

Environment, Climate Change and Land Reform Committee

Environmental impacts of salmon farming

Written submission from Friends of Loch Etive

Friends of Loch Etive (FoLE) is a registered Scottish charity (number SC043986) and was set up in 2014 to protect the wildlife and environment of Loch Etive and the surrounding area for the benefit of the Etive community and visitors to the loch.

FoLE has over three hundred members, made up of a mixture of those living near Loch Etive and the many regular visitors to Etive. FoLE's trustees and members promote and encourage not only the conservation of the loch and its wildlife, to keep Loch Etive as a special place to live near and visit, but also its sensitive management in order to provide truly sustainable employment and other opportunities for the local community. FoLE has published a position statement of its vision for the future of the loch.

Although FoLE has many concerns over the benthic impacts of both chemical and organic pollution from the four fish farms on Loch Etive, the very poor record of escapes from the Loch Etive farms, the shooting of seals and general disturbance of wildlife caused by the fish-farming operations, this written submission will focus on sea lice and concerns over Etive wild salmonids.

There are ten rivers in the Etive catchment that support wild salmon populations that flow into Loch Etive. The largest systems are the Awe/Orchy catchment, the Etive, the Kinglass and the Nant, all supporting salmon populations. Many smaller rivers such as the Noe, Liver, Allt Easach, Abhainn Dalach and Esragan are primarily habitats for recruitment of sea trout.

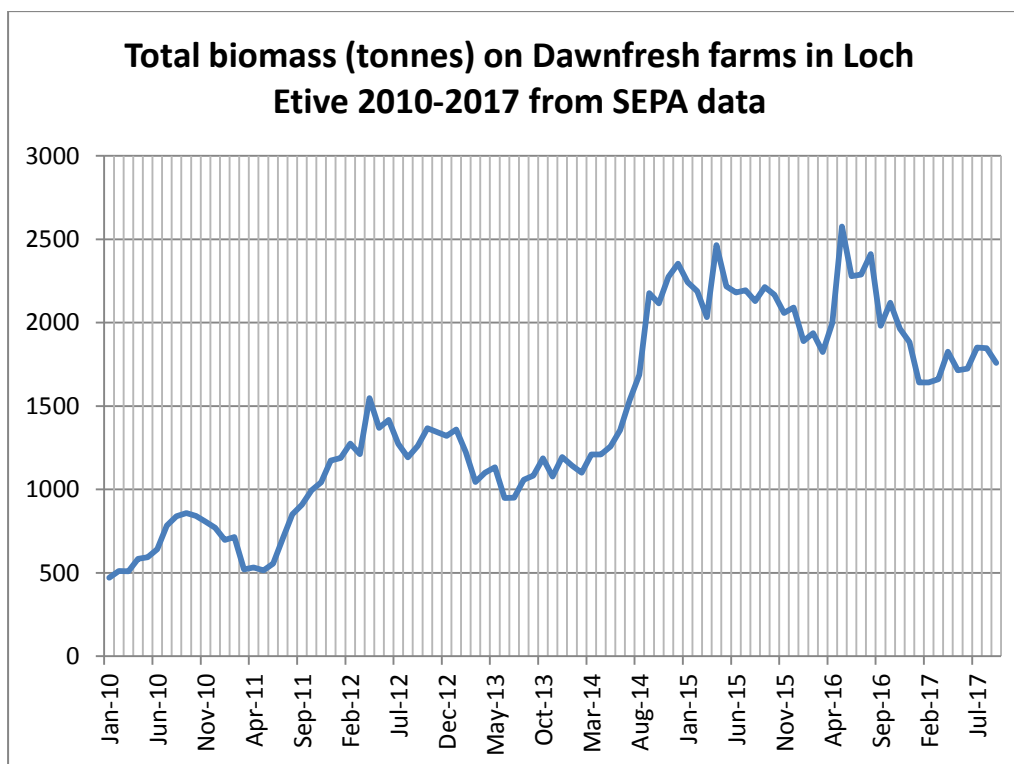
Historically, there was no issue at all with sea lice on fish farms in Loch Etive while fish farming (of rainbow trout) was conducted at a relatively low intensity prior to 2012, before a programme of intensification and expansion of production on Loch Etive began. For example, in 2008, the fish farm operator on Loch Etive, Dawnfresh Farming Limited, stated that "*sea lice is not considered to pose a major problem at this site given the brackish condition of the water in Loch Etive*"¹.

In 2012, Dawnfresh reported that "*there has never been an issue with sea lice at any of the Loch Etive sites due to the low salinity of the loch*". At the same time Marine Scotland Science stated there was "*no history of sea lice affecting farmed fish health*".

¹ Planning application made to Argyll & Bute Council for new farm at Airds Bay (Etive 4) 2008

*in this area as far as the FHI are aware*². Dawnfresh confirmed in 2012 that no Etive fish farm site had ever treated for sea lice³.

There has been a near 500% increase in the biomass of farmed fish held on Loch Etive between 2010 and 2017. The graph below, compiled using published SEPA data available on the Scotland's Aquaculture online database⁴ [ref], shows that the total biomass of farmed rainbow trout held across all four Dawnfresh farms on Loch Etive.



The fish farms on Loch Etive have never been synchronously fallowed while under Dawnfresh ownership. Since the end of 2014, there has always been at least 1500 tonnes of farmed fish in the waters of Loch Etive.

Despite claims that Dawnfresh would not need to treat for sea lice, data published by SEPA on the Scotland's Aquaculture database shows that Dawnfresh began treating for sea lice in 2014 and has had to intensify that treatment across its Etive farms into 2017. Treatments began in October 2014, four months after the new farm at Etive 6 was first stocked with fish in June 2014, using bath-type chemical treatments of azamethiphos and deltamethrin and in-feed emamectin benzoate. Loch Etive's brackish nature makes it unsuitable for wrasse as cleaner fish.

In 2017, Dawnfresh has been using a lice-scrubbing technology to try to remove lice physically from the farmed fish, although the use of that machinery co-incided with

² Dawnfresh (2012) Environmental Statement for proposed Etive 6 fish pen site, Sailean Ruadh, Loch Etive prepared for Dawnfresh by TransTech Limited, 24th October 2012, at page 17

³ Dawnfresh (2012) Environmental Statement for proposed Etive 6 fish pen site, Sailean Ruadh, Loch Etive prepared for Dawnfresh by TransTech Limited, 24th October 2012, at page 54

⁴ <http://aquaculture.scotland.gov.uk/>

an escape of farmed fish from Etive 6 farm on Loch Etive in August 2017⁵ with escapee farmed rainbow trout being caught in the River Awe.

Dawnfresh does not publish its on-farm sea lice data, either in farm-specific or aggregated format. Although weekly sea-lice data must be recorded and kept by Dawnfresh, under The Fish Farming Businesses (Record Keeping) (Scotland) Order 2008, that data is not subject to any form of public access, for example under the Environmental Information (Scotland) Regulations 2004.

However, some data on sea lice levels on the Etive farms can be gleaned from FHI reports that are now published online⁶. Recent FHI inspection reports show that sea lice have become an issue on Loch Etive fish farms since 2014. Through the winters of 2015/2016 and 2016/2017, Etive 4 and Etive 6 were treated for sea lice. In winter 2014/2015, adult female and gravid lice average numbers on Etive 6 rose to 5.56 by December 2014. Similarly, in winter 2015/2016, at Etive 6, Fish Health Inspectors recording that adult female lice numbers increased above the criteria for recommended treatment in November 2015. Similarly, in winter 2016/2017, lice numbers at Etive 4 went up to 5 adult female sea lice per farmed fish in December 2016, with levels at Etive 2 above the CoGP suggested criteria in the same month.

The sea lice issue on fish farms in Loch Etive is highly likely to be due to the 500% increase in the biomass of farmed fish held across the loch as a whole since 2012, meaning that many hundreds of thousands of rainbow trout are in the loch at any one time, all of which are potential hosts for the parasitic sea lice, and whose numbers dwarf the numbers of wild salmonids usually present in Loch Etive.

The effect on wild salmonids of the increase in permitted biomass across Loch Etive and the intensification of Dawnfresh operations since 2012, may now be being seen for in wild fisheries data for 2016 and 2017.

Sea trout sweep netting carried out by the Argyll and District Salmon Fishery Board in 2015 had the worst sea lice infections ever recorded in wild fish, and in 2016, the ADSFB has reported that it could not catch any sea trout to sample.

Wild Atlantic salmon spend time at sea (one or two winters) and then return to their natal rivers to spawn. The adult salmon returning in 2017 would have left Loch Etive as smolts during late winter 2014 and into early spring 2015, or in winter 2015 into early 2016, precisely when the Etive farms had sea lice problems that the FHI has recorded.

As the SAMS Report suggests, many of those emigrating smolts may well have succumbed to heavy sea lice infestation caused by the huge numbers of sea lice leaving the Etive farms.

Subsequently, in 2016, the ADSFB reported a very poor grilse run on the River Awe, and in 2017, the upstream count through the Awe Barrage was under 500 salmon. The total to end November 2016 had been 800 and the five year average prior to that was 1400. The long term average is close to 2000. In 2017, the data shows, by a considerable margin, the worst recorded salmon run on the Awe.

⁵ http://aquaculture.scotland.gov.uk/data/fish_escapes_record.aspx?escape_id=2000458

⁶ <http://www.gov.scot/Topics/marine/Fish-Shellfish/FHI/CaseInformation>

FoLE therefore supports wholeheartedly the SAMS Report conclusion that *“there is a gradually emerging body of evidence, from studies elsewhere, that sea lice not only have the potential to have a negative effect on wild salmon, but that in many situations this is likely to be the case ...With the currently high marine mortality rate for wild salmonids, and threatened status of many river stocks, any additional pressure, such as increased sea lice burdens, is undesirable, and could further erode the conservation status of vulnerable wild populations”*. FoLE fear that this describes closely what is now occurring in the River Awe salmon population.

FoLE views with concern the conclusion of SAMS that *“the main treatment methods used in Scotland are experiencing reduced efficacy in dealing with sea lice on farms. New techniques are being applied, although the long-term success of these is uncertain”*.

Those new techniques are already restricted on Loch Etive given that cleaner fish are not an option for the loch, due its brackish waters.

Overall, the evidence on Loch Etive and the River Awe, which is already suggesting a serious sea lice impact on wild fish caused by the fish farms on Loch Etive, and FoLE’s analysis of the current operation and regulation of the Etive fish farms, chimes extremely strongly with SAMS assessment that *“the legislative and voluntary frameworks that underpin the management of lice levels on farms are not transparent. They appear neither to be succeeding in controlling sea lice, nor capable of addressing the environmental effects of the lice”*.

Given, for now, the current legal framework surrounding the licensing, consenting and permitting of fish farms continues to be in place, FoLE has been urging all relevant regulatory and public bodies (FHI, SEPA, MS, the Argyll and Bute Council) to consider urgently how they can now apply a more precautionary approach to the protection of the wild Atlantic salmonids of Loch Etive and the River Awe.

Clearly, the law needs to be amended to tighten environmental controls, particularly on sea lice, but in advance of such a change, FoLE would ask all relevant public authorities and regulators to apply a more precautionary approach immediately to the siting of fish farms, the inspection of those farms, the control of sea lice on those farms and the licensing of permitted biomass than is currently the case. That should include reviewing the operation of existing farms where wild fish populations are known in serious decline, as on the River Awe.

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