timings e.g. spring, summer and autumn salmon. Throughout the district there are separate and distinctive stocks of salmon, sea trout and brown trout which need to be preserved. It is this diversity of stock which gives the Deveron its 9 month long angling season. Understanding of the structuring of Atlantic salmon, sea trout and brown trout stocks within rivers is essential for focusing local management and stock assessment on breeding populations, the fundamental biological units which underpin recruitment and their character. We understand the importance of researching and preserving distinct local populations and have been operating stock sampling programmes since 2002 to gain a better understanding of the fish stocks within our catchment. Initially an annual scale sampling programme commenced in 2004. Since 2008 genetic sampling has also begun to help pin-point distinct populations and direct management actions.

CASE STUDY 4 Salmon Genetics

In 2009, a partnership between the Rivers and Fisheries Trusts of Scotland (RAFTS), Marine Scotland Science (MSS) and participating individual Fisheries Trusts and Boards was established. It undertook a Scotland-wide survey of genetic structuring within Scotland's major salmon-producing rivers. This project, entitled Focusing Atlantic Salmon Management On Populations (FASMOP), had, as its central aim, to undertake a program of genetic sampling of Atlantic salmon stocks in river systems across Scotland. The purpose was to define the genetic structure among locations in order to determine whether salmon within and among the various systems in a given area represent distinct breeding populations This work, alongside the EU SALSEA-MERGE and other MSS projects, is creating a genetic map of salmon populations across Scotland, to help inform management and conservation efforts.

Figure 1

Figure 1 shows a map of the Deveron district showing the 11 genetic sample sites completed during the FASMOP project. Figure 2 shows a multi-dimensional scaling (MDS) plot of genetic relationships among all sites. Points which are closer together on the plot have a more similar genetic makeup while points further apart are more genetically discrete.

The aim of the FASMOP project for the DBIT was to identify distinct breeding populations of salmon. The results to date suggest that there are distinct breeding populations within the Deveron catchment. However, using the current set of genetic markers, the magnitude of the genetic differences is weak and defining the number and boundaries of these potential breeding populations is not fully resolved. However, before it can be concluded that there are little to no genetic differences within the system, a more detailed survey was commissioned by DBIT funded by SNH. This study used a superior class of genetic marker (Single Nucleotide Polymorphisms, or SNPs) to address the resolution of population structuring in more detail and provide a more robust assessment. Results available end of March 2013.

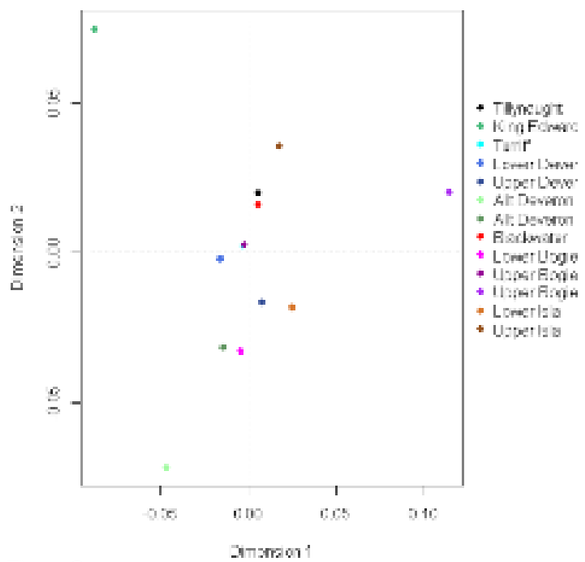


Figure 2

In 2009 the DBIT completed a District-wide Biosecurity Plan. Our plan was one of a set of 20 biosecurity plans being produced throughout Scotland as part of a national programme of action implemented through the Rivers and Fisheries Trusts of Scotland (RAFTS) with backing and support from the Scottish Government (SG), Scottish Natural Heritage (SNH), Scottish Environment Protection Agency (SEPA) and the Esmeé Fairburn Foundation (EFF). The vision of this plan is: 'To establish a sustainable framework which will prevent, detect, control and eradicate invasive non-native species (INNS) within the Deveron fisheries district through appropriate management, data collection, liaison, and education'. INNS are any non-native animal or plant that has the ability to spread causing damage to the environment, the economy, our health and the way we live.

CASE STUDY 5 Biosecurity project

PHASE 1

To implement the new plan the DBIT launched the Deveron District Biosecurity and Fisheries Development Project in November 2009, after successfully securing substantial funding to allow the project to commence. The main objective of the project was to control and eradicate invasive non-native species (INNS) such as Giant Hogweed, Japanese Knotweed and American Mink from the district. The project also included fishery development actions which will be touched on later in this document. The 3 year funding package from Aberdeenshire LEADER, SNH, The Scottish Government, Aberdeenshire Council and Moray Council allowed the DBIT to employ a full-time biosecurity officer (Alastair Fenn), a first for Scotland and also purchase the required project equipment. The project's ethos was the enlistment of volunteers or 'River Champions' which were instrumental in the removal of over 212 American Mink, the Injection of 27 Japanese knotweed sites, removal of 72 escapee rainbow trout, the treatment of numerous kilometres of Giant Hogweed and to put *Gyrodactylus salaris* prevention measures in place.

PHASE 2 (Project update)

We are delighted to announce that grant aid of £62,116 has been secured from Scottish Natural Heritage (SNH) to extend the DBIT's successful biosecurity programme until October 2013. Phase two of the project will continue and extend the control programme of all INNS (invasive non-native species) within the catchment. The principal project is the grazing control trial at Auldtown of Netherdale. The aforementioned site is a juvenile forestry plantation with a severe infestation of Giant Hogweed, which has proved very difficult to curtail using normal methods. After much consideration, research and collaboration between a diverse range of stakeholders, it has been decided to implement controlled grazing with Black Face Sheep as the main control method.

The main objective of the project is to control invasive non-native species such as Giant Hogweed and Mink. Grazing with Black Face sheep could be one solution.

Since 2008 the DBIT has successfully promoted Deveronside both locally and nationally as a top angling and visitor destination through promotion of angling and environmental education. To achieve its project goals the DBIT ensured that any promotional activities were sympathetic to the natural environment and were sustainable. Projects included the installation of three state of the art 'river-cams' to advertise the visual beauty of the Deveron to a global audience (see deveron.org). We also launched a new angling award named The Morison Trophy which was donated by A.G. Morison and unveiled by Dr Aly Bain MBE in 2011 and is now one of the most sought after angling awards within Scotland. We conducted some 'Angling Adventures' with local schools which saw the DBIT arrange angling equipment and fishing at no cost to encourage the next generation of responsible anglers. Our main promotional activities were enveloped within the Deveron Districit Biosecurity and Fisheries Development Project and the principal project is outlined in Case Study 6 below.

CASE STUDY 6 Deveron Fishing Festival

IMAGE COURTESY OF MARNOCH LODGE FISHINGS

During 2011 and 2012 the DBIT organised and ran two award winning fishing festivals designed to bring anglers and visitors to the district during the off-peak tourism calendar. Eighteen of the district's top beats donated their fishings to kick-start the new and exciting concept. Hosting the beats were leading tackle manufacturers (Hardys & Greys, G-Loomis etc) and prominent angling organisations, whose instructors coached anglers and visitors on a one-to-one basis and also provided hospitality. In addition to the excellent salmon and brown trout fishing, other highlights included the opportunity to try state-of-the-art tackle, meet some of the sport's best known names, watch expert fly-dressing demonstrations, buy angling art and enjoy a special whisky tasting evening with Mr Charles Maclean (Whisky's Finest Guru – Sunday Times and star of 'The Angels Share'). Tickets were also sold to attend a gala meal and auction to celebrate the Trust's 10th anniversary. Thanks must go to Alastair Fenn, Turriff Tackle and Trophies, David Burgess (G-Loomis) and all river proprietors who helped tremendously with this project.

The Deveron Fishing Festival

This project was part-financed by the Scottish Government and the European Community Rural Aberdeenshire Leader 2007-2013 Programme.

Brown trout and Sea trout belong to a single, polytypic, species. Historically, the Deveron has produced excellent catches of both Brown trout and Sea trout. Unfortunately the abundance of sea trout within the Deveron fishery and the Moray Firth (MF) region as a whole has declined. The MF rod and line catch of sea trout has been very variable over time but there has been a steady decline from 1996 onwards which suggest a similar decline in sea trout abundance. The long-term (1952-2009) average catch for the Moray Firth is 8474 sea trout but it has fallen well below this in the last 10 years with 2007 (3917), 2008 (3388) and 2009 (4013) being the lowest years on record. The DBIT have increased efforts to protect and enhance Brown trout and Sea trout and also became partners of the Moray Firth Sea Trout Project (MFSTP).

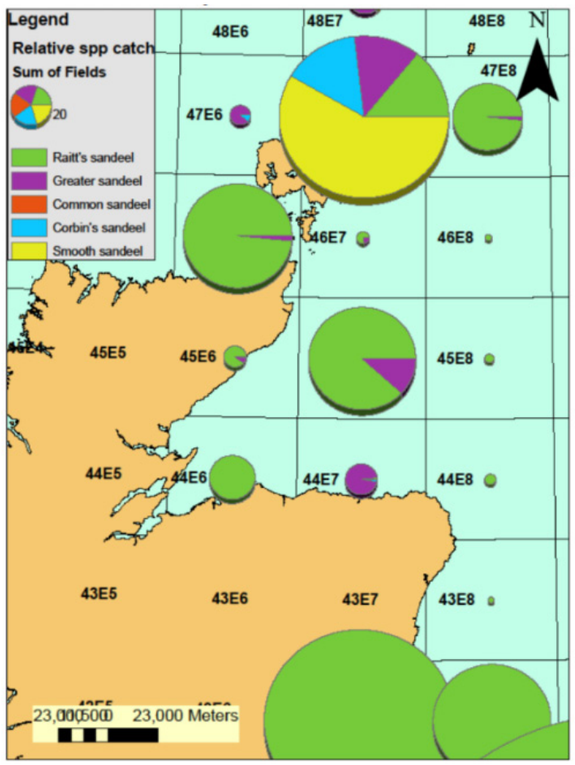
CASE STUDY 7 Moray Firth Sea Trout Project

The MFSTP began operation in March 2008. This collaborative project combined the efforts of Fisheries Trusts, District Salmon Fisheries Boards (DSFBs) and Angling Associations (AAs) towards the Research, Protection and Management of Moray Firth Sea Trout. The initial 3-year project has now been completed and some of the findings are summarised below. The project's work will continue through the new Heritage Lottery Funded Project called The Moray Firth Trout Initiative.

Feeding at Sea

Sea trout migrate to sea to feed and take advantage of the hugely productive marine and coastal environment. The majority of sea trout are female as they have the most to gain in terms of reproductive potential, growing larger than the resident trout they can carry more eggs and are more competitive on the spawning grounds. What sea trout feed on at sea is very variable but is generally opportunistic; taking advantage of what is most available. Typically as post smolts sea trout will feed on small crustaceans, worms and insects inshore before moving off shore to take advantage of large shoals of small fish once they are larger. Sandeels, sprat and herring are all highly nutritious oily fish which are invaluable for the rapid marine growth of sea trout. There are large potential sandeel and juvenile herring stocks in the Moray Firth particularly on the Smith Bank but there have been well publicised reports in recent years linking poor sea bird breeding success to a lack of sandeels.

DISTRIBUTION AND RELATIVE ABUNDANCE OF SANDEEL SPECIES OFF NE SCOTLAND



The distribution of 5 species of sandeel off the NE coast of Scotland in Marine Scotland survey trawls. The size of the chart is relative to the total number of sandeels caught per trawl.

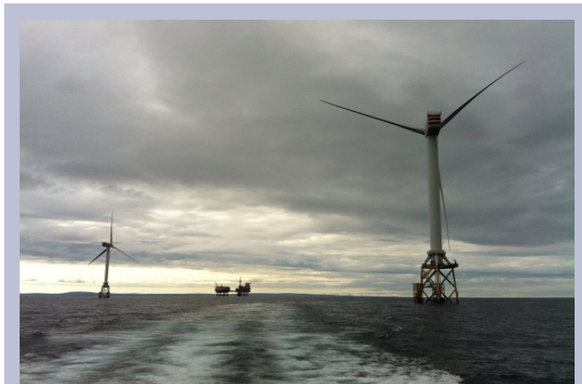
The data used in this graph are Crown copyright, used with the permission of Marine Science Scotland (MSS). MSS is not responsible for interpretation of these data by third parties

Kittiwakes are very dependent on spring shoaling sandeels to feed their chicks and a steep decline in Kittiwake breeding success on the Sutors at the entrance to the Cromarty Firth over the last 10 years, suggests a decline in sandeels which could also be linked to a decline in sea trout numbers over the same period. Local sandeel abundance can be dependant on predation and fishing mortality but there is no fishing for sandeels on the Smith Bank anymore. More generally sandeel abundance is controlled by spawning stock biomass and food availability which is driven by winter sea temperatures and oceanic circulation which are very variable within the complex North Sea system and may be changing in the warming climate.

Blackwater Trout Project

PICTURE: MACSALMO

To effectively manage brown trout and sea trout within rivers, you must firstly identify the different stocks present and also their spawning locations. The Blackwater tributary of the Deveron has long been believed to support a productive population of sea trout. However, 4 successive years of scale collection and analysis funded by the MFSTP has suggested they might not be sea trout at all. The trout sampled from the Blackwater by the DBIT, show many sea trout characteristics; they are relatively large (49cm on average), the majority are female (72 per cent), they look like sea trout and make a clear distinct migration. However, the majority of the scales taken from the 168 fish over the 4 years are not typical of sea trout but rather suggest fast growing river or brown trout. Stable isotope analysis conducted on a sample of fin clips from the population suggests that the fish are feeding quite far up the food chain ie not on insects but on other fish but also that there is some but minimal evidence of marine feeding. In 2010 and 2011, 85 adult trout were tagged from the Blackwater with floy tags during September and 3 have already been caught in the Deveron Main stem (Avochie, Huntly and Rothiemay) which suggests the Blackwater population is making a significant contribution to the Deveron trout fishery. This work is on-going and currently the DBIT are tracking 10 trout from the Blackwater which have been tagged acoustically. This work should help define their movements and characteristics and in turn help manage the species. We are grateful to **Marine Scotland Science** and DBIT members for their support.



Protecting sea trout at sea

As well as research the MFSTP has been very involved in policy work to protect sea trout habitats and prey at sea. The MFSTP has been heavily involved in consultations for the offshore renewable sector in the Moray Firth in particular the large 1300MW MORL development which is likely to begin construction in 2014 with first production in 2016 (www.morayoffshorerenewables.com). The MFTSP has also had a seat on the Moray Firth Inshore Fishery Group to ensure that any fisheries management plans take into account potential impacts on salmonids. Furthermore the MFSTP was heavily involved in campaigning for sea trout to be included on the Priority Marine Feature list drafted by SNH.

BACK PAGE PICTURE: PAUL FOSBURY

Future priorities and actions

During 2013 the current edition of the Deveron District Fisheries Management Plan will be reviewed. The review will reflect current fish stocks, what action has been undertaken on the ground to date and will determine what new information on stocks has been acquired. This data and information gained from discussions with all our stakeholders and partners will help set future priorities for the next phase of the fisheries management plan.

The next phase will continue to be a joint working plan between the RDevDSFB & DBIT and will continue to also work closely with neighbouring fishery boards and trusts, Fishery Proprietors, RAFTS, SEPA, SNH, Angling Clubs, Scottish Water and many more. Early indications of priorities include;

- Sea Trout and Brown Trout (Identification of stocks, spawning sites and restoration of habitat)
- Diffuse Pollution (Identification of sources and reduction)
- Salmon (identification of stocks and spawning sites)
- Climate Proofing (Identification of riparian planting sites)
- Abstraction (Identification and review of current abstraction)

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