

Mr Finlay Carson MSP

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10th March 2026

Dear Finlay,

During the Rural Affairs and Islands Committee evidence session on 25th February, Mr Ben Hadfield, representing Scotland's salmon farming sector, committed to provide further information in response to specific questions.

Summary

Antibiotics: Scottish salmon maintains one of the **lowest antibiotic uses** of any major UK livestock sector. They are used as a last resort to ensure animal welfare, and we strive for zero-use through advanced vaccine innovation.

Transparency and culls: We are the **only UK farming sector** to publish monthly, farm-level survival data. Culls are a rare and humane veterinary tool in all farming sectors.

Cleanerfish: The sector commits to produce an **annual report**, detailing our use of cleanerfish and their survival on farms, inc. actions to improve fish health and welfare.

Survival comparisons: It is biologically inaccurate to compare salmon (which produce thousands of eggs) to land mammals and birds. However, farmed salmon survival remains **significantly higher** than in the wild.

Farm closure: Our production companies invest in biological improvement and therefore take proactive self-regulatory activity. To that end the sector has proactively **closed or relocated 81 farms** in the last decade as a responsible, proactive action to improve fish health and welfare and to improve survival. Farms have also been closed or relocated due to wild salmon migration routes.

Salmon conservation: Salmon farmers are frustrated by the lack of action on wild salmon conservation in Scotland. Despite this, we have invested over **£635,000** in wild salmon conservation via our Wild Fisheries Fund. **We support Dr Alan Wells' call for a full enquiry into wild salmon management and for the introduction of a rod licence in Scotland.**

Regulatory reform: The consenting pilots have failed to deliver the speed or certainty promised by the **Griggs Review**. We urge the Scottish Government to provide the leadership required to unblock sustainable rural investment.

Antibiotics:

Salmon farmers have two licenced antibiotics, both of which are categorised by WHO and EMA as being of lowest concern, with respect to AMR and human health, with advice to veterinarians to use them "prudently". These two antibiotics are not considered High Priority Critically Important Antibiotics (HP-CIAs).

Antibiotic use by Scottish salmon farms is low. They are only used where absolutely necessary and where evidence demonstrates they are likely to be effective. With the ongoing development of

vaccines for existing and new health challenges, we anticipate that antibiotic use will fall further in the coming years. Our sector strives for zero use and has made demonstrable progress in this regard. As with any responsible livestock sector, veterinarians need access to antibiotics and use them if necessary to avoid unnecessary suffering.

Since 2016, the sector has been members of the Responsible Use of Medicines in Agriculture Alliance (RUMA; <https://www.ruma.org.uk/>), and specifically their Targets Task Force Initiative (TTF), which focuses on antibiotic stewardship. TTF arose in response to the 2016 O'Neill report into antibiotic resistance and is significant as the only truly cross livestock sector initiative (irrespective of subject), where knowledge, insights and experience is shared to collectively improve antibiotic stewardship. Through TTF salmon farmers have proactively published data on antibiotic use since 2017. The data is available in the annual TTF report, as well as the Veterinary Medicines Directorate Veterinary Antimicrobial Resistance and Sales Surveillance (VARSS) report.

As noted by the Committee, in January 2026 we identified an error in the previously reported 2024 antibiotic use figure (published in Nov. 2025). We took immediate steps to publish a correction on our website and in the TTF and VMD VARSS reports. We have also updated our procedures and have introduced further checks in our antibiotic data collection and reporting, to avoid this happening in the future. This was an isolated error. We corrected this and made that public. Our antibiotic use in 2024 remains one of the lowest on record.

During the Committee session, members were updated about a recent escape of immature fish at the Mowi Gorsten farm due to storm weather. These fish had been treated with antibiotics. This did not present any risk to the environment or to humans ie fishers who may have caught and eaten the escaped fish. Fish remaining on the farm, and which had been treated with antibiotic in the same way as those that escaped, were tested immediately following the escape. The analysis demonstrated that antibiotic levels in the fish were below the Maximum Residue Level (MRL) set within regulation. Therefore, the escaped fish did not pose a concern to humans or the environment.

Sector data, mortality data and culls:

The level of transparency and access to data for our sector far exceeds that for any livestock sector in the UK, and any other salmon farming sector globally. Through voluntary and statutory reporting, considerable information and data is available at a farm level, including multiple descriptions of fish survival, and health and welfare. In 2010, the sector began voluntarily publishing statistics on sea lice. Then from 2018 we provided farm level reports of both survival and sea lice. Scotland's Aquaculture Database provides a wealth of information about our farms, including data that is collected as part of regulatory compliance. Our transparency was evidenced during the committee session, where a specific example was cited for mortality (numbers and percentages) at a specific farm. This level of detail is not available for any other livestock in the UK: sheep and cattle farmers do not publish this data and this transparent flow of data contrasts substantially to the available data from the wild fish sector, where lack of rod catch per unit effort of fish and a low number of indexed rivers results in an opaque situation at best.

We note the committee's interest in better understanding culls. Culls are an accepted part of any livestock production. In salmon farming, culls are rare, but where they are needed, under normal circumstances they principally occur in the early freshwater stage. Culls are used pre-emptively to humanely remove fish from a population, when farming and veterinary experience tells us those fish are likely to experience a health and welfare challenge in the future.

In order to help illustrate the very low level of culls in the sector, Mowi Scotland has made data available. Mowi are the largest salmon farmer in Scotland and thus their data is representative of the sector as a whole. Culls are most prevalent during the very early stage of production, from egg to first feeding (alevins). They are undertaken as a correct and proper action to ensure fish welfare in the future. Culls at this stage range from 0 to 15% (average 10%), which is similar to the losses of eggs and alevins in the wild. Culls later in the freshwater stage are rare and only ever used safeguard fish health and welfare. They mainly occur to avoid transferring fish to the sea, that might not fare well. Data relating these are often in the public domain (see below). It is important to note that culls during the freshwater stage typically occur in closed systems, thus restricting any concerns the public might have with regard to the environment. Finally, in sea water, culls are at their lowest level and are typically used to avoid unnecessary welfare issues. At this stage we experience culls of c. 0.1%.

On rare occasions there may be a specific, and more significant cull undertaken. Again, these typically occur during the freshwater stage and represent the correct and proper action of a farmer to mitigate a current or future health and welfare concern within a population of fish. Importantly, these culls are captured within agreed reporting to the Fish Health Inspectorate, who will consider that information within their annual surveillance programme. These data are, thus, in the public domain and available for all to see.

As with all other livestock sectors, statistics on culls are not published. This is due to the very low numbers involved. Any reporting would represent an unnecessary, bureaucratic process, with no tangible benefit. Our current reporting of fish survival seeks to provide clarity to the public on “premature” mortality. Specifically, we believe the public are most concerned about specific issues that arise and that cause a fish to perish (e.g. disease), rather than instances where fish are purposely harvested or culled humanely. During the Committee session, we committed to consider our current reporting of fish survival and whether any changes are necessary. We stand by that commitment.

Fish survival: comparing species and wild fish:

Throughout the Committee’s inquiry into salmon farming there have been various comparisons between mortality rates in different farmed and wild species. It is important to place these comparisons into context, based on the biology of each species.

All animals have a reproductive strategy that is used to ensure the continuation of their species. Over the course of an animal’s life, they need to ensure that at least one of their offspring survives to continue the species.

In the wild, salmon are “*r* strategists”. They produce a large number of eggs and, as parents, invest minimal/no effort into looking after those eggs and their young. When they hatch, salmon are poorly developed and are not able to feed independently, relying on a yolk sac for energy until they grow and develop to the stage where they can eat. Their immune system is also not well developed. Consequently, the “life strategy” of salmon anticipates a high natural mortality rate and in the wild the vast majority of salmon will die before becoming adults and reproducing. There will be a significant mortality of eggs prior to hatching, and further, significant, losses will occur during the juvenile, freshwater stage. When we farm salmon, we reduce or remove many of the pressures that impact a wild salmon, but we cannot remove them all. We also must accept that the life strategy (*r* strategists), development and early immune system of our farmed salmon is identical to that of their wild counterparts, therefore the comparison is both valid and important. The salmon we farm are very close, in genetic and evolutionary terms, to their wild counterparts, c. 15 generations. Whilst comparisons between farmed and wild salmon are not perfect, such comparisons (as outlined above) can provide valuable insights into the incidence of mortality on farms.

Other livestock currently farmed in the UK are “*k* strategists”. They produce a smaller number of offspring, and provide a higher level of parental investment. For example, sheep and cattle nurture their young internally before giving birth, chickens brood and care for their young after hatching. Juvenile sheep, cattle, pigs and chickens are more developmentally advanced than salmon when they are born or hatch (they can feed independently, for example). This means a greater percentage of juveniles are anticipated to reach adulthood and reproduce when compared to salmon.

There are no published statistics on the survival of other livestock species. So, comparisons between farmed salmon and other farmed animals are not appropriate. Given the natural life history strategies of salmon and other farmed species (*r* vs. *k* strategies) we will always anticipate a higher level of mortality in salmon compared to other livestock.

Relocation and closing of farms:

The recommendations of this Committee and its predecessor advocated for the closing of farms that experienced persistent high mortality. This subject was further discussed on 25th February, and we committed to provide the committee with further information and statistics.

We note that Marine Directorate have undertaken an analysis of farm data and have concluded that “***...persistently elevated mortality...is not a systemic problem for Scottish marine salmon farms***”.

This finding is not surprising to Scottish salmon farmers. The sector has always taken a proactive approach to fish health and welfare, and companies will cease farming at locations where, experience demonstrates, fish health and welfare, and survival is a concern over a longer-term. This includes: i) completely ceasing farming at a location, ii) the rationalisation of several farms into a single farm and, iii) the closing of a specific farm as part of a consenting commitment for a new farm in a new location (relocation). Over the last ten years, our members have ceased farming at 81 farm sites, to safeguard the long-term health and welfare of our fish.

Fish farm businesses have also given up a significant number of historical consents which have not been farmed for many years. By relinquishing permissions, these locations are then available for other marine users for sustainable development activities, thus easing the well-known issue of “marine spatial squeeze”.

The sector has previously noted challenges with the fish farm consenting system. These hinder the relocation of farms and the timely rationalisation of groups of existing farms into a single farm unit.

We note that the committee has also sought to better understand the relocation of farms that are located in areas that might be of concern for wild salmon migration. The sector has ceased farming at locations that are of concern in relation to wild fish migration. But it is important to note that uncertainty persists on the detail of migration routes for wild salmonids in Scotland. To progress scientific knowledge, Salmon Scotland and its members supported the West Coast Tracking Project, a partnership between the Atlantic Salmon Trust, Fisheries Management Scotland, and Scottish Government to better understand the early marine phase of wild Atlantic salmon. Alongside direct funding (£560,000 over three years), salmon farmers supported the project through in-kind commitments (personnel and boat time). The project ran from 2021 until 2024. We await the results of the project and hope they inform wild fisheries management activities.

We also wish to flag significant concerns surrounding the lack of investment in practical conservation work to help protect our iconic wild salmon, as discussed further, below.

The consenting pilots:

In 2022 Prof. Russel Griggs published his independent review of the aquaculture regulatory process in Scotland. The review was critical of the fish farming consenting process and provided 12 recommendations that, Prof. Griggs believed, would lead to significant improvements. We agreed and supported Professor Griggs proposals.

The Salmon farming sector remains disappointed over the rate of progress in delivering the Griggs' recommendations.

The Scottish Government's Marine Directorate established a Consenting Task Group, to drive forward improvements in consenting. Through this group a more co-ordinated pre-application process has been established, and this has been tested through a limited number of consenting pilots.

During the Committee session on 25th Feb, we committed to provide a summary of our experience with the consenting pilots.

From the limited experience to date, the pre-application pilots have led to some improvement in the determination of consent applications following their formal submission. However, the process continues to be protracted and does not yet provide the level of certainty anticipated. Crucially, given Griggs recommendations, there remains a lack of alignment between the main regulators in delivering on the process. Some regulators are not committed to the process at operational level with unnecessary confusion over the delineation of responsibilities. Scoping advice for development applications is a key area where streamlining is possible, but the pilots process has not taken advantage of the potential gains that can be made. That is very disappointing.

The sector believes that improvements can happen, but it needs drive and leadership.

Wild Salmon

We agree with FMS CEO Dr Alan Wells suggestion that the Committee, in the next session of Parliament, conducts a full enquiry into wild salmon. You may be aware of the 2025 wild catch figures released by the Scottish Government. They show a 40% drop in fish caught in 2025. Catch numbers are 43% down on Scotland's east coast rivers including the Tay, Tweed and Dee while 29% down on Scotland's west coast rivers. These figures alone are concerning, but they draw significant attention to the lack of action to reverse this decline, across the 40+ identified pressures on Scottish salmon populations. We are concerned by the obvious lack of a rod license to exploit wild salmon through recreational salmon activity because it does not allow the legally compliant and structured catch statistics that exist in other salmon farming nations like, England and Wales, North America and other European Countries. We are concerned by the low level of investment in actual conservation activity for wild salmonids in Scotland especially when the revenue generated from sports angling is significant, especially on the larger river systems. We observe that the wild fishery catch statistics are poorly recorded in remote areas such as Scotland's west coast and that obvious under reporting occurs due to the lack of legal framework, which would be partly solved with the introduction of a rod license. During its consideration of salmon farming, the Committee has discussed at length the transparency of data for our sector. We believe a similar review is urgently needed to consider better availability of data and transparency within wild fisheries management.

The committee is of course well aware of the Scottish Government's Wild Fisheries Strategy and action plan which demonstrates that there are over 40 pressures on wild salmon. We therefore support the FMS CEO in asking a future rural & Islands committee to conduct a full enquiry into the endangered wild salmon in Scotland's rivers, and for the introduction of a rod licence.

Meetings:

During the committee session, Mr Hadfield offered to meet with MSPs to discuss specific issues. Mr Hadfield would welcome these meetings and makes an open offer to your clerks to help facilitate these for members prior to dissolution, including Sir Edward Mountain MSP who also attended the Committee session.

We trust the information provided in this letter is of use to your consideration of progress with the 2025 recommendations. Should you require any further information, please do not hesitate to contact me.

Yours sincerely

A handwritten signature in blue ink that reads "Tavish Scott". The signature is written in a cursive style with a long horizontal stroke extending to the right from the end of the name.

Tavish Scott, CEO Salmon Scotland