RSPCA Assured certification of Scottish farmed salmon

A report for Salmon & Trout Conservation Scotland

June 2017

Executive Summary

Populations of wild salmonids on the west coast of Scotland are threatened by the marine salmon farming industry, more particularly sea lice parasites emanating from the fish farms and escapee farmed fish breeding with wild populations. All fisheries science points in the direction of marine open cage salmon farming being a major contributory factor to the problems being experienced in wild salmonid populations.

1he RSPCA Assured scheme certifies the production of farmed salmon at open cage marine farms in Scotland based on RSPCA Welfare Standards for farmed salmon drawn up in close collaboration with the fish farming and aquaculture industries. Although the focus of the RSPCA Assured scheme is the welfare of the farmed fish, the standards applied do also relate to wider environmental impact, including to wild salmonids.

Neither Freedom Food Limited nor the RSPCA publishes a list of salmon farms in Scotland certified by RSPCA Assured and there are few published metrics that enable an assessment of whether the RSPCA Assured scheme has improved overall husbandry on Scottish fish farms.

The percentage of the Scottish salmon farming industry that is said to be certified by the RSPCA Assured scheme has dropped from 78% in 2012 to 67% in 2015. Data suggests that between 2015 and 2016 a total of 41,130 tonnes of farmed salmon died on Scottish fish farms generally as a result of one or more of fish diseases, infestation with parasites, damage caused by handling, crowding of fish, treatment losses and predation. As 67% of the salmon farming industry is RSPCA Assured, pro rata, this mortality would equate to roughly 27 million fish having died on RSPCA Assured farms between 2015 and 2016. The percentage by weight of mortality as against total production of the Scottish salmon farming industry by weight between 2013 and 2016 has almost doubled from under 7% to almost 14%.

As the wider environmental standards applied as part of the RSPCA Assured certification scheme are not rigorous enough and generally reflect minimum legal requirements only, the RSPCA should urgently review its certification as applied to salmon fish-farms, including improving and making far more stringent those standards in the RSPCA Assured scheme that deal with wider environmental impact and impact on wild fish. It must do this in consultation with wild fish conservation bodies, and demonstrating complete openness in relation to any certification by RSPCA Assured, which must include publishing a full list of all fish-farms certified as RSPCA Assured, to ensure that the RSPCA Assured scheme itself enjoys public confidence.

Salmon & Trout Conservation Scotland's aquaculture campaign

1.1 Salmon & Trout Conservation UK (S&TC UK) was established as the Salmon & Trout Association (S&TA) in 1903 to address the damage done to our rivers by the polluting effects of the Industrial Revolution. Since then, S&TC UK has worked to protect fisheries, fish stocks and the wider aquatic environment for the public benefit. S&TC UK has charitable status in both England and Scotland (as S&TCS) and its charitable objectives empower it to address all issues affecting fish and the aquatic environment, supported by robust evidence from its scientific network, and to take the widest possible remit in protecting salmonid fish stocks and the aquatic environment upon which they depend. See www.salmon-trout.org and www.salmon-troutscotland.org.

1.2 Fisheries scientists are clear that populations of wild salmonids - both salmon and sea trout – found in the salmon farming areas on the west coast of Scotland are in trouble.

1.3 Recent Scottish Government classification in 2017 of the country's salmonid rivers' fish populations, covering key rivers in the west Highlands and Inner Hebrides, show wild salmon stocks are not reaching their conservation limits (a measure of the overall health of the populations). Almost no rivers within salmon farming's heartland of the west Highlands and Inner Hebrides has, in Scottish Government's estimation, a sufficiently healthy stock of wild salmon.

1.4 Sea trout numbers in many Scottish west coast rivers have dwindled since the start of large open cage salmon farming. The latest Scottish Government figures how that the 2016 rod catch of sea trout was 18,054 – the third lowest figure on record and 84 % of the five year average.

1.5 Fisheries scientists are also clear that sea lice produced on fish-farms harm wild salmonids, both at an individual and at a population level.

1.6 Scientists from Norway, Scotland and Ireland have reviewed over 300 scientific publications on the damaging effects of sea lice on sea trout stocks in salmon farming areas, and examined the effect of sea lice on salmon, concluding that sea lice have a potential significant and detrimental effect on marine survival of Atlantic salmon with potentially 12-29% fewer salmon spawning in salmon farming areas.

1.7 They also note that reduced growth and increased mortality will reduce the benefits of marine migration for sea trout, and may also result in selection against anadromy [migration of fish between freshwater and seawater] in areas with high lice levels. Sea trout may also suffer altered genetic composition and reduced diversity, leading to the complete loss of some sea trout populations.

1.8 The science is giving us a very loud warning on the threat to wild salmonids from poorly run and poorly sited open cage salmon farms, but this is not being translated into effective control of fish-farms, which is essential to protect wild fish.

1.9 Juvenile ‘free swimming’ stage sea lice emanating from salmon farms in huge numbers are a major threat to wild salmonids. Although analysis of the control of sea-lice on Scottish fish-farms is severely hampered by the lack of farm-specific sea lice data, S&TCS is constantly analysing data published by the Fish Health Inspectorate, the Scottish Environment Protection Agency and the Scottish Salmon Producers’ Organisation and others.

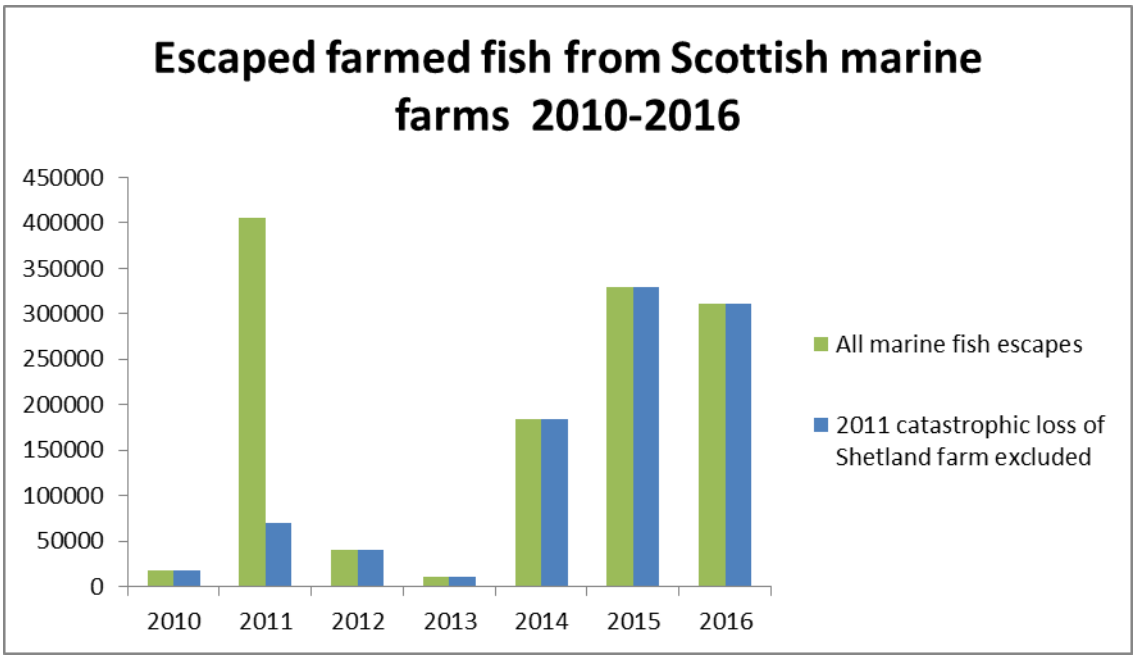
1.10 That analysis, regularly published by the S&TCS, provides strong evidence that sea lice numbers on fish farms continue to rise to unacceptable levels, particularly during the 2nd year of production, where they can remain for many months, with the consequent production of huge numbers of juvenile ‘free swimming’ stage lice threatening wild salmonids outside the cages.

1.11 Analysis of publically available data also shows that average adult female sea lice numbers per farmed fish are linked to the biomass of farmed fish held on the farms - the greater the tonnage of farmed fish the more adult female sea lice and the greater the production of free-swimming juvenile lice into the surrounding sea lochs.

1.12 There is also evidence of widespread failures of available chemical sea lice treatments to limit sea lice numbers on farmed fish, strongly suggesting that resistance and tolerance is now becoming widespread. The use of wrasse as cleaner fish is not the panacea it is often held up to be.

1.13 It is not just sea lice that are a problem for wild fish. As the Scottish Government acknowledges, escapes from fish farms are a major cause for concern for conservation of wild fish. Escaped fish represent a disease hazard, occupy valuable habitat to the exclusion of wild fish and have the potential to interbreed with wild fish, leading to dilution of genetic integrity of wild stocks.

1.14 As the graph below shows, compiled using Marine Scotland data as published on the Scotland’s Aquaculture database, total escapes from Scottish fish farms remain stubbornly high at approximately 1/3 million in 2016.



The RSPCA and Freedom Food Limited

2.1 The Royal Society for the Prevention of Cruelty to Animals (RSPCA) is a well-respected and long-established charity and has made very considerable progress with respect to the welfare of farmed, pet and wild animals in the UK over many years.

2.2 Freedom Food Limited runs the RSPCA's farm animal welfare assurance scheme, described as "*the only farm assurance scheme in the UK dedicated solely to improving farm animal welfare*"[1].

2.3 While Freedom Food Limited is a company limited by shares, it is a wholly-owned subsidiary of the RSPCA but states that it "*operates independently*"[2]. However, the RSPCA is the ultimate parent and controlling entity of Freedom Food Limited.

2.4 The legal objects of Freedom Food Limited are (a) to prevent cruelty to animals by the promotion of humane farming, transportation, marketing and slaughter of farmed animals, in particular but without prejudice to the generality of the foregoing by implementing a set of rearing and handling standards approved from time to time by the RSPCA; and (b) to otherwise prevent, suppress or alleviate cruelty to animals whether within the United Kingdom or elsewhere[3].

2.5 Therefore, there is nothing in the legal objects of Freedom Food Limited that empowers it to become involved in matters relating to wider environmental impact (including the impact upon wild salmonids outside fish farms) as

[1] https://www.berspcaassured.org.uk/about-us/what-is-freedom-food/
[2] https://www.berspcaassured.org.uk/about-us/frequently-asked-questions/
[3] Freedom Food Limited Articles of Association, 4th February 2010, Companies House

opposed to the welfare of farmed fish. The only possible avenue by which such work would fall under the objects is if one considered the impact upon wild salmonids via the spread of parasites and disease to constitute 'cruelty' as per object (b).

2.6 The membership of the board of directors of Freedom Food Limited includes four members of the RSPCA Council (the trustees of the RSPCA). The Chair of Freedom Foods Limited is also a trustee of the RSPCA.

'RSPCA Assured' certification of salmon farms

3.1 RSPCA Assured, previously Freedom Food, is the RSPCA's ethical food label dedicated to farm animal welfare.

3.2 The RSPCA Assured website states that "*our vision is for all farm animals to have a good life and be treated with compassion and respect. The RSPCA Assured label makes it easy to recognise products from animals that have had a better life, so you can feel good about your choice when shopping and eating out"*.[4]

3.3 The RSPCA Assured certification scheme started life as Freedom Food certification. The original Freedom Food certification was re-branded as RSPCA Assured in 2015. At that time, the private marketing agency involved noted of Freedom Food that "*pack recognition with consumers is really low*" and that Freedom Food "*never really stood for anything other than freedom, which can be misleading as it doesn't have to mean free range*"[5].

3.4 Despite the name change, Freedom Food appointed assessors still carry out annual assessments and run the RSPCA Assured scheme. RSPCA Assured sites are assessed annually and between assessments all sites can be subjected to unannounced visits from RSPCA Farm Livestock Officers who, during their visits, check to confirm compliance with welfare standards.

3.5 Responsibility for setting RSPCA Welfare Standards, as applied by Freedom Food Limited in the RSPCA Assured scheme, lies with the RSPCA[6]. The latest version for farmed salmon was drawn up in 2015.

3.6 The standards are based upon the 'Five Freedoms' promoted by the RSPCA:

- Freedom from thirst, hunger and malnutrition by access to an appropriate high quality diet and an environment in which fluid and electrolyte balance can be maintained
- Freedom from discomfort by maintaining the water and environment at an appropriate temperature, flow rate and chemical composition and providing well designed enclosures and tanks with shading if necessary.

[4] https://www.rspcaassured.org.uk/about-us/
[5] https://www.designweek.co.uk/issues/september-2014/harrison-agency-helps-freedom-food-rebrand-as-rspca-assured/
[6] RSPCA Welfare Standards for farmed Atlantic salmon, September 2015

- Freedom from pain, injury or disease by avoiding situations which are likely to cause pain, injury or disease, by rapid diagnosis and treatment of disease and humane transport and killing.
- Freedom to express normal behaviour by providing the appropriate space and environment for the species.
- Freedom from fear and distress by minimising stressful situations such as poor handling or predator attack as far as possible, by making gradual changes to husbandry and water quality, and by humane transport and slaughter.

3.7 The Welfare Standards note that the Five Freedoms will be better provided for if those who have care of livestock practise/provide:

- caring and responsible planning and management
- skilled, knowledgeable and conscientious stockmanship
- appropriate environmental design
- considerate handling and transport; and
- humane slaughter.

3.8 It is claimed by RSPCA Assured that "*unlike other labelling schemes, we are completely independent from the food and farming industries*"[7].

3.9 However, in respect of farmed salmon, members of the RSPCA Salmon (Freshwater) Standards Technical Advisory Group (FW) and RSPCA Salmon (Seawater) Standards Technical Advisory Group (SW), which are both heavily involved in setting the welfare standards applied by RSPCA Assured, are dominated by the salmon farming industry and associated companies, with at least 20 of 24 members of that Group from the industry[8]:

John Avizienius (RSPCA farmed salmon specialist) FW and SW
Alasdair MacDonald (The Scottish Salmon Company) FW
Andy Young (Cooke Aquaculture) FW and SW
Chris Findlay (Fish Vet Group) FW and SW
Dave Danson (Landcatch) FW
David Cockerill (Marine Harvest) SW
David Roadknight (Lochduart) FW
George Whyte (Kintail Hatchery) FW
Gilpin Bradley (Wester Ross Salmon) FW and SW
Grant Cumming (Hjaltland Seafarms Ltd) SW
Hugh Murray (Migdale Smolt Ltd) FW
Hugh Richards (Wester Ross Salmon) FW and SW
Ian Armstrong (Partners in Welfare) FW and SW
John Barrington (Scottish Sea Farms) FW and SW
John Richmond (Marine Harvest Scotland) FW
Jon Walden (Hjaltland Seafarms Ltd) FW
Kim Thomas (The Scottish Salmon Company) FW and SW
Michelle Johnson (Cooke Aquaculture) FW and SW

[7] https://www.rspcaassured.org.uk/about-us/how-rspca-assured-works/
[8] https://science.rspca.org.uk/sciencegroup/farmanimals/standards/salmon

Nick Joy (Lochduart) FW and SW
Paul Armstrong-Wilson (Solway Transport) FW
Paul Irving (Meridian Salmon) FW
Rob Murray (Howietoun) FW
A technical/field operations representative of Freedom Food Ltd FW and SW
A representative of RSPCA field staff (Farm Livestock Officers) FW and SW

RSPCA Assured charges for certification

4.1 In the year to December 2015, Freedom Food Limited made £2.4m, with assurance scheme licence fees and assessments amounting to £2.0 million. Freedom Food Limited's annual report states that 233 million fish benefitted from the scheme in 2015, as against 283 million in 2014[9]. Its expenditure in 2015 was also given as £2.4 million.

4.2 67% of Scottish farmed salmon are said to be covered by the RSPCA Assured scheme[10]. In 2012, a higher figure of 78% of Scottish salmon was claimed to be farmed to the RSPCA's higher welfare standards[11].

4.3 It is also important to note that all certified fish farms are charged to be RSPCA Assured. Freedom Food Limited charges a £119 for new membership of the RSPCA Assured scheme, a £486 annual fee per fish farm site and a charge of 0.875p per kg of the value of product sold (gutted weight).

4.4 Based upon annual Scottish salmon production figures given in the Scottish Fish Farm Production Survey 2015[12] of 171,722 tonnes in 2015, from 250 seawater sites, these charges imply a total charge levied upon Scottish salmon farming of between £800,000 and £900,000 per year.

Which farms are RSPCA Assured?

5.1 Although it would perhaps seem obvious that for a certification scheme of any sort to be able to promote good practice, in whatever field, it must be possible to identify which farms are certified and which are not, in the hope that consumers ensure that purchases are only made from certified farms, there is no published list of certified Scottish salmon farms.

5.2 In 2012, Freedom Food Limited declined to provide a list of certified farms stating that *"specific details relating to our members is deemed as confidential within our membership agreement and we are only permitted to release such information if it is deemed to be in the member's interest to do so. Under the circumstances I believe it would be inappropriate for Freedom Food to furnish you with the information you have requested"*[13].

[9] Freedom Food Limited full accounts made up to 31 December 2015
[10] Freedom Food Limited full accounts made up to 31 December 2015
[11] http://scottishsalmon.co.uk/freedom-food/ as at 05/04/17
[12] http://www.gov.scot/Resource/0050/00505162.pdf
[13] Email 17th September 2012 from Leigh Grant, Chief Executive, Freedom Foods Limited to Guy Linley-Adams, Solicitor to the S&TA

5.3 That appears to remain the position with RSPCA Assured farms. There is no list of certified farms on either the RSPCA or RSPCA Assured websites.

5.4 Although the RSPCA Welfare Standards emphasise proper record keeping, documentation relating to farms visits, certification, audits and indeed the identity of particular farms accredited under the RSPCA Assured scheme is not published making the certification of farms under the RSPCA Assured scheme opaque at best.

Assessing the RSPCA Assured scheme

6.1 It is highly likely that better animal husbandry on a fish farm will translate across into reduced impact on wild fish, whether that is from reduced release of mobile stage parasites, reduced inoculum of other diseases released into the wider loch environment, a lower level of escapes or lower discharges and emissions of farm treatment chemicals.

6.2 However, there are very few published metrics that enable the RSPCA Assured scheme to be assessed against any targets for the improvement of overall husbandry. While there is no list of certified farms published either on the RSPCA or Freedom Food Limited websites, it is difficult to assess the overall impact or performance of the RSPCA Assured scheme in raising standards of overall animal husbandry in Scottish salmon farms.

6.3 One measure of the scheme's success could be the overall percentage of the salmon farming industry that is covered by the scheme. Although 67% of Scottish farmed salmon are said to be covered by the RSPCA Assured scheme[14], this is a reduction since 2012, when a higher figure of 78% of Scottish salmon was claimed to be farmed to the RSPCA's welfare standards[15].

6.4 A second measure might be the level of mortalities of farmed fish experienced on Scottish fish farms, which can be assessed easily as all salmon farms must report to SEPA the weight of mortalities removed from cages each month, under the terms of their pollution control, or CAR licences.

6.5 Reported mortalities are defined as "*the weight of dead fish that have been removed from the cages during the month. This figure does not include fish that have been harvested as production*"[16]. This farm-by-farm month-by-month mortality data is published on the Scotland's Aquaculture database.

6.6 Analysis of that data carried out for this report shows that across all salmon farms in 2015 and 2016 inclusive, the monthly SEPA mortality reports for every salmon farm add up to a total of 41,130 tonnes of mortalities over 2 years.

6.7 If an assumption is made that an average fish weight is 1kg, that equates to a total of 41 million dead fish in two years. It may well be that smaller fish and

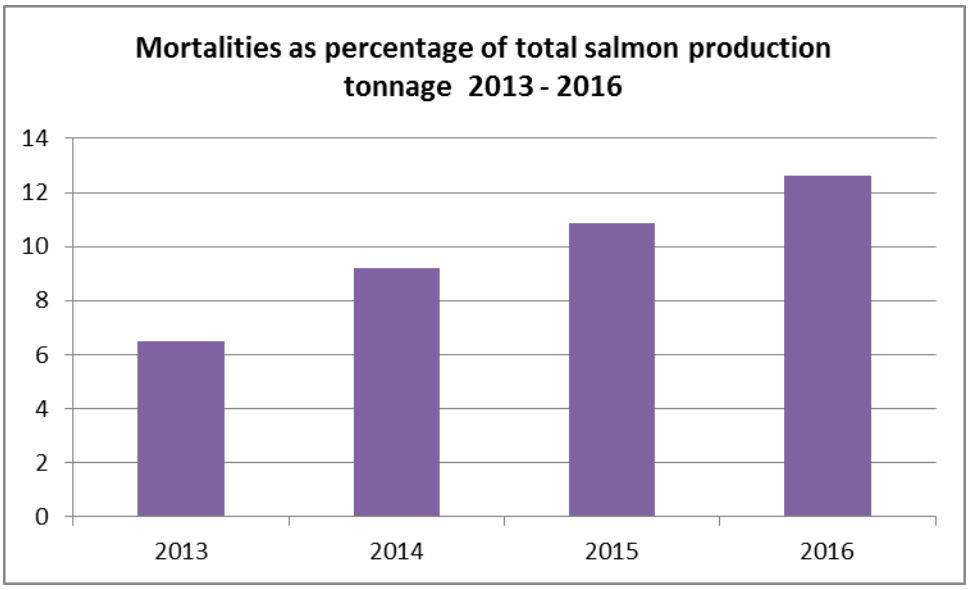
[14] Freedom Food Limited full accounts made up to 31 December 2015
[15] http://scottishsalmon.co.uk/freedom-food/ as at 05/04/17
[16] http://aquaculture.scotland.gov.uk/glossary/glossary.aspx

smolts are more likely to suffer mortality in which case the 41 million figure will be an underestimate.

6.8 As 67% of industry is RSPCA Assured, this would suggest, pro rata, that roughly 27 million fish died on RSPCA Assured farms in the last two years, generally as a result of one or more of disease, parasites, damage caused by handling, crowding of fish, treatment losses and predation.

6.9 Further analysis of the level of mortalities suffered as reported to SEPA, per tonne of production as reported to Marine Scotland[17], shows that, far from improving under the high level of RSPCA Assured certification, the industry-wide mortality issue appears to have worsened over the last four years.

6.10 As the chart below shows, the percentage weight of mortalities per tonne of production has almost doubled in the 4 years to 2016.



The RSPCA Welfare Standards – animal welfare or environmental?

7.1 The RSPCA's Welfare Standards for farmed Atlantic salmon were first published in July 2010[18] and the 2015 version is available on the RSPCA Assured website[19]. The Standards have been subject to some minor amendment since their first publication.

7.2 The Standards cover a number of features of fish-farming, from matters dealing with freshwater stages, management and stockmanship, husbandry practices,

[17] Marine Scotland Science Scottish Shellfish Farm Production Survey 2015. Production survey information from all 16 companies actively involved in Atlantic salmon production, farming 254 active sites. This figure represents the entire industry operating in Scotland. http://www.gov.scot/Resource/0050/00505162.pdf

[18] RSPCA (2010) RSPCA Welfare Standards for farmed Atlantic salmon, July 2010, pp71

[19] https://science.rspca.org.uk/sciencegroup/farmanimals/standards/salmon

equipment and environmental quality, feeding, health, transport, smolt transport, wellboats, slaughter and, finally, **wider environmental impact**.

7.3 In relation to the environmental impact of fish farms generally, the Standards require that:

"The farm needs to be operated with respect for the natural environment and employees need to recognise their duty to care for the wider environment. All reasonable steps need to be taken to minimise the ecological impact of the farming system. Producers need to draw up an Environmental Impact Plan within two years of joining the scheme".

and state that:

"These standards are primarily aimed at the welfare of farmed fish. However, the potential for aquaculture to have wider environmental effects must also be considered. In addition to fully complying with all relevant legislation and recommendations, the farmer should demonstrably and positively review environmental protection policies as developments in research and technology allow. It is the responsibility of the management to ensure that all employees recognise their duty to care for the natural environment and monitor possible impacts on it".

7.4 Like Freedom Food certification before it, RSPCA Assured certification still appears to be aimed not only at securing the welfare of the farmed fish but also at requiring improved environmental performance of fish farmers, beyond what might be required for the welfare of the farmed fish alone. These wider environmental standards deserve close examination.

Environmental requirements of the RSPCA Welfare Standards

8.1 Standards EVI 1.1 to EVI 5.1 are the general environmental requirements of RSPCA Assured:

EVI 1.1 - An Environmental Impact Plan must be drawn up and complied with.

EVI 1.2 - All relevant legislation, official guidelines and Codes of Practice must be strictly adhered to and understood.

EVI 2.1 - Fish farms must have a site specific containment plan in place with the aim of preventing fish escaping and which includes plans for fish recapture.

EVI 2.2 - Enclosures must be designed and sited in such a way that they are not likely to be damaged by adverse weather conditions.

EVI 2.3 - Fish farms must have a containment plan in place with the aim of preventing fish escaping.

EVI 3.1 - Extraneous species must be returned to the wild, or humanely culled, as advised by the designated veterinary surgeon.

EVI 4.1 - Enclosures must be fallowed as detailed in the Environmental Impact Plan to allow recovery of the benthos and help to reduce sea lice populations.

EVI 5.1- Sites must be kept tidy and all waste must be disposed of by an approved method; burning of plastics is prohibited.

8.2 Standard EVI 1.1 requiring that an Environmental Impact Plan must be drawn up and complied with, appears on the face of it to be positive, but there is no detail as to what a plan must address, what degree of protection it must give to the wider sea loch environment, including to wild fish, what independent assessment there is of such plans, and what monitoring must be performed to assess compliance.

8.3 The S&TA's previous requests in 2013 for sight of a typical Environmental Impact Plan, as required by standard EVI 1.1 under the then Freedom Food certification, together with any audits or monitoring reports of any particular farms as against the standards applied, was declined by the RSPCA on grounds of commercial confidentiality. When asked to supply typical documents from any certified farm, the RSPCA replied that it *"would suspect that Freedom Food would have data protection issues to consider before making publicly available data from individual member farms on any issue relating to their membership"* and in relation to Environmental Impact Plans - required by standard EVI 1.1 - again the RSPCA states that it would be *"unsure what would be achieved by your proposal of making these plans available to the general public"*[20]*.* Indeed, Freedom Food Limited has refused to publish the Environmental Impact Plans and even to share a redacted Plan with operator and site details removed to make the site unidentifiable.

8.4 Importantly, as no such plans are published, there can be no more than very limited confidence in these Plans and the suspicion will be that they merely rehearse and repeat existing industry practice and minimum legal requirements, which has proved to be insufficient to control the environmental impact of fish farms.

8.5 Standards EVI 2.2 to EVI 5.1 merely reflect existing minimum legal requirements against which fish farmers are inspected by the Fish Health Inspectorate and Marine Scotland, and breach of which could lead to statutory enforcement proceedings.

8.6 If fish-farms were not designed to withstand adverse weather (per EVI 2.2), then their siting on the west coast and in the western isles of Scotland - where inclement weather is a regular event - would rightly be considered to

[20] The S&TA asked Freedom Food in 2013 for access to a typical set of inspection and enforcement documentation relating to any particular fish farm and a solicitor's undertaking was offered in order that those items would be kept confidential and used only to make recommendations to the RSPCA / Freedom Food – this was also refused.

be negligent, if consequent escapes of farmed fish caused damage to wild fish populations.

8.7 It is not entirely clear why there is such obvious duplication between EVI 2.1 and EVI 2.3, but Schedule 2 of the Fish Farming Businesses (Record Keeping) (Scotland) Order 2008 already makes that a legal requirement on all fish-farms.

EVI 2.1 - Fish farms must have a site specific containment plan in place with the aim of preventing fish escaping and which includes plans for fish recapture.

EVI 2.3 - Fish farms must have a containment plan in place with the aim of preventing fish escaping.

8.8 That the containment plan must detail what is to be done if fish do escape, is already required by the salmon industry's own Code of Good Practice.

8.9 EVI 4.1 requires fallowing of the farm in accordance with the Environmental Impact Plan, but the fallowing period of each farm is already stipulated in the licences granted under the Controlled Activities Regulations by SEPA and so is a minimum legal requirement.

8.10 EVI 5.1 requires that farm waste must be disposed by approved method. Anything less would be unlawful and contrary to statutory waste management controls applied by SEPA.

8.11 In general, the wider environment standards required by the RSPCA Welfare Standards are not substantively different from those already required by the Code of Good Practice drawn up by the aquaculture industry itself or under applicable minimum legal requirements

8.12 In 2012 and 2013, the Salmon & Trout Association (S&TA) raised concerns that the Standards, then being applied for Freedom Food certification, that similarly purported to take account of the wider environmental impact on wild fish and the impacts on wild fish from parasites and disease spread from fish farms, were not rigorous enough. These concerns were been raised with the RSPCA and Freedom Food Limited in detailed correspondence over two years, but there has been no substantive change in the RSPCA Welfare Standards as applied to the impact of fish farms on the wider environment since then.

8.13 On sea lice control, the RSPCA Welfare Standards still recognise no more than a "*possible risk to wild salmonids*", which is untenable given the weight of scientific evidence affirming that actual damage to wild fish has and is being caused.

Due to severe welfare problems caused by sea lice infestation, and the possible risk to wild salmonids, farms must take all reasonable steps to maintain a minimal ovigerous lice population…. (RSPCA Welfare Standards for Farmed Atlantic Salmon, at page 52, Appendix 1)

8.14 Specifically, Standards H 4.1 to H 4.7.1 deal with sea-lice and closely reflecting the salmon farming industry's own Code of Good Practice. The general requirement is that farms must take all reasonable steps to minimise the gravid lice population as per the requirements of the Aquaculture and Fisheries (Scotland) Act 2007.

8.15 However, again, Standards H4.1 to H 4.7.1 (other than H4.6, which appears to be a mere reporting requirement to RSPCA) require no more stringent efforts from the fish farms than the basic legal minimum already expected for the industry pursuant to the requirement to have in place "satisfactory measures" for the control of sea lice under the Aquaculture and Fisheries (Scotland) Acts 2007 and 2013 and keep records under the Fish Farming Businesses (Record Keeping) (Scotland) Order 2008.

H 4.1 Farms must take all reasonable steps to minimise the gravid lice population, as per the requirements of the Aquaculture and Fisheries (Scotland) Act 2007.

H 4.2 Stock-keepers must be able to recognise symptoms of lice infestation.

H 4.3 Separation of year classes and fallowing of sites must be practised to help control sea lice populations as detailed in the Environmental Impact Plan (see ENV 1.1).

H 4.4 The producer must, through documented evidence, demonstrate that any co-operative management schemes between operations in the same loch/area aimed at reducing sea lice populations have been entered into.

H 4.5 Sea lice prevention and treatment programmes must be drawn-up with the designated veterinary surgeon and fully detailed in the Veterinary Health and Welfare Plan (see H 1.1).

H 4.6 * The biological control of sea lice using cleaner fish such as Wrasse (Labridae spp.) and lumpsuckers (Cyclopteridae spp.) is not permitted without permission from the RSPCA. Requests for permission to use cleaner fish must be submitted in writing to the RSPCA Farm Animals Department.

H 4.7 * Sea lice damage to fish must be recorded during lice counts. This must include:
a) condition of fish – good/thin
b) site of lesions
c) skin condition
d) fish behaviour – lively/moribund.

H 4.7.1 * Any fish with severe physical damage caused by sea lice grazing must be removed and dispatched humanely without delay.

8.16 Mere compliance with the industry's Code of Good Practice, drawn up under the 2007 Act referred to in Standard H4.1, on permissible on-farm

sea-lice numbers is not necessarily protective of wild salmonids, as recognised by Marine Scotland Science, the Government's fisheries scientists:

> *"there is evidence of an effect of lice from fish farms on sea trout, although the extent to which the fish populations are affected is not clear. It appears that the range of effect of lice is at least 14km from farm source. This range will depend on both movements of lice and trout, which are not well understood. There is no published evidence of an effect of lice on trout at a population level, however, such an effect would be expected in view of the high infestation intensities observed near farms in the second years of salmon production cycles.…the behaviour of sea trout differs from salmon in that they remain in the area of origin for considerable time after migrating to sea leading to increased chance of exposure to infective stages of sea lice. The Code of Good Practice for Scottish Finfish Aquaculture (CoGP) sets a trigger level for sea lice treatment at different times of year, it should be noted that this does not set a lice count level that farms have to keep numbers below…. It should also be noted that an ovigerous adult female louse may produce up to 1000 eggs. For example a farm holding 400,000 fish, even if it follows the CoGP, could potentially release 200M nauplii into the local environment significantly increasing infection pressure in the area…..*
>
> *There is evidence that stage of farm cycle relates to level of lice infestation on sea trout with higher levels of infestation during the second year of production when lice numbers are known to be greater on farms. This relationship has been noted in a number of areas and was found to be significant across a 10-year period in Loch Shieldaig and across the Scottish west coast in 2002-03".*

8.17 This, along with the views of many other fisheries scientists in many published papers, would suggest that RSPCA Assured standards H4.1 to H4.5 are not sufficiently stringent to protect wild fish - particularly wild salmonid smolts running to sea for the first time - from damage caused by the production of massive numbers of juvenile sea lice by fish-farms covered by RSPCA Assured.

8.18 In 2013, the RSPCA made it clear that it did not support the publication of farm-specific sea-lice data as part of the then Freedom Food scheme as *"this would be because you could not differentiate data from Freedom Food accredited farms from the data from non-Freedom Food accredited farms simply because the data would be aggregated per region."*[21] This put the RSPCA out of step not only with every wild fish conservation group in Scotland, but also with eminent fisheries scientists, SEPA, SNH and all west coast local authorities, all of which then supported and still do support the introduction of a legal requirement on fish-farmers to publish farm-specific weekly sea-lice data.

8.19 It is regrettable to see that the 2015 RSPCA Welfare Standards still contain no such requirement.

[21] Letter to the Salmon & Trout Association 31st August 2011 from John Avizienius, Deputy Head of Farm Animals at the RSPCA

8.20 In conclusion, given that 67% of the industry is RSPCA Assured, it is highly likely, perhaps inevitable, that RSPCA Assured farmed salmon will be harvested from fish-farms that S&TCS and other wild fish conservation bodies believe are inappropriately located, and that data from SEPA shows are causing or have caused an unacceptable environmental impact on the benthic environment of the sea lochs concerned.

8.21 These farms will also be having a negative effect on wild salmonid fish, principally through the production of sea-lice parasites and transmission of other diseases from fish-farms to wild fish.

8.22 Despite the S&TA meeting with the RSPCA and Freedom Foods in July 2011 and subsequently providing detailed suggestions as to how to improve the RSPCA Welfare Standards, the RSPCA rejected all suggestions and called a halt to further communication with the S&TA stating that *"we could continue with a prolonged dialogue over the points upon which we disagree but I fear that this would not yield much in the way of progress."*[22]

8.23 Since then, S&TCS has continued to supply copies of its research to the RSPCA particularly in relation to the sea-lice issue at farms, many of which will be RSPCA Assured. However, by continuing to apply wider environmental impact standards that are no more stringent than the basic legal minimum requirement, rather than focussing purely on the welfare of the farmed fish, which is where RSPCA's expertise lies, at best, the RSPCA Assured scheme is providing a "fig leaf" for the farmed salmon producers to shield themselves from legitimate criticism of their wider environmental performance and damage being caused to wild fish.

Which farms are RSPCA Assured certified and how do they perform on sea lice?

9.1 While the figures above relate to the entire industry, whether or not it is certified by RSPCA Assured, it is possible sometimes to identify which fish farms are certified by RSPCA Assured from supermarket packing.

9.2 For the purposes of this report, two regions of salmon farm production have been examined with respect to the RSPCA Assured status. These are Loch Fyne in Argyll and Loch Roag on the Isle of Lewis.

Loch Fyne

10.1 There are ten salmon farms on Loch Fyne all run by The Scottish Salmon Company:

Meall Mhor
Glenan Bay
Gob a Bharra

[22] Letter to Guy Linley-Adams, Solicitor to S&TA, 25th November 2011 from John Avizienius, RSPCA

Quarry Point
Tarbert South
Ardcastle Bay
Ardgadden
Rubha Stillaig
Strondoir Bay
Furnace Quarry

10.2 In autumn 2016, The Scottish Salmon Company was supplying Co-Op supermarkets with salmon from Loch Fyne farms.

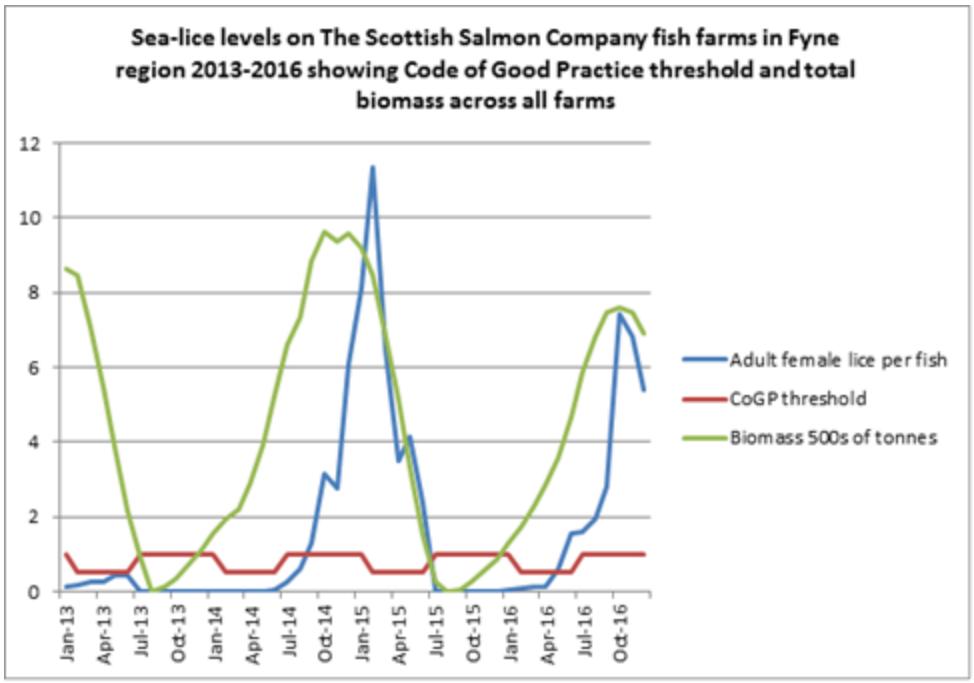
10.3 Packaging from Co-Op products from Gob a Bharra and Quarry Point both carried the RSPCA Assured logo in late 2016 and it is believed that at least Strondoir Bay, Meall Mhor, Tarbert South, Rhuba Stillaig and Glenan Bay[23], all of which once held or had applied for Freedom Food certification, still held RSPCA Assured status in 2016.

10.4 It may still be that all Loch Fyne salmon farms are RSPCA Assured but as neither the RSPCA, nor Freedom Foods Limited publishes a list of RSPCA Assured fish farms, this cannot be certain.

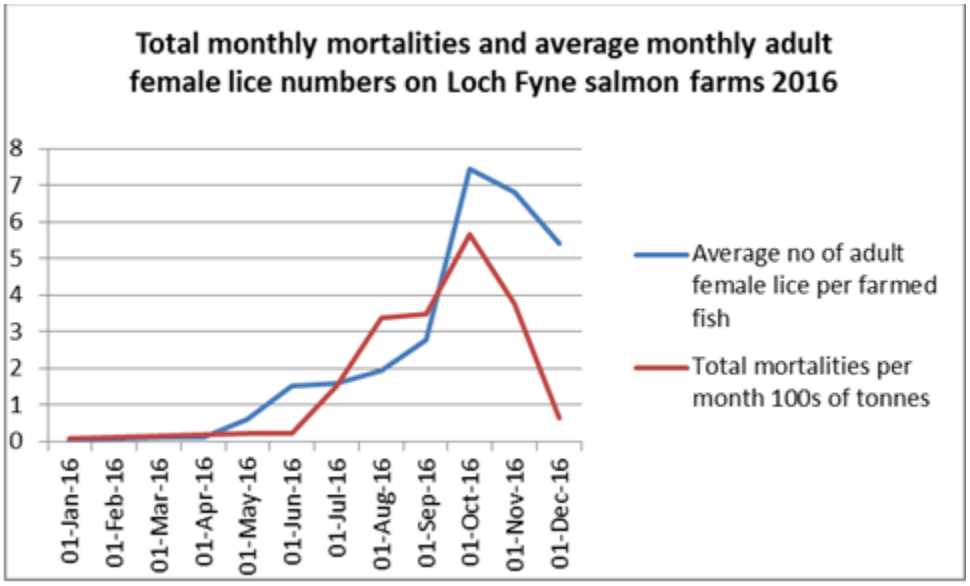
10.5 However the Co-Op states that "*all of our 'Irresistible' fresh salmon and smoked salmon is certified against RSPCA Welfare Standards*"[24].

10.6 Analysis of aggregate sea lice data from the Loch Fyne region, as published by the Scottish Salmon Producers Organisation, as against monthly biomass figures for each of the Loch Fyne farms, as published by the Scottish Environmental Protection Agency, shows that sea lice levels on then Loch Fyne farms were, on average, way above industry Code of Good Practice thresholds in both of the last two production cycles, with adult female sea lice numbers peaking towards the end of production cycles, at the worst possible time of year for wild salmon and sea trout smolts.

[23] Per email from Gregory Brabon, Freedom Food 27th June 2012
[24] http://www.co-operativefood.co.uk/globalassets/assets/projects/2017/food-matters/animal-welfare-2016.pdf

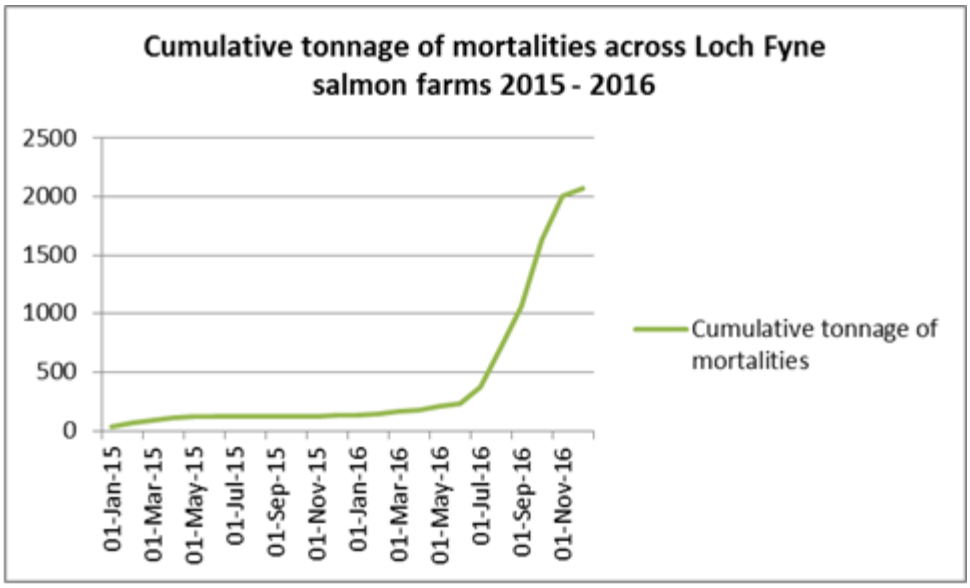


10.7 Sea lice on the Loch Fyne farms were not only a problem for wild fish. The data on mortalities experienced across the ten Fyne farms shows a strong correlation between on-farm sea lice numbers and mortalities being experienced in the farms.



10.8 Over the ten farms in Loch Fyne, SEPA data shows that the cumulative tonnage of mortalities - the weight of dead fish that have been removed from the cages during the month, not including fish that have been harvested as production[25] - reached a staggering 2068 tonnes in the production cycle to December 2016.

[25] http://aquaculture.scotland.gov.uk/glossary/glossary.aspx



10.9 The average weight of the fish in Gob a Bharra on Loch Fyne in June 2016 was 1.7 kg according to the FHI Inspection Report, so if an assumption is made that the average weight across all Loch Fyne farms in October 2016, when 565 tonnes of mortalities were removed from the cages across Loch Fyne, was about 3kg, that means approximately 200,000 farmed fish died in Loch Fyne fish farms in October 2016 alone.

10.10 Over the full two year production cycle, it is likely that mortalities on Loch Fyne exceeded one million farmed fish.

10.11 There is also an issue with the use in 2016 on Loch Fyne of the organophosphate sea-lice treatment, azamethiphos.

10.12 Azamethiphos is an organophosphate pesticide, which works by interfering with the transmission of nerve impulses. It is used in fish farming to control external parasites, particularly sea lice. Azamethiphos remains in the aqueous phase until it is broken down into non-toxic derivatives, for which a decay half-life of 8.9 days has been determined[26].

10.13 The effect of repeat organophosphate doses on non-target organisms, such as wild crustaceans, with insufficient recovery time, is to progressively depress acetylcholinesterase activity, leading ultimately to mortality.

10.14 Azamethiphos was used very extensively indeed on the Loch Fyne fish farms in 2016. The table below shows the reported[27] use of azamethiphos on Loch Fyne farms as against the 24hr limits contained in the CAR licences which are designed to protect against the effect of repeat exposure, without sufficient recovery, to organophosphates. The right hand column shows the minimum number of days the farm must have been treating with azamethiphos to stay within its CAR licence:

[26] https://www.sepa.org.uk/media/113498/fish-farm-manual-annex-g.pdf
[27] Scotland's Aquaculture database at http://aquaculture.scotland.gov.uk/

Date	Loch Fyne farm	Reported use of Azamethiphos (g)	CAR 24hr limit for azamethiphos (g)	Implied days of use (to remain within CAR licence)
Nov-16	Strondoir Bay	800	310.4	3
Oct-16	Ardgadden	2000	238.7	9
Sep-16	Ardgadden	2000	238.7	9
	Glenan Bay	1680	196.3	9
	Gob a Bharra	2000	223.04	9
	Meall Mhor	3600	342.6	11
	Quarry Point	2250	1069	3
	Rubha Stillaig	2660	702.8	4
	Strondoir Bay	3000	310.4	10
	Tarbert South	700	785.4	1
Aug-16	Ardcastle	4850	295.4	17
	Ardgadden	2000	238.7	9
	Furnace Quarry	1680	147.7	12
	Glenan Bay	1960	196.3	10
	Gob a Bharra	2000	223.04	9
	Meall Mhor	1800	342.6	6
	Quarry Point	4770	1069	5
	Rubha Stillaig	1400	702.8	2
	Strondoir Bay	4000	310.4	13
	Tarbert South	1960	785.4	3
Jul-16	Ardgadden	2000	238.7	9
	Glenan Bay	1260	196.3	7
	Gob a Bharra	2000	223.04	9
	Meall Mhor	1800	342.6	6
	Rubha Stillaig	1400	702.8	2
	Tarbert South	1960	785.4	3
Jun-16	None reported			
May-16	Glenan Bay	1960	196.3	10
	Gob a Bharra	2200	223.4	10
	Meall Mhor	1680	342.6	5
	Rubha Stillaig	1400	702.8	2
	Tarbert South	840	785.4	2

10.15 The number of days per month each farm must have treated using azamethiphos to stay within each farm's respective CAR licence ranges from 2 days to 17 days. The data suggests that many Loch Fyne farms treated 9 or more times a month through the summer and autumn of 2016.

10.16 Total use of azamethiphos on Loch Fyne by The Scottish Salmon Company between May and November 2016 was 66 kilogrammes.

10.17 Assuming there was no breach of CAR licence conditions by any farm, and given the half-life of azamethiphos, the number of days of bath treatment with azamethiphos on the Loch Fyne farms that is implied across the ten farms represents an almost continuous exposure of the wider loch and its wildlife, including highly sensitive wild crustaceans, to significant environmentally significant concentrations of azamethiphos in the summer and autumn of 2016.

10.18 This has been reported to SEPA, which has responded that:

> "*we would agree that the number of days treatment per month which has been reported at some sites, warrants further investigation….In the first instance we will focus our investigation on those sites in your Loch Fyne table which have reported 10 or more azamethiphos uses in a single month. It may take some time to collect the necessary level of detail from the operators, but I will provide you with an update on our findings when they become available".*

Loch Roag

11.1 The Scottish Salmon Company runs all seven farms in east and west Loch Roag, all of which are sited on the migratory route for wild Atlantic salmon from the Langavat Special Area for Conservation, a one of only two SACs designated under strict European law (the Habitats Directive) on the west coast and in the western isles of Scotland, primarily for wild Atlantic salmon conservation.

11.2 The farms operated by The Scottish Salmon Company in Loch Roag are:

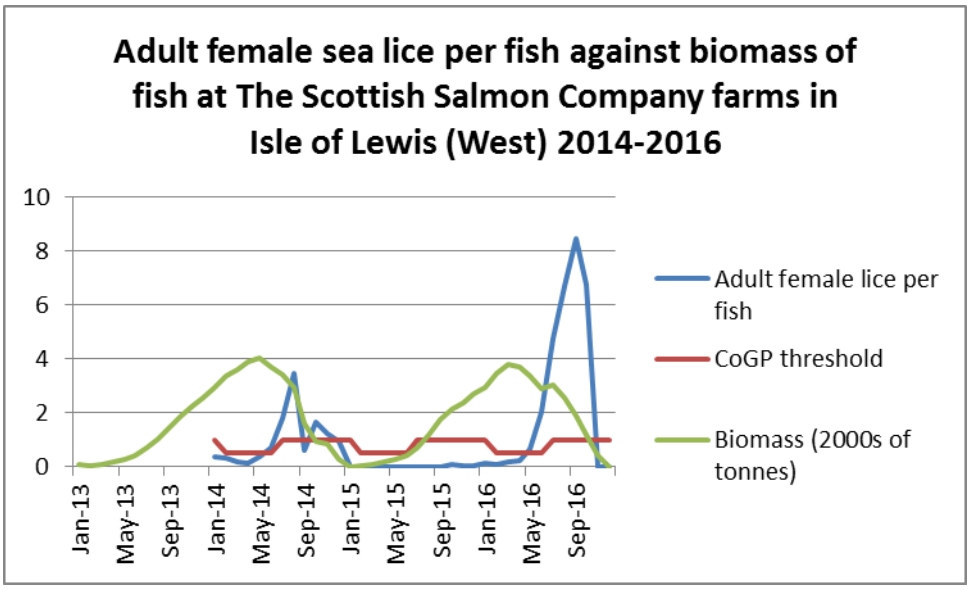
Eughlam
Taranaish
Vacasay
Kyles Vuia
Vuia Mor
Vuia Beg
Gousam

11.3 Again, in 2016, the Co-Op was selling smoked salmon products grown by The Scottish Salmon Company from Loch Roag on the west coast of the Isle of Lewis, including from Vuia Mor, which was labelled as RSPCA Assured. Freedom Food Limited had earlier certified the sites operated by The Scottish Salmon Company[28] at Eughlam, Gousam and Vuia Beag.

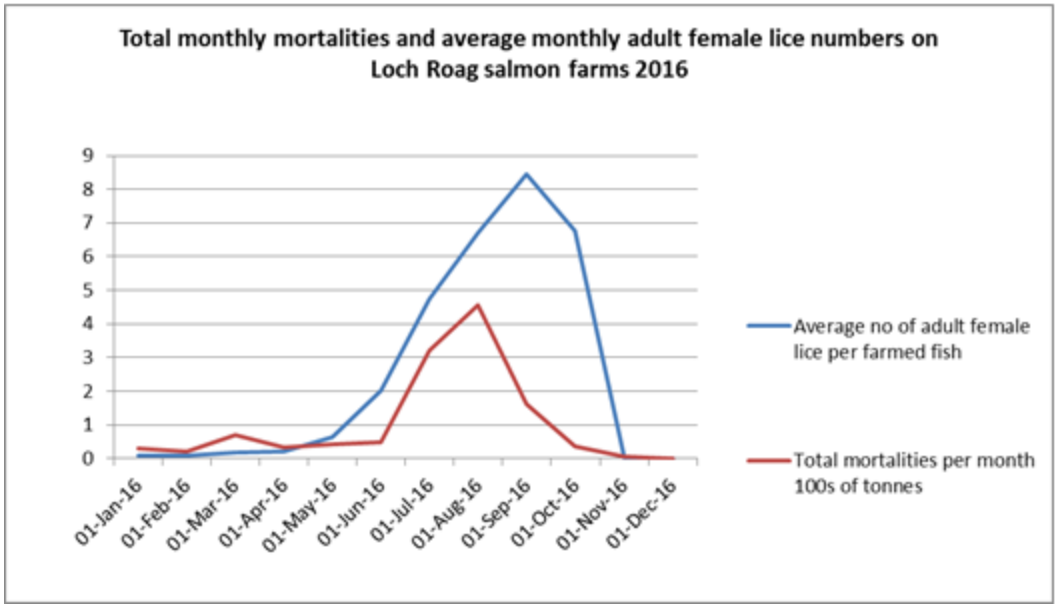
11.4 There has been considerable concern that escaped farm fish from the Loch Roag farms have interbred with wild stocks, weakening the population as a whole. In 2016, S&TCS submitted a formal complaint to the European Commission about the genetic introgression of the Langavat SAC wild salmon, by interbreeding with escapee farmed Norwegian-strain fish.

[28] Email from Gregory Brabon, Freedom Food 27th June 2012

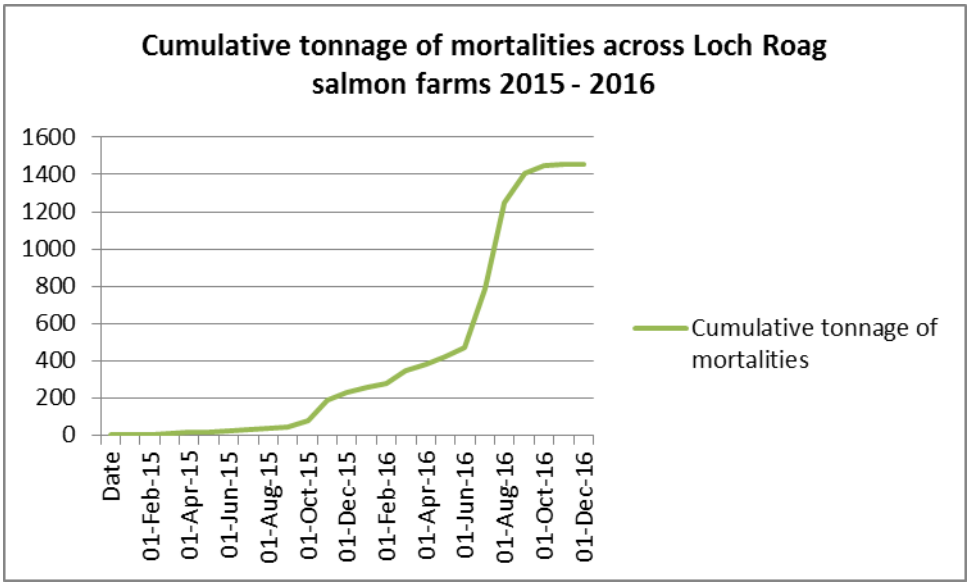
11.5 Towards the end of each of the last two production cycles, those wild fish have also been faced with mobile juvenile sea lice parasites leaving the Roag fish farms, in all probability in numbers many hundreds of thousands of times higher than they would expect normally to encounter in the wild. Average adult female sea lice numbers on The Scottish Salmon Company's farms in east and west Loch Roag reached a staggering 8.46 per farmed fish in September 2016, a level at which the Scottish Government had told the international North Atlantic Salmon Conservation Organisation in June 2016 that it would start enforcement action. As far as S&TCS is aware, the Scottish Government has taken no such action.



11.6 Sea lice on the Loch Roag farms were not only a problem for wild fish. The data on mortalities experienced across the ten Fyne farms shows a strong correlation between on-farm sea lice numbers and mortalities being experienced in the farms.



11.7 Over all the Loch Roag farms, SEPA data shows that the cumulative tonnage of mortalities - the weight of dead fish that have been removed from the cages during each month, not including fish that have been harvested as production[29] - reached over 1400 tonnes in the production cycle to December 2016.



11.8 If an assumption is made that the average weight across all Loch Roag farms of fish that suffered mortalities, which seems to have peaked in summer 2016, was about 3kg, that means approximately 400,000 to 500,000 farmed fish died in Loch Roag fish farms during the production cycle.

[29] http://aquaculture.scotland.gov.uk/glossary/glossary.aspx

Conclusions

12.1 Populations of wild salmonids on the west coast of Scotland are threatened by the marine salmon farming industry, more particularly sea lice parasites emanating from the fish farms and escapee farmed fish breeding with wild populations. Government statistics show that both salmon and sea trout populations on the west coast are far lower than in earlier years and sea trout particularly have vanished from parts of the aquaculture zone of the west of Scotland.

12.2 All fishery science points in the direction of marine open cage salmon farming being a major contributory factor to the problems being experienced in wild salmonid populations.

12.3 The RSPCA is a well-respected and long established charity and its wholly owned subsidiary, Freedom Food Limited, runs the RSPCA Assured scheme which certifies the production of farmed salmon at open cage marine farms in Scotland.

12.4 The RSPCA Welfare Standards for farmed salmon are drawn up in close collaboration with the fish farming and aquaculture industries. Although the focus of the RSPCA Assured scheme is the welfare of the farmed fish, the standards applied do also relate to wider environmental impact, including to wild salmonids.

12.5 Neither Freedom Food Limited nor the RSPCA publishes a list of salmon farms in Scotland certified by RSPCA Assured.

12.6 There are few published metrics that enable an assessment of whether the RSPCA Assured scheme has improved overall husbandry on Scottish fish farms, although the percentage of the Scottish salmon farming industry that is said to be certified by the RSPCA Assured scheme has dropped from 78% in 2012 to 67% in 2015.

12.7 Data on mortalities of farmed fish reported to the Scottish Environment Protection Agency between 2015 and 2016 suggest that a total of 41,130 tonnes of farmed salmon has died on Scottish fish farms generally as a result of one or more of fish diseases, infestation with parasites, damage caused by handling, crowding of fish, treatment losses and predation. As 67% of the salmon farming industry is RSPCA Assured, pro rata, this mortality would equate to roughly 27 million fish having died on RSPCA Assured farms between 2015 and 2016.

12.8 Further, the percentage by weight of mortality as against total production of the Scottish salmon farming industry by weight between 2013 and 2016 has almost doubled from under 7% to almost 14%.

Recommendations

13.1 As the wider environmental standards applied as part of the RSPCA Assured certification scheme are not rigorous enough and generally reflect minimum legal requirements only, the RSPCA should urgently review its certification as applied to salmon fish-farms.

13.2 The RSPCA should consider dropping all environmental standards from RSPCA Assured certification and concentrating solely on animal welfare issues relating to the farmed fish. The corollary of that must be that no certified farm or retail market outlet should be able to make environmental claims based on RSPCA Assured certification or use the certification in such a way as to mislead consumers that the certification implies good environmental performance.

13.3 Alternatively, the RSPCA must dramatically improve and make far more stringent those standards in the RSPCA Assured scheme that deal with wider environmental impact and impact on wild fish. It must do this in consultation with wild fish conservation bodies.

13.4 Any revised standards should include a requirement on all fish-farms to demonstrate complete openness in relation to weekly farm-specific sea-lice data, publication of Environmental Impact Plans (required under EVI 1.1) and all other environmental data, prior to any certification by RSPCA Assured.

13.5 The RSPCA and Freedom Food Limited should also publish a full list of all fish-farms certified as RSPCA Assured, with all certification reports, reports of visits and audits made to both certified or applicant farms and any remedial actions required, in order to allow proper public scrutiny of RSPCA Assured farms and to ensure that the RSPCA Assured scheme itself enjoys public confidence.