

Environment, Climate Change and Land Reform Committee

Environmental impacts of salmon farming

Written submission from The Scottish Gamekeepers Association (SGA) Fishing Group.

The SGA Fishing Group welcomes the publication of this report, which brings together published science from Scotland and further afield.

The extent to which the report relies upon science from elsewhere, primarily Norway and also Ireland, to draw any substantive conclusions about the environmental impacts of salmon farming, should in itself serve as a warning.

Currently, Scotland is the largest producer of farmed salmon in the EU yet the report's authors highlight with some degree of exasperation the failings in impact monitoring, the lack of transparent sea lice data (from the industry) and the inability of technical innovations for disease and lice treatment to keep pace with ambitious production targets.

Until some of the gaps in monitoring and reporting are bridged, the industry- which first rooted in Scotland in the 70s, is lurching into the dark with possible untold consequences. The lack of data ultimately leads the authors to presume that, if we are to increase production by 2020 and, again, by 2030, the listed impacts will get worse and the pressures on the marine environment will grow, simply because there is more of it.

Is that an argument for some of those production targets to be reviewed or perhaps slowed until more of the unknowns are knowns and new methods which would counteract some of the main lice, disease and discharge problems, are bedded in? In 2014, in Norway, for example, the Fisheries Minister granted a modest 5 percent increase in production to fish farms only if they met the trade-off of stricter regulations on sea lice burdens.

The lack of robust data also makes it difficult for Scottish Government agencies to take meaningful enforcement action for breaches, something which happens in elsewhere. Just last month, Leroy, co-owner of Scottish Sea Farms, was fined £127 000 by Norwegian authorities after sea lice, 40 times the recommended limit, were deemed to be causing welfare problems for the caged salmon. The enforcement teeth are there in Scotland, on paper, but how effectively can they be deployed when industry self-reporting is inadequate?

If the industry is to grow in a sustainable way and the important employment it generates in rural areas is to be preserved for the future, new and regular reporting Codes may have to be introduced so marine scientists have a more thorough understanding of local level impacts. A mechanism also needs to be created for wild and sea fisheries to be able to monitor and report sea lice impacts, in rivers and beyond, to a central databank so more is known about impacts beyond the farms.

The report notes that: "A clear relationship between the increased abundance of sea lice due to salmon farming and presence on wild hosts in the sea has been demon-

strated outside Scotland. For Scotland, there are no published accounts of systematic counts of sea lice levels on wild salmon and its association with salmon farming.” These knowledge gaps are of concern.

Antibiotic resistance is a world-wide problem but land-based industries in the UK have recently been audited on the amount of chemical antibiotics used in production and have begun voluntarily reducing chemical treatments, where possible, in order to prevent resistance. Game and farming interests, for example, have been working hard on this with the relevant Directorates for the past 18 months or so. Worryingly, this report suggests aquaculture appears to be going the other way in a losing battle and, unless new products can be found or there is some miracle in the efficacy of some of the more common treatments, it is difficult to be overly optimistic about reducing disease and minimising sea lice impacts in future.

Not only will this have implications for fish farm profitability and industry growth, it will have serious consequences for wild salmon and sea trout stocks, already the subject of recent Scottish Government conservation measures limiting the amount to be taken by exploitation. There is no doubt that west coast wild fisheries have suffered and ghillie and boatmen jobs have been lost as salmon farms have increased or expanded. It is only the extent to which this has been a factor that remains to be qualified.

While it is welcome for this report, pretty much for the first time (but thanks only to Norwegian data) to acknowledge the detrimental additional impact sea lice from salmon farms have on diminishing wild stocks, we are no nearer a solution. The report states: “...even a percentage loss of smoults or adults may be significant if it combines with losses due to other causes so that salmon (wild) become critically endangered or lost...”.

It states also: “With the currently high marine mortality rate for wild salmonoids, and threatened status of man river stocks, any additional pressure, such as increased sea lice, is undesirable and could further erode the conservation status of vulnerable wild populations.”

To put these statements in context, only 21 Scottish rivers were given Category 1 gradings by Scottish Government for 2018 (ie: their salmon conservation permits catch-and-release to remain voluntary). 27 were classed as Category 2 and 123 were Category 3 (with a proportionately higher number in the west). It is of concern that the rise of Category 3 rivers rose, in one year, from 73 to 123. Category 3 rivers are classed as being unsustainable for exploitation and any fish caught must be returned by law. It is clear, if we are also to preserve a healthy wild fishery and the employment and income generated by this valuable sector, we don't have the time or leeway to get this wrong.

RAS is clearly some way off and, whilst the SGA Fishing Group ultimately supports the development of on-shore closed containment units, the industry and everyone else looks as if it will be grappling with issues of sea lice, diseases such as amoebic gill disease and infectious salmon anaemia, and genetic introgression through escapes, in the interim.

River ghillies working in the west are of the opinion that the success of 'cleaner fish' such as wrasse and lumpfish remains variable but thermolicer treatments, despite

teething problems in places like Skye, would seem to show potential in reducing lice which have a low tolerance for sudden temperature change. This method is being used with some success in Norway and, although the report doesn't focus heavily on this as a mitigation method, the SGA Fishing Group believes all caged salmon farms in Scotland should trial this non-chemical alternative. Sea water is desalinated on the well boat and then the salmon pass through the desalinated water which is heated to a temperature which causes the sea lice to fall off.

The issue of escapes is well covered in the report and there were attempts to qualify the extent to which this is an issue for wild fish, by assimilating reported numbers over a period. It is an open secret that the reported figures do not represent the actual number of escapes but the report's authors clearly could only work with the data available to them.

The report does consider genetic mixing of wild and farmed salmon to have negative consequences for wild fish, lessening their adaptability, which is a worry. During its extraordinary life cycle the wild Atlantic Salmon meets many challenges between its natal river and sea and any reduction in resilience can only spell problems for its future conservation.

The SGA Fishing Group would consider it a sensible mitigation, therefore, for all salmon and trout bred at sea to be bred as triploids, thereby negating likelihood of cross-breeding with wild fish.

RAS, mentioned previously, has only been tested in a small way to date. The report mentions the significant cost implications involved in powering these units and removing waste. However, anyone looking dispassionately at the report's conclusions would find it difficult to argue against the view that such systems represent a way forward in eliminating a number of the principal environmental problems associated with breeding fish in cages at sea. Despite costs, Scottish Government and the industry itself should reinvest in RAS technologies and explore possibilities for the future. Science rarely stands still and it may be that, in a decade or less, new ways have been discovered to reduce the costs and produce salmon in a sustainable way, retaining the employment and the benefits for Scotland.