

Genetics Project Underway

After several years of discussion, the genetic analysis project – Focussing Atlantic Salmon Management on Populations (FASMOP) – has begun. Two molecular geneticists (Lucy Webster from Aberdeen and Mark Coulson from Canada) have been recruited by the Rivers and Fisheries Trusts Scotland (RAFTS). Both have strong backgrounds in genetics and Lucy has undertaken a similar project on Red Grouse. They will be supported by a part-time Laboratory Assistant (Anja Armstrong) and all will be based at the Marine Scotland Science (formerly Freshwater Research Services – FRS) Laboratory at Pitlochry.

Background

Salmon in different river systems belong to different breeding populations and stocks in all but the smallest rivers can generally be expected to contain many breeding populations which are reproductively and genetically distinct. In practical terms the Spey will have a Salmon population that is distinct from that of other Scottish Rivers and within the Spey, tributaries such as the Fiddich, Avon and Tromie etc are likely to hold distinct sub-populations.

Breeding populations are the fundamental units underpinning recruitment and defining the character of a river's Salmon stock. It is therefore essential to understand a river's population structure for the development of effective stock conservation and management plans. Identifying breeding populations can be achieved by the analysis of heritable variation in the DNA of Salmon. Genetic variations in human beings are used to determine paternity or identify criminals with crimes they have committed. These techniques can also be used to investigate population structuring in Atlantic Salmon stocks as each Atlantic Salmon has a unique combination of genetic variants by which it and its offspring can be identified.



*Tissue samples are taken from fish for genetic analysis
(Photo: Marine Scotland)*

The FASMOP Project has several aims as far as the River Spey is concerned: it will identify the sub-populations of Salmon throughout the Spey catchment, together with their strengths and weaknesses, to improve our management of the fish stock and their habitats; provide evidence of whether or not our extensive hatchery operations have resulted in hatchery-reared fish returning to the River Spey to spawn; and more broadly, it will help to illustrate the impact that mankind's activities – such as further water abstraction proposals - may have on the fish population. FASMOP will also run concurrently with the SALSEA Merge Project, which aims to determine the regional origin of Salmon within Scotland (and thus, for the SFB, differentiate between the Spey Salmon stock and that of other Scottish Rivers).

This project will be expensive and the SFB is particularly grateful to the HDH Wills Trust and the Robertson Trust, both of which have made generous grants towards the Spey analysis. An interim report will be provided in the second half of 2010, although the full results – and the analysis of their implications – are unlikely to be known for a few years. Nevertheless, the SFB is fully committed to the FASMOP project which is the logical, crucial and fundamental next step towards a new and accurate plan for the Management of Fish Populations in the Spey Catchment.

Keep Gyrodactylus salaris Out of the Spey!

Gyrodactylus salaris (Gs) is the greatest threat to wild Salmon in the River Spey, and the UK as a whole. It is a parasitic freshwater fluke which is indigenous to rivers in parts of Russia, Norway and Sweden, where Salmon have evolved resistance to it. However, Gs has spread to rivers in Denmark, Germany, France, Spain and Portugal where native Salmon have no resistance, resulting in mass mortality of juvenile fish. In Norway infected rivers lost 98% of their Salmon within 5 years. Infected rivers must be poisoned to remove all fish hosts, and barriers erected to stop Salmon entering the river to spawn and generate more hosts.

Currently the UK is Gs-free. The economic and ecological consequences of Gs entering the country and the Spey would be catastrophic and the Scottish Government has in place a comprehensive action plan to deal with Gs should it arrive here. However, angling on the River Spey is worth £11.8

million per year to the local economy and secures 367 full time-equivalent jobs, all of which would be under threat if Gs were to arrive here. Gs can survive for 5 to 7 days without a host in damp conditions (e.g. angling clothing, waders, wet reels, lines or landing nets). If you are travelling to or from the affected countries, to ensure your equipment is not contaminated, please take one of the following precautionary measures:

- Dry equipment at a minimum of 20°C for at least 2 days;
- Heat for at least 1 hour at above 60°C;
- Deep freeze for at least 1 day; or
- Immerse in a Gs killing solution for a minimum of 10 minutes.

Please also do your part to prevent Gs from decimating the Spey's wild salmon by signing the Angler Declaration Form before fishing. The form is available from estate offices, ghillies and tackle shops, or it can be downloaded from the SFB website at:

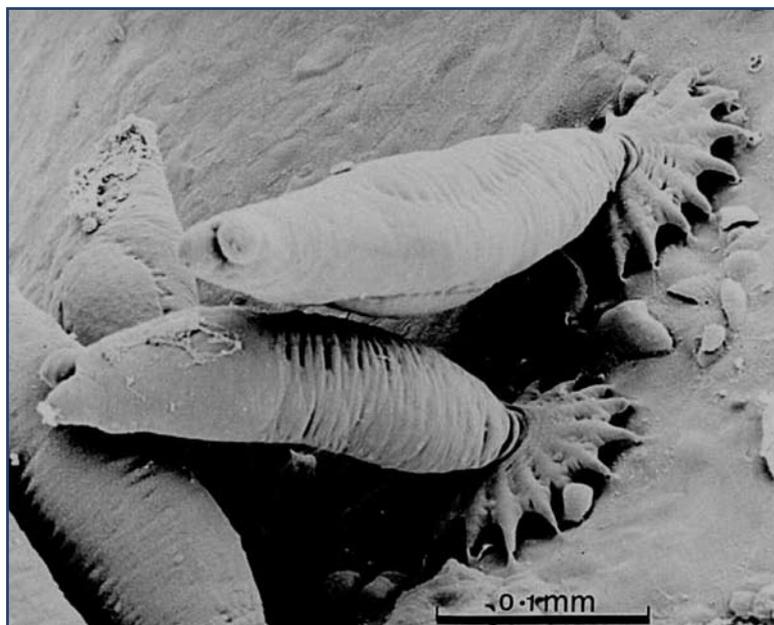
www.speyfisheryboard.com

A video that provides more information on Gs can be viewed from the Youtube site at:

www.youtube.com/watch?v=3Xbbgt9EC68

Additional information is also available from the Home and Dry website at:

www.infoscotland.com/gsbug/



The Gs parasitic fluke: note the size against the inset scale