Environment, Climate Change and Land Reform Committee

Environmental impacts of salmon farming

Written submission from David Tierney

A Plea to our Decision Makers

Like most of the people involved in this enquiry, I believe that aquaculture in general (and salmon farming in particular) are huge success stories, vital to the future of Scotland, and indeed the world. I believe that deep down our decision makers are probably aware of this, but they often lack confidence in proclaiming it! I am writing in an attempt to draw attention to what I believe is a negative bias in the debate that has undermined confidence in the industry and is in danger of forcing it down some dangerous blind alleys. But first a bit about myself and why I believe I am qualified to speak on this subject.

Way back in 1975, a deep interest in our environment led me to gain a degree in a subject that few people had heard of back then - ecology! This was followed by an MSc in marine biology, and then by a four-year career in fisheries research. In 1979, I was attracted by the possibilities of the exciting new salmon farming industry. I have never regretted moving into it and remain fiercely proud of all the industry has achieved in the subsequent 40 years. Now that I have retired from fish-farming, my twin backgrounds enable me to look back on the development of the industry and clearly see both sides of the current debate, without having any particular axe to grind. I have followed all the arguments about the negative aspects of aquaculture which are so clearly set out in the report before us, and although I acknowledge that there are problems, I believe aquaculture offers far more solutions than problems. Such problems as there are, I believe to be minor when put into a global context with all the other problems that our planet faces. I further believe that some of the alleged problems, particularly sea-lice and so-called genetic integression, are not major problems at all. There is plenty of evidence that the world-wide decline in wild salmon populations is mainly due to a variety of other factors. Both these factors may be sometimes play a part, but they are certainly not the most important factors.

It is interesting to take a dispassionate look at how these subjects have taken such a hold, out of all proportion to their true significance. Of course, most of the wind that has fanned the flames of the debate comes from those with the greatest interest in wild salmon – the anglers, closely followed by the more extreme wings of the environmental movement. Again, I can sympathise to some extent with them, as I am both an angler (for trout) and an environmentalist myself. However, I do find it odd that the same organisation that lobbies on behalf of the wild salmon, is the same one that then slaughters over 6,000 breeding adults annually on their way to the spawning grounds. Surely this is like saying one wants to save the snow-leopard, then going out and shooting them! We cannot take the Salmon and Trout Conservation Scotland seriously until their two conflicting interests of preservation and destruction are separated.

Having said that, I will agree that this is not likely to happen, so we must simply concentrate on the arguments. I will not endeavour here to go through the entire SAMS report point by point, but instead will pick out a few of the main facts that I believe should be born in mind when reading it or watching the discussion of it.

1. My first point is that I am disappointed by the quality of science on this subject. When I read many of the papers, I find myself asking how can such conclusions be drawn from the evidence presented? Please remember that scientists (and remember I was one!), like all of us, may not be entirely impartial. Although theoretically all scientists are seekers after the truth, they are also seeking the next input of research funding. The current anti-salmon farming climate tends to ensure that research projects are all looking for problems in the industry, and it is very difficult even for scientists, not to be influenced by those with the loudest voices. This tends to ensure that alleged problems are confirmed, thus skewing the debate still further. It is extremely hard for a scientist to go against the accepted wisdom of his or her peers, and I know from discussion with others with a background in this field, that those who might challenge the prevailing views are not welcomed by the scientific community.

2. This situation would probably have been avoided if the industry had been as effective in its communication as the opposition. Sadly, this has not been the case. The industry has tended to believe that responding to the blatantly skewed headlines in papers like the Mail and the Herald would only exacerbate the situation. In many ways this is correct. However, it has meant that anyone googling ‘salmon farming’ will find far more negative stories than positive ones, making it very difficult for any investigating journalist to avoid the conclusion that salmon farming is evil and must be stopped at all costs.

3. On sea lice, look out for the word ‘exception’. This is used several times in the discussion to describe rivers such as the Carron and the Lochy, which refuse to conform to patterns found elsewhere. There are several individual rivers, even in the aquaculture zone that still have reasonably healthy populations. It is anomalies like these that should form the basis of research, to find out why they are different. After all, if Alexander Fleming had ignored the anomalous blank patches on his petri dish, we would never had had penicillin!

4. On introgression, or the mixing of wild and farmed stocks – is this really such a bad thing? The research tends to assume that the mere presence of markers from farmed stocks in a wild population is bad and will inevitably lead to weaker wild stocks. The oft-quoted Irish study on this subject (1) actually finds that in some respects farmed fish can be more successful than wild fish, but then concludes that this is bad as the farmed fish will then displace wild! We should remember that nature has always produced both strong and weak mutations, and the ‘survival of the fittest’ operates just as

strongly today as it ever did. Furthermore, in the rapidly changing climate that we have today, it is perfectly possible that a few individuals reared in the farm environment may actually help to speed up the process of adaptation. These days, a Scottish burn is quite likely to experience water temperatures in February or March that I know from my hatchery experience could be lethal to wild fry. Farmed fish are by definition selected to grow at these high temperatures, so their genetic input could greatly aid survival of their wild cousins. Farmed fish are NOT monsters, NOT genetically modified, just Salmo Salar like their wild relatives.

5. There was much discussion in the enquiry about high levels of mortalities in the industry. This has been exposed by lurid photographs of an accidental spill of salmon mortalities, and headlines suggesting that half farmed salmon are lost to disease. The question was asked whether salmon farming compares to other intensive farming industries. This is clearly an irrelevant question, as the life-cycle of the salmon is so different to that of, say, a chicken. In any case, I am sure that the recent spike in mortality is actually due to the industry being a little too hasty in trying placate its critics. This has led to the introduction of some novel lice treatment methods that have turned out to kill the salmon as well as the lice!

6. Please do not be seduced by the promises of RAS, or recirculating aquaculture systems. These are extremely expensive and in my view will only ever be cost effective for very high value, specialised products such as smolts, where they work very well. Even if the cost factor could be overcome for table fish, the complex problem of tainted flavour is unlikely in my view to ever be reliably solved (2). It would be wonderful if it could be made to work, but one thing is absolutely certain – these systems will always use much more energy, and unless this energy is 100% renewable, that must always weigh heavily against them in environmental terms. There have been many, many attempts at RAS for table fish throughout my 40-year career, but still there is not a single system that has survived for more than a few years. It is no exaggeration to say that this is a distraction that is being used by the opposition to kill off the industry.

There are many more examples like this that I could point to, but instead I would like to end by commending the work of Dr Martin Jaffa, who has for many years been a lone voice in countering the many attacks on the industry. He has recorded his findings on his website, in a weekly blog called ‘relakstation’. He has single-handedly, and without any pay, gone through the entire catch records of the Scottish rivers since 1952, and come up with some conclusions that are very different to the accepted wisdom. Anyone involved in decision making on this industry should sign up to this at to www.callandermcdowell.co.uk to get what is really the only regular review of both sides of the arguments. His views make a lot of sense, so much so that despite repeated invitations from Martin to discuss the subject openly, the S&TC refuse to meet with him. To me, this speaks volumes. They are simply frightened of losing the argument.

Finally, please remember that this is a great industry, with a great future. It is driven by hands-on men and women with practical minds, who when they see a problem, will immediately start looking for a solution. They have driven the rapid development of the industry from a few experimental wooden cages, to the efficient operation that we see today that is making a major contribution towards a healthy diet for our nation, as well as creating over 6,000 jobs. These people inevitably have a love of the Highlands and its wildlife, or they would not choose to live in the wild and remote places that they do. One of the problems they face is precisely that they do their work in some of the most beautiful places in the world, and in the full glare of the public, unlike the chicken farmer for instance whose mistakes can be hidden behind closed doors.

What the industry desperately needs now is the support of its government. Please treat the nay-sayers with the scepticism they deserve and put your full support behind this vital industry. Scotland could, and should, lead the world in this.

(1) Fitness reduction and potential extinction of wild populations of Atlantic Salmon as a result of interactions with escaped farm salmon. Phillip McGinnity et al. Proc.R Soc.Lond B (2003)
(2) In RAS, off flavour is off-putting. Justin Henry, Hatchery International, Jan 2018.