

## Environment, Climate Change and Land Reform Committee

### Environmental impacts of salmon farming

**Updated written submission from Jon Gibb**, (Fishery Manager River Lochy, Fort William – Clerk/Director of the Lochaber District Salmon Fishery Board – freelance writer who has written extensively on the wild/farmed debate over the last 30 years in many leading national publications.)

By way of introduction, I manage the largest commercial salmon rod fishery on the West Coast of Scotland on the River Lochy, from where salmon smolts must pass an unprecedented 12 fish farms on their way to sea. I also manage the Lochaber DSFB, the statutory body for the protection and enhancement of salmon and sea trout in one of the most densely farmed regions in Scotland. Perhaps unusually, I have for many years also led partnership projects with leading aquaculture partners aimed at protecting and enhancing local salmon populations in an attempt to reach a place where both wild and farmed sectors can coexist and thrive in this region.

I agree with the general thrust of the SAMS report and the identification of fish farming impacts. However, I would add the following two impacts that have not been listed (probably because the scientific community has not fully investigated them). They are nevertheless potentially considerable impacts –

1. Salmon are known to use scent in the last stages of their breeding migration. It is known that to some degree they can smell the pheromones of fish from their own family groups when they are nearing a river. This can be at very large ranges – it has been suggested that a salmon entering a major salmon river at its mouth may be able to detect the pheromones from just a few related fish high in an upland spawning burn. This migration cue of smell may become even more important the closer the fish gets to its destination. It stands to reason that if you place millions of smolts in freshwater lochs or millions of fish in estuary cages (all of them emitting their own pheromone) that the wild migrating salmon may be presented with a confusion of migration cues. This whole area has been overlooked by the scientific community and yet it is a widely known in fisheries management circles that pheromone cues form a very important part of the inshore journey of migrating wild salmon.
2. Freshwater smolt cages in lochs where migratory fish are present create an increased food source (both through excess feed and faeces, and small fish that eat below the cages). Migrating sea trout are delayed in their seaward journey through lochs when encountering this feed source. All Scottish lochs with smolt cages present have seen a rapid increase in the resident brown trout population and an abnormal increase in the size of some of the trout. These huge resident trout (which can live for many years) have a further impact through their inundation into historic salmon spawning tributaries in the autumn and also predate on juvenile fish (including salmon fry, parr and smolts) especially when the farmed cages are regularly fallowed at various times.

**Sea lice targets.** The report mentions the Government targets for sea lice. It also highlights that there has been no written scientific explanation why these levels are set and, in particular, why they are considerably higher than the existing Industry Code of Good Practice levels. This needs immediate clarification.

**Assessment of Impacts.** The report fails to highlight the importance of *cumulative* sea lice impacts – most especially the number of fish in cages should be taken into account at all times, as well as the number of fish and farms in the full migratory path from each river in the aquaculture zone. It is clear that fish farms pose a risk to migratory salmonids therefore the risk should be assessed based on the number of farmed fish that a salmonid smolt must pass on their migratory journey to open ocean.

**Government Assistance.** The report highlights the potential of RAS systems to significantly reduce impacts but notes that they are not yet fully economically viable. The Scottish Government should follow the lead of Norway and incentivise/underwrite the industry immediately to roll out more of these new technologies in Scotland.

**Production Cycles.** Possibly the biggest short-term lessening of impacts could be created by using sensitive inshore sites only outwith the wild smolt run from April to May. This may be possible if the regulation for more (and bigger) offshore/deepwater sites were relaxed somewhat and the industry had flexibility to move biomass between sites at various stages in the growout period. By far the greatest lice impacts occur on wild salmon smolts when farms are in their second year of production (when the host species is large) – if this were avoided completely on inshore farms and either farms were fallow every April/May (or every 2<sup>nd</sup> spring if that was not possible for smaller operators) then this would remove what is perceived to be the current greatest impact on wild salmon on the West Coast. Bigger offshore farms and incentivisation to develop new RAS and enclosed seawater systems would satisfy the industry expansion targets and also provide significant protection to wild salmon runs.

**WORKING TOGETHER.** I manage the only large-scale fishery management operation that has worked closely at a practical level with the fish farm sector over the last 10 years (most particularly Marine Harvest Scotland with whom we work in partnership on several river restoration operations). Not all wild fish organisations have been comfortable with this partnership approach over the years – but perhaps notably many of the loudest voices come from outside the aquaculture zone. Our experience has been that working together has built up mutual understanding and trust and has allowed for local communication and discussion to lessen the risk of localised aquaculture on Lochaber's wild fish. As well as further partnership working we would also like to see the distribution of some of the £4 million per annum that the Crown Estate and SEPA take from seabed leases/CAR licences every year. In these interim years (before full RAS/enclosed systems becomes commercially viable) this would go a long way to assist Fishery Boards to deliver the best possible local fisheries management and improve communication with their fish farm neighbours.

Overall stakeholders must accept that all industry comes with a degree of risk. Furthermore, the aquaculture industry is now the lifeblood of many highland towns

and villages. Sea trout and salmon are also vital in the cultural and socio-economic fabric of these same communities. It is generally agreed that the degree of risk on wild salmonids could be better managed - mechanisms are available (as mentioned above) to achieve some risk-reducing/expansion gains for both sectors.