

## **RURAL ECONOMY AND CONNECTIVITY COMMITTEE**

### **SALMON FARMING IN SCOTLAND**

#### **SUBMISSION FROM ARGYLL DISTRICT SALMON FISHERY BOARD AND ARGYLL FISHERIES TRUST**

##### **Our locus and expertise**

Argyll District Salmon Fishery Board district covers most of the mainland of Argyll plus the islands of Bute and Arran. Argyll Fisheries Trust covers the DSFB district, plus the islands of Islay, Jura and Mull. The district includes many salmon and sea trout fisheries, almost all of which are assessed at category 3 or poor conservation status.

Salmon counter data from the Awe barrage in Argyll has shown a severe decline in salmon running the river in recent years. In the mid-1980s (before the development of large scale aquaculture in the region) the average number of salmon ascending the river was in excess of 2500. In 2017 the lowest ever number of ascending salmon was recorded at under 500.

In Argyll, most rivers had sea trout fisheries. The population of sea trout has crashed to such an extent that the commercial value of these fisheries to the local hotels and tourist industry has disappeared (with one exception noted below). The river Awe is probably the biggest salmon fishery in the south-west highlands and with relentless declines, event its future must now be in doubt.

Argyll's sea lochs contain some of the most concentrated aquaculture locations in Scotland. The Board and Trust have serious concerns that existing levels of aquaculture have damaged local salmonid populations and that any further expansion is a serious risk to the viability of the remaining fragile populations.

The Board and Trust welcome RECC's investigation into salmon farming and would like to make the following comments to the questions asked: -

##### **1. Do you have any general views of the current state of the farmed salmon industry in Scotland?**

###### **Environmental impacts caused by the farmed salmon industry in Scotland**

a) Introgression. Scottish salmon farming involves the intensive rearing of a genetically alien (generally Norwegian) salmon. Unfortunately, far too many of these escapes cause high levels of genetic introgression in Scotland's wild fish.<sup>1</sup> Such fish are less fit for survival and this is likely to be a contributing factor to the observed widespread decline of salmon in the west coast aquaculture zone.

b) Lice transmission. The committee will be familiar with the 'sea louse hypothesis' that describes how the transmission of lice from fish farms to wild salmonids has

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<sup>1</sup> The potential of escaped farmed salmon to hybridize extensively with wild fish was demonstrated by RAFTS work carried out in 2012. The genetic study showed that 25% of wild salmon sampled in Scotland's west coast rivers contained farmed fish genes.

caused damage to wild salmonid populations. The hypothesis explains why badly sited fish farms sited near the mouth of a salmonid river may cause the local wild populations of salmonids to collapse or drastically decline<sup>2</sup>.

Work done in Argyll by Argyll Fisheries Trust scientists over many years supports the sea louse hypothesis. Our scientists have evidenced a strong relationship between the way local farms are managed and the lice burdens on local wild sea trout populations. When comparisons of the fish farming cycle and numbers of lice found on wild fish are made, it reveals the cyclical higher and lower lice burdens found on sea trout that correlate with the fish farming production cycle where sea lice levels are expected to be low in the first year and higher in the second year of production over the 22-month cycle.

c) Benthic impacts We endorse the concerns regarding the impacts of Emamectin Benzoate set out in the submission of The Friends of the Sound of Jura, a citizens group in northern Argyll. Benthic impacts fall outside the direct concerns of the Board, nonetheless we are concerned to preserve the overall health of the marine environment for the benefit of all flora and fauna. In particular, we echo FSJ's call for an urgent review of how SEPA make benthic assessments, how its modelling results are interpreted and whether there is evidence of the grant of CAR licences that are unsafe.

d) Cleaner fish. Whilst in principle we welcome the use of non-chemical solutions we have concerns that the increasing use of wrasse for example has created an unregulated fishery for wrasse that is potentially damaging for that species and its ecosystem function in reef systems.

### **Economic Impacts of the farmed salmon industry in Scotland**

The Board believes that the expansion of the industry in the area has strongly negatively impacted on the economic viability of many of our key rivers including the Ruel, the Fyne and the Aray. For example, with the development of fish farming in Loch Fyne wild salmonid numbers declined significantly and where once productive fisheries caught over 200 salmon a year they closed to paying clients in 2000 due to lack of fish.

While improved farming practices has mitigated some of those impacts, it is our view that the current impact of the industry on wild salmonid fisheries is significant. To give some sense as to what has been lost there is one fishery in Argyll that has appeared to escape the impacts of aquaculture and remains a viable fishery and an important economic contributor to its area.

The river in question is the river Eachaig, which flows into the Holy Loch in the Firth of Clyde. It has never had a fish farm within 15km and for that reason in our opinion

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<sup>2</sup> For the record we accept that aquaculture is not the only factor in the decline of west coast salmon; however, unlike other marine pressures such as those caused by global warming that is manageable.

its stocks of sea trout have remained sufficient to sustain a commercial fishery. It is the only fishery in Argyll that maintains a full-time employee and the manager estimates that on top of employing a river superintendent the fishery directly generates over £100,000 in income each year to support local hotels, restaurant and self-catering businesses.

The Eachaig provides a compelling example of what is lost when fish farms are located near rivers where a commercial wild fishery exists. Its near neighbour the Ruel has not been so lucky. It is pertinent that in Glendaruel, which spans the length of the Ruel, in the 1960s before aquaculture arrived in Loch Riddon, there were 3 operating hotels, which were to a large extent dependant on fishing for their occupancy. These employed many local people, and brought significant 'outside income' to the area. Today, with the collapse of migratory fish running the Ruel, there are no hotels in the Glen.

**2. 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 recognise that there is significant pressure to grow the aquaculture industry in Scotland on the basis that it makes a significant contribution to the Scottish economy<sup>3</sup>. We would urge the REC committee to recognise that that growth comes at a price in terms of the jobs that depend upon a healthy marine environment. The aquaculture sector has not demonstrated that it can operate at current capacity without damaging the environment<sup>4</sup> and no expansion should be permitted until it can demonstrate that it can do so without damaging other interests including wild fisheries.

Scotland's Marine Plan requires that aquaculture should be limited by certain factors. These should include: -

- concern for the marine environment and its carrying capacity<sup>5</sup>,
- potential impacts on wild fish<sup>6</sup>
- and respect for environmental limits.<sup>7</sup>

We call on the REC committee to ensure that the regulatory framework of the industry is robust enough to ensure that industry cannot operate outside these parameters.

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<sup>3</sup> We accept that there are economic benefits flowing from aquaculture but endorse the questions in the submission of the Friends of the Sound of Jura regarding the veracity of some of the economic claims made by the industry on its own behalf.

<sup>4</sup> Salmon & Trout Conservation set out severe issues in Loch Fyne for example [here](#)

<sup>5</sup> Scotland's Marine Plan Aquaculture objective 2

<sup>6</sup> ibid marine planning policy aquaculture 7

<sup>7</sup> ibid High Level Marine objective 4

**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?**

The industry must address many of the animal husbandry problems faced by land based intensive factory farmers, namely disease and resistance to drugs. There have also been worryingly high levels of mortality in the industry that call into question the industry's animal welfare standards.

Unfortunately, many of the treatments used by farmer to treat infection are damaging both to salmon themselves (contributing to the high mortality) or are highly toxic to the environment (EMB). The recent expansion of the industry has been accompanied by a disproportionate increase in the use of chemicals. Whilst we welcome the increased use of biological solutions such as cleaner fish we have not seen evidence that these provide a long-term solution to infection issues.

Rather than increasing chemical use, with the issues that this creates for the marine environment, we would suggest that best way of mitigating environmental impacts is by de-intensifying production where problems exist. Mechanisms need to be put in place that will ensure that steps are taken to reduce tonnage where farmers cannot farm to required standard.

With respect to damage caused to wild salmonids some farms are sited in locations that are much more damaging to wild fish fisheries than others<sup>8</sup>. Many of those were established before the impacts on wild fish were fully understood. Closing farms where there is an established track record of damage to the environment must be a key indicator of the success of a new regulatory system.

**4. Do you feel that the current national collection of data on salmon operations and fish health and related matters is adequate?**

The wild fisheries sector has tried unsuccessfully for many years to persuade the fish farmers to publish farm scale lice data. We have been told on numerous occasions that this is not possible because of 'commercial confidentiality'. We believe that publication of lice counts at farm scale is vital if farmers are to be held accountable for the performance of their farms and we believe that this now appears to be accepted by the industry and by the Scottish Government.

We need a national monitoring strategy for monitoring of wild fish impacts across all salmon Fishery Management Areas capable of providing a consistent picture of fish farm impacts. The costs of this monitoring should be borne by the industry in line with the polluter pays principle.

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<sup>8</sup> This may be because there is an 'iconic' wild fishery nearby as is the case with the farm located in Loch Ewe.

## **5. Do you have any views on whether the regulatory regime which applies to the farmed salmon industry is sufficiently robust?**

We do not believe that the current regulatory regime is fit for purpose. Shortcomings in the current system are as follows:

Management Scale. Regulation must work at the right geographical and temporal scale to be effective. The risk to wild fish is related to the potential number of lice released from hosts on salmon on fish farms in an area such as a sea loch where the rivers run in. To manage that risk effectively the total tonnage of farmed fish must be capable of being managed at area rather than farm level.<sup>9</sup> In practice, that means a power to reduce that tonnage in certain circumstances.

Treatment triggers. There need to be two key trigger levels for lice counts on salmon farms; first a strategic treatment trigger and secondly a cull trigger if treatments are not working. To protect wild salmonids those, trigger levels must reflect the real risk posed by lice. Sea lice are in effect a pollutant; the more that are emitted from a farm the greater the risk of damage.

We do not understand why the Scottish Government has set trigger levels at 3 lice per fish and 8 lice per fish when the industry's own Code of Good Practice sets a treatment level at 0.5 or 1 lice per fish. The Scottish Government trigger levels have sent a message to the industry that it is relaxed about lice control and ADSFB has observed a significant increase in lice levels on farms in Loch Fyne since this change was made. This standard is below those of progressive farming countries and is incapable in our opinion of meeting the international target for NASCO members that all farms are to have effective sea lice management such that there is no increase in sea lice loads or lice induced mortality of wild salmonids attributable to the farms.

Effective Penalties. The regulatory system must be capable of applying penalties sufficient to ensure compliance and deter bad farming practice. We believe that there is a need for a regulator to have the power (and duty) to reduce tonnage where farms are not performing to required standards. Only through clear enforceable farming standards can the impacts of poor farming be genuinely mitigated. In some circumstances this will mean that there will enforced culls and perhaps permanent reductions in farmed capacity where monitoring of farming practice indicates that the environment cannot sustain it. In our view regulation should:

- require farmers to report on sea lice levels and disease. Lice reporting should not only provide average female louse numbers but also a total number which relates to the number of fish at the site. This would provide a more realistic picture of the potential of the site to produce lice larvae / threaten wild fish.
- establish penalties for escapes. All farms should stock with fish that have genetic markers so that escapees can be traced.

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<sup>9</sup> ibid Gen 21 Cumulative impacts affecting the ecosystem of the marine plan area should be addressed in decision making.

- ban the use open cage farming of smolts in fresh water on the basis of unacceptable risk to native freshwater populations
- establish mandatory culls where farmers fail to control lice levels

Responsible authority. As matters stand the local Planning Authority is responsible for wild fish interactions. The power of planning authorities to manage ongoing performance of fish farms is very limited. We accept that Planning authorities are doing their best to manage this responsibility, using Environmental Management Plans. EMPs can help to manage the impacts of salmon farms but currently they have not been developed sufficiently to be effective. We also doubt that Planning Authorities have the resources or the expertise to manage the EMPs over time if these are to provide genuine protection for wild salmon. It has been generally acknowledged in oral evidence to the REC committee that after planning permission is granted to farms there has been a lack of management to ensure farms perform to the standards they describe in their planning applications<sup>10</sup>.

In our view there urgently needs to a dedicated regulatory body that has statutory responsibility for managing the impacts of aquaculture on wild fish and has the necessary powers and expertise to do this. Such a body must be independent from the industry and free from the apparent current pressure on Government Agencies for the relentless expansion of the industry. The regulator must be independent, have very clear duties and be subject to sufficient transparency and accountability to ensure that it fulfils those duties.

## **Conclusions**

For the reasons set out above we strongly endorse the conclusions of ECCLR committee that current regulation is not fit for purpose. There should be a moratorium on any new consents until a new system of regulation is in place that can address the observed shortcomings.

Marine salmon farming is an old fashioned 'Victorian style' polluting industry that is only able to survive in its current 'regulation light' format because the scale and intensity of that pollution goes unnoticed by most people because it is at sea rather than terrestrial.

The fish farming industry successfully externalises its costs through the dumping of large quantities of pollution and toxic chemicals into Scotland's the marine environment on the west coast. The industry is largely foreign owned and whilst Scotland's people bear the costs of the pollution it would not appear that they benefit from the profits.

There is very little 'Scottish' about the Scottish farmed salmon product other than the large pollution footprint that it leaves within Scotland's fragile inshore. For the most part, the industry comprises a very few foreign owned and controlled multi-nationals,

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<sup>10</sup> Refer to the oral evidence submitted by Alex Adrian of Crown Estate who was very clear on this point.

growing a genetically modified Norwegian fish, fed with fish meal pellets sourced from distant oceans including the South Atlantic. That pollution damages many sustainable and genuinely Scottish businesses that depend upon clean water and healthy natural ecosystems; these include not just game fishing but also wild life tourism, creepers and shellfish farmers. These are very substantial employers in rural coastal areas and *are genuinely sustainable* if the ecosystems upon which they depend are not destroyed by polluting industries such as aquaculture.

The wild native Scottish salmon is genuinely 'iconic' to Scotland, reflecting the wildness and beauty of the country. Its image is much used in publicity for Scotland in general. Unfortunately, this image is also used for the promotion of the Scottish salmon farming product. This is wrong in our opinion because the Scottish salmon farming product (based on a genetically modified version of the Norwegian salmon) threatens the continuing existence of our native wild salmon on the west coast of Scotland<sup>11</sup>.

The wild Scottish salmon deserves protection not only because it can support many sustainable wild fisheries but also because it is a symbol of what people love about Scotland itself, its wildness, beauty and its freedom.

Ultimately it is our view that the Scottish Government should be taking steps to assist the industry to take responsibility for its emissions by moving to closed containment systems. Only that way can the risks posed by this polluting industry be genuinely mitigated.

Argyll District Salmon Fishery Board and Argyll Fisheries Trust  
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<sup>11</sup> The great majority of west coast rivers are at category 3 i.e. below safe conservation levels for salmon.