



## Briefing for the Public Petitions Committee

**Petition Number:** [PE1450](#)

**Main Petitioner:** James A Mackie

**Subject:**

Calls on the Parliament to urge the Scottish Government to cause scientific studies to be conducted to monitor any changes in the behaviour, density, longevity, survival rate and the genetic and DNA markers in wild Sea Trout and Brown Trout in rivers that are stocked with farmed Brown Trout and hatchery reared Atlantic Salmon and to include such data in the new Aquaculture Bill currently being processed by the Government.

### Background

Wild Atlantic salmon (*Salmo salar*) are a migratory fish species which spawn in freshwater rivers. Young salmon live in freshwater and then migrate to the seas of the high Arctic, where they mature before returning to spawn in freshwater completing their lifecycle. Brown trout (*Salmo trutta*) live in freshwater and are widespread in rivers, streams and lochs across Scotland. Sea trout are a migratory form of brown trout which leave freshwater as young fish, growing in seawater before they return to spawn in freshwater. Unlike the salmon, sea trout spend the marine phase of their lives in sea lochs and inshore waters.<sup>1</sup>

All three species are prized by recreational anglers; wild salmon and sea trout are also caught by netmen in certain rivers; and salmon are the main species reared on fish farms around the Scottish coast.

Salmon and brown trout may be bred in hatcheries from wild caught adults for stocking back into the wild. The idea behind this is that it removes the significant natural mortality that occurs among wild fish at the egg and fry life stages.

Wild salmon stocks have declined in many rivers, and restocking programmes have been carried out as part of work to help stocks to recover. Stocking of both salmon and brown trout may also be carried out in order to increase

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<sup>1</sup> A series of information sheets with more information about salmon, Sea trout and Brown trout are available here: <http://www.scotland.gov.uk/Topics/marine/marine-environment/species/fish/freshwater>

numbers of fish available to anglers, or to reintroduce populations e.g. following a pollution incident.

There are some potential drawbacks to stocking: risk of introduction of parasites or disease; introduced fish compete with wild fish for food; if stocked fish of non-local genetic origin interbreed with local wild fish this can affect the genetic adaptations of salmon and trout populations; introductions can also reduce genetic variability as introduced fish will tend to have been bred from a relatively few adults.

Current thinking in fisheries management is that it is preferable to improve fish populations by improving the quality of their habitat, rather than by stocking. This is reflected in a topic sheet published by Marine Scotland's Freshwater Laboratory entitled '[Natural Breeding – Healthier Fish Stocks](#)' which highlights the potential problems of injudicious stocking programmes.

### **Scottish Government Action**

Introductions of salmon and freshwater fish are regulated under section 33A of the Salmon and Freshwater Fisheries (Consolidation) (Scotland) Act 2003. It is an offence to release any freshwater fish or fish spawn into inland waters without the consent of Scottish Ministers. The position on salmon depends on whether there is a District Salmon Fishery Board (DSFB) in place in a particular area. DSFBs are voluntary bodies charged with improving salmon stocks in the district for which they are responsible. Where a board is in existence, it is responsible for authorising releases of salmon. Many boards operate hatcheries and conduct stocking programmes as part of their activities. Where there is no board, Scottish Ministers are also responsible for consenting stocking of salmon. Marine Scotland acts as the consenting authority on behalf of Ministers.

The Scottish Government has introduced an Aquaculture and Fisheries (Scotland) Bill which would make a change to this position. Section 28 of the Bill would allow Scottish Ministers to make regulations which would make them responsible for authorising releases of salmon instead of DSFBs.

The [Policy Memorandum](#) which accompanies the Bill also sets out the Government's policy on introductions and details the further work which the Government intends to do in this area:

143. Scottish Government policy is for rivers and fisheries to be sustainably managed based on the best available science. The practice and potential impacts of fish stocking are subject to considerable debate among stakeholders; the debate is characterised by concerns about lack of transparency on activities and impacts. Due to the division of responsibilities for consenting to introductions there is no national picture of stocking practices and no mechanism to ensure it is undertaken in line with good practice and monitored effectively. DSFBs may consent to their own introductions of salmon, a situation which presents potential risks in terms of impartiality and transparency. They may also licence introductions where the inland waters are, or may affect, a designated site

for salmon or other protected species under the Habitats Directive. This presents risks in terms of the Scottish Government's obligations under European law as DFBS are not subject to any statutory obligation to consult on their introduction plans.

144. The policy objective is that, where stocking does take place, it is done in line with good practice guidelines and that appropriate record keeping and monitoring take place. There is a range of guidance material and literature on this issue produced by a variety of bodies. The Scottish Government intends to review this body of work in partnership with key stakeholders and develop a national policy position. This will include consideration of whether, in certain circumstances, it is more appropriate for Scottish Ministers, in the national interest, to take responsibility for consenting to introductions of salmon and salmon spawn, even where a DSFB is otherwise the consenting body. It is anticipated that potential circumstances might include where the waters are situated within a Special Area of Conservation (SAC), where self-authorisation is proposed, or where there is evidence of poor restocking practice which has not been addressed through local management.

The Scottish Government also funds research into salmon and freshwater fish which is conducted by Marine Scotland's Freshwater Fisheries Laboratory which is based at Faskally, near Pitlochry in Perthshire. A considerable body of work has been conducted which looks at the implications of stocking for wild populations of salmon and trout (Marine Scotland 2012). This body of work has been summarised in advice provided by Fisheries Research Services<sup>2</sup> (2007) on [salmon hatchery work](#). The advice note considers the main biological arguments relevant to the hatchery issue and an attempt has been made to present the facts in an accessible, non-technical style. It also includes operational guidelines consistent with the biological background for planning and hatchery practice. The advice note states that:

All of the statements can be supported, and most can be supported with original sources [i.e. from scientific studies], although these have not been cited in the present document because of their technical nature.

Scottish Natural Heritage has also commissioned research which developed [guidelines on stocking of fish within designated natural heritage sites](#) (Cowx et. al 2012).

## **Scottish Parliament Action**

The Rural Affairs, Climate Change and Environment Committee is the lead Committee for the Aquaculture and Fisheries (Scotland) Bill. It has been taking evidence at Stage 1, and concluded oral evidence taking with a session with the Minister for the Environment and Climate Change on the 9 January 2013. The Committee is now drawing up its Stage 1 report.

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<sup>2</sup> Fisheries Research Services is now called Marine Scotland Science

The Committee took evidence on Part 2 of the Bill, which includes section 28 which relates to introductions on the 12 December 2012. Alex Fergusson MSP questioned Dr Colin Bean of Scottish Natural Heritage and Calum Sinclair of Rivers and Fisheries Trusts Scotland about the issue of introductions and the proposals in the Bill:

Alex Fergusson: I think that I am right to say that the power over the release of salmon for restocking largely lies with district salmon fishery boards but Scottish ministers have the right to issue the necessary regulations when there is no district salmon fishery board. The bill proposes to change that and give ministers the right to introduce regulations to authorise the release of salmon for restocking. What is wrong with the present system, if you think that it needs to be changed?

Dr Bean: That is probably a question for me because we look after the SACs [Special Areas of Conservation]. District salmon fishery boards are the regulator, if you like, for their own stocking activities. That does not preclude them from applying to Scottish ministers to collect brood stock out of season. Obviously, the brood stock is needed to supply the hatcheries for restocking.

As Alex Fergusson has rightly pointed out, the current situation is that Marine Scotland has the licensing responsibility for all fish other than salmon in Scotland, but it also has the licensing responsibility for salmon in areas in which there is no district salmon fishery board. The district salmon fishery board is the competent authority under the habitats directive in an SAC, for example, and I will talk about SACs because that is where my locus is.

Essentially, SACs self-regulate, which is fine. We have district salmon fishery boards that are largely managed by people who are proprietors, but they might not be fishery managers in their own right. There is an increasingly strong link between district salmon fishery boards and fishery trusts so, in many areas, there is ready access to good-quality scientific advice.

The issue is that district salmon fishery boards have to comply with the habitats directive in the same way as everyone else. For SNH, the real issue is that many district salmon fishery boards carry out this type of activity without any recourse to the habitats directive.

From work that has been carried out in many places but particularly in western Ireland, we know a lot about the impacts of long-term stocking activities on individual and population fitness—or what you might call the genetic impacts. This area of science has expanded significantly over the years and the question now is whether the dependency on stocking that seems to pervade some district salmon fishery boards is scientifically justifiable. A lot of money is spent on stocking—indeed, some of these hatchery operations can run to well over £100,000 per year—but, aside from the value for money element, we need to consider the ecological or biological impact of such activity.

To give members an indication of the number of fish that are stocked out, I should say that, in information that it provided to NASCO as recently as 2010, the Association of Salmon Fishery Boards listed the number of hatcheries that operated in district salmon fishery boards and the number of boards that carried out this activity. According to that information, 25 district salmon fishery boards claim to have carried out stocking operations; at that time—that is, in 2010—those boards planned to put out 12,758,000 salmon and 127,000 sea trout from 42 hatchery units. However, 25 per cent of those fish came from a single district salmon fishery board on an SAC and information about whether that board had gone through the habitats directive appraisal—the three tests that would usually be applied to any activity that might impact on an SAC—is largely missing, which is a concern. Moreover, some boards do not apply to Marine Scotland for a licence to collect fish out of season. District salmon fishery boards have to improve their game with regard not only to best practice in science but to compliance with relevant legislation.

Alex Fergusson: Thank you very much for that explanation. Coming from the south-west, I am aware of a situation in which the district salmon fishery board, as per your point, works very closely with the Galloway Fisheries Trust but conflict has arisen with an angling association which, with the blessing of the district salmon fishery board, is carrying out its own restocking programme. I think that what I am asking is whether you can restock too much—can you put too many fish back into a river?

Dr Bean: Absolutely. I would hate to give members the impression that SNH is anti-stocking—it certainly is not. I think that we would all agree that stocking is a legitimate fisheries management tool that can be used in certain circumstances. If someone wanted to stock fish above a man-made barrier where natural spawning could not occur, such a move would be justifiable if fish had been lost through, for example, a pollution or other natural event. As I have said, we support stocking as a management tool, but district salmon fishery boards and others quite often look at stocking as the first tool in the box when they should really be trying to address the environmental issues that have led to the reduction in recruitment to stocks by, for example, removing a fish barrier or through some other habitat management prescription.

[...]

Callum Sinclair: As the representative of the 25 fishery trusts—and as someone who, as they say, lives in the parish—I know well the example that Mr Fergusson has highlighted. As Colin Bean has pointed out, stocking is very much seen as a first stop when it should be further down the line of fishery management prescriptions. I often describe it as selling hope to optimists. People who want to have more fish think that putting more fish in the river will give them that but they miss various basic start points. The fish that they use to stock the river came from it in the first place; they are not new fish.

The earlier question was about whether the current system works. We are rather less interested in whether the current mechanism works than in how the mechanism should work. There must be a better system for regulating and advising fish stocking operations. Advice must be sought and taken, whether from Marine Scotland scientists—who are well equipped to regulate on the matter—or the district salmon fishery boards. If someone seeks to go against that advice, which is what is happening in the example that Mr Fergusson quotes, they must justify that approach to the boards.

I would like the decision-making process to be more transparent, particularly in cases in which district salmon fishery boards are self-regulating. First, there should be a requirement to seek advice. There should be a management objective for the activity that would stand up to some scrutiny. There should also be an associated monitoring assessment programme and an exit strategy because, as Colin Bean mentioned, stocking is sometimes legitimate for a period to help recovery after an accident or incident. However, that should not mean that it is a recurring intervention.

In the consultation response and in this meeting, we have stated that we would strongly favour some sort of public register of regulatory decisions on stocking so that such decisions on fish movements made by the DSFBs or Marine Scotland are apparent to us all, so that we can see the justification for the action if it is approved and, I guess, so that we can challenge it if we wish. Some of our members have concerns that, when advice is sought, it is not always followed. That is certainly the case in the example in the south-west.

Alex Fergusson: I did not mean to highlight an example in my own parish alone. I take it that it is not unique and that such problems exist more widely in Scotland.

Callum Sinclair: They may well do. However, the key issue is how we better inform stocking activity if it is to take place and how we better regulate its extent. There is certainly room for improvement in regulatory practice, in where and how advice is given to those who make regulatory decisions and in how visible those decisions are.

When the system works well, it can work very well. One of the major hatching operations that have been undertaken by a fishery board in the past was on the River Spey—that may be the example that Colin Bean hinted at earlier. The fishery board there received informative genetic advice, which allowed it to make significant reductions in the hatchery programme, and it is still considering that evidence further.

It is not reasonable to say that no advice has been sought or acted on, because it has been. However, there is a need to level the pitch a bit and ensure that advice is taken and acted on across the board.

Alex Fergusson: Is there any difference between the process or practice in releases that are authorised by the Scottish Government—which would be the case with all releases in future if the bill is enacted—and releases that are authorised by district salmon fishery boards?

Dr Bean: We are assured that any release that Marine Scotland authorises will be done on the basis of the best scientific advice. That is fine.

If a district salmon fishery board has access to a fishery trust biologist, it has advice. The Association of Salmon Fishery Boards gives some guidance and has an excellent code of practice. Of course, not all district salmon fishery boards may follow that advice.

Our knowledge of salmon populations has increased substantially over the past few years. In fact, a project that RAFTS has run in association with Marine Scotland called focusing Atlantic salmon management on populations, or FASMOP, has highlighted the fact that salmon populations are genetically discrete—there are many of them. In the past, we would have said that salmon from the Tay are different from salmon from the Tweed, which are different from salmon from the Dee. That was accepted and that understanding has been around for a long time. However, we now realise that there are a number of populations within individual rivers. The question is how those populations are managed. It is not simply a case of catching brood stock in an area that is easily accessible for someone to go and net them and then stocking those fish elsewhere, because that may have an impact on the smaller populations.

The question is whether the scientific expertise exists within the district salmon fishery boards to carry out stocking activity effectively and in accordance with what we would regard as best scientific practice.<sup>3</sup>

## Sources

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<sup>3</sup> Scottish Parliament Rural Affairs Committee Official Report, 12 December 2012 Cols 1495-99. <http://www.scottish.parliament.uk/parliamentarybusiness/28862.aspx?r=7621&mode=pdf>

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