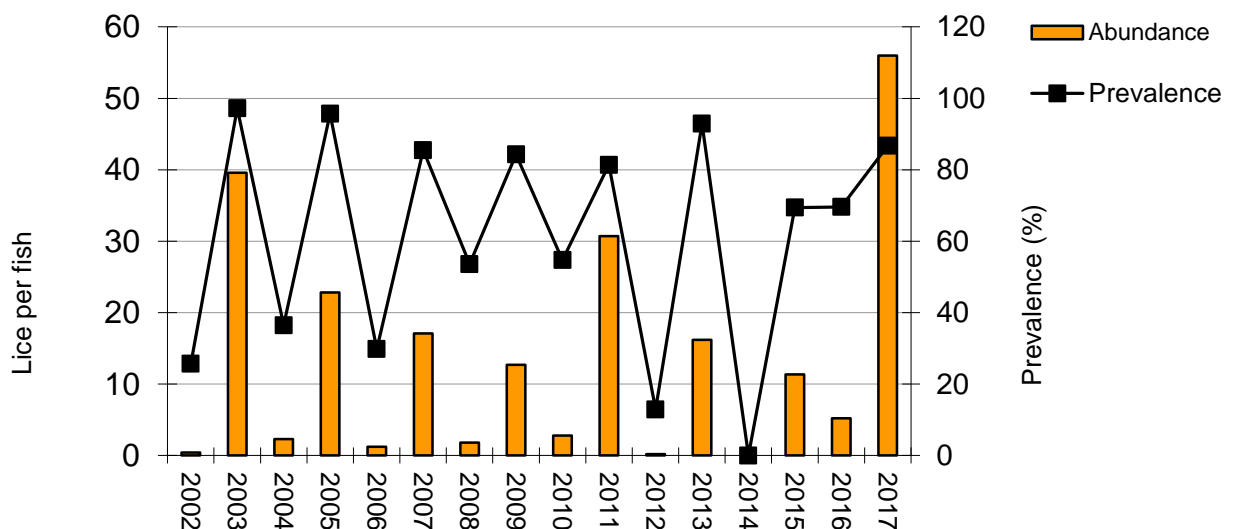


RURAL ECONOMY AND CONNECTIVITY COMMITTEE

SALMON FARMING IN SCOTLAND

SUBMISSION FROM LOCHABER FISHERIES TRUST

Do you have any general views on the current state of the farmed salmon industry in Scotland? Our experience in Lochaber is that the salmon aquaculture industry is having a detrimental impact on wild fish. The graph below shows sea lice burdens recorded on wild sea trout in Loch Linnhe over the past 15 years. There are a number of factors that affect lice levels on fish such as water temperature and salinity, but only the lice burdens recorded on farm fish show a distinct two year cycle. The infection of wild sea trout with lice from farmed salmon is the only reasonable explanation for this graph, suggesting farms are the major cause of lice on wild fish in this sea loch.



Graph of lice burdens recorded on sea trout in Loch Linnhe. 'Prevalence' is the percentage of fish caught that are carrying any lice; 'Abundance' is the average number of lice on each fish caught.

In many of the years shown, lice levels on the neighbouring farms have been within the industry's Code of Good Practice targets and yet we still record high lice burdens on wild fish suggesting the targets do not ensure protection for wild fish in some locations. 2017 saw the highest lice numbers we have ever recorded despite cleaner fish, chemical treatments, thermolicers and hydrolicers all being used or available to the neighbouring fish farms.

Below is a photograph of a wild sea trout caught in Loch Linnhe. The damage caused by sea lice is clear to see. We cannot say how representative our catch is of the entire sea trout population, but a systematic sampling bias seems unlikely since using the same method at the same location on Loch Linnhe we successfully catch lots of sea trout with no lice in even years and lots of sea trout with high lice burdens in odd years.



Over the ten years we have been working at the LFT we have taken part in a number of Aquaculture-wild fish interaction initiatives and heard of new technologies and regulatory regimes to manage lice on farmed fish. We have been told on numerous occasions that farm lice are under control. And yet each odd year we return to Loch Linnhe and catch fish that look like this. We are scientists, but we are also human beings and it is heartbreaking. They have been at sea for little over a month, yet their fins are already eaten away and some have open, bleeding sores where they are being grazed on by lice. Perhaps the 70 sea trout we caught with high lice burdens in 2017 were unrepresentative of the entire loch, but each one of those 70 fish should be a cause of national shame.

The environmental impacts of fish farms are not under control and are not even acknowledged let alone understood by the industry and regulators.

There have been several recent reports which suggest how the farmed salmon industry might be developed. Do you have any views on action that might be taken to help the sector grow in the future? We feel that the rapid expansion of the industry proposed should not go ahead until a full SEA is carried out and an appropriate regulatory system is put in place. There has been no proper assessment of the capacity of the environment to support aquaculture activities and the current proposals for industry expansion have been set with no regard to the environment or long-term sustainability.

There has been much discussion about the lack of research on the impact of aquaculture on wild fish populations in Scotland. The knowledge gap was highlighted in the SPICE report and written and oral evidence given to the ECCLR Committee. Studies in Norway and Ireland have demonstrated a significant impact on wild salmon and sea trout and what data are available from Scotland are consistent with this pattern. If regulators are unwilling to extrapolate the results of the Norwegian and Irish studies to inform decision making in Scotland, then we would suggest a pause in industry expansion is required to allow the research to take place. The conclusions of the ECCLR Committee's inquiry and widespread public concern show that it is no longer tenable to push forward with industry

expansion on the grounds that there is no direct evidence of a population level impact in Scotland unless we actually do the studies to look for such an impact; the evidence is not going to materialise spontaneously in front of us.

The rise in mortalities and new diseases on farms in recent years is troubling. The control of sea lice on farm fish is being severely compromised by disease outbreaks and, though trends in overall lice numbers in Scotland seems to be a contentious issue, we have certainly heard that farms have struggled to control lice at certain sites. Early harvesting of fish has often been the only course of action left at some farms and the impact of this and the increasing expense of lice and disease treatments is clearly stated in the annual reports of companies operating in Scotland. At present they can't produce the biomass of fish they already have consent for. This does not appear to be a good place from which to be planning a major expansion. The challenges of increasing sea temperature and novel diseases are only likely to increase in future years and the industry needs to demonstrate it is able to cope with these challenges before it considers doubling in size.

3. The farmed salmon industry is currently managing a range of fish health and environmental challenges. Do you have any views on how these might be addressed? We believe that these challenges can only be addressed fully by closed containment systems for rearing fish. We acknowledge the effort and investment that the industry has made in developing new techniques for sea lice control, but these have all been deployed in Lochaber and were not able to prevent high lice levels on farm and wild fish in 2017. Warming sea temperatures are likely to bring new diseases or increase the pathology associated with existing diseases. The only long-term solution to this is to effectively separate farm fish from the environment. We would like to see the Scottish government support and incentivise moves towards closed containment.

As an interim measure, moving production to larger offshore site with a greater distance between individual farms and between farms and the coast would likely reduce the incidence of disease and environmental impact. Offshore sites should, however, only be identified following a rigorous appraisal including the migration routes of wild salmonids. Recent aquaculture developments around the Small Isles have been described as offshore, but wild salmonids are constrained by the islands in their choice of route between rivers on the mainland and the open sea, and could pass close to these large farms. No appraisal of this was undertaken as part of the planning application for these farms. If offshore sites are to be even an interim solution, then wild salmonid migration routes must be considered and permissions for offshore sites must be conditional on the relocation of biomass from inshore areas. This is not currently possible under the current regulatory regime.

4. Do you feel that the current national collection of data on salmon operations and fish health and related matters is adequate? It has been interesting to see the debate as to whether lice numbers in Scotland have been decreasing or

increasing in recent years. The reality is that any meaningful analysis of environmental impacts of farm lice can only be undertaken when data are published for individual farms and include the number of fish on the farm as well as average lice burdens so the total number of lice can be calculated. Voluntary undertakings from the industry have not resulted in the necessary detail of data being published and we would suggest that this is made a statutory requirement.

We would also like to see the mandatory reporting of disease outbreaks on farms extended beyond the current list of notifiable diseases and including the level of mortality suffered per farm on a monthly basis.

As stated above, we feel that inadequate resources and government attention have been directed at understanding the environmental impact of the industry. This relates to both direct research commissioned by government and the level of information required by aquaculture companies in support of planning or licence applications. There is a stark contrast between this approach and the monitoring of aquaculture in other countries and the environmental assessment requirements for other Scottish industries such as renewables. The result is a gulf of uncertainty that is of great concern conservationists, regulators and the industry.

We urgently need more research in the following areas:

- Relationship between lice levels on farmed and wild fish
- Disease transfer between farmed and wild fish
- Migration routes of wild salmon and sea trout
- Status of wild wrasse populations and sustainable levels of harvest
- Impact of lice treatment chemicals on wild crustacea

5. Do you have any views on whether the regulatory regime which applies to the farmed salmon industry is sufficiently robust? At present no regulator has specific responsibility for the impact of farms on wild salmonids. The current framework for disease and lice monitoring is concerned only with the health of farmed fish. It is essential that this responsibility is specifically allocated to one regulator.

Local Authority Planners are trying hard to manage impacts on wild fish through the planning system, but the Town and Country Planning Act does not provide the tools to do this effectively. There is no ability to take an overall view of aquaculture development in a region and, for example, consent a large offshore site on condition that a distant inshore farm is closed. Existing sites have permanent planning permission and all new decisions are constrained by this legacy whether it is in the interests of the industry or not. There are doubts about the enforceability of Environmental Management Plans and a complete lack of resource for the planners to undertake the monitoring and enforcement activity that would be required under an adaptive management regime.

We would suggest that a new mechanism is required for consenting aquaculture developments that has more flexibility to apply conditions and takes a more strategic, regional approach. However, it is important that the high degree of public engagement currently seen in the planning process is retained in any new system.

Until the major concerns expressed in the ECCLR Committee's report on the environmental impacts of aquaculture are addressed by an improved regulatory regime, we believe a pause in new aquaculture developments or expansions is required.

Lochaber Fisheries Trust
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