SCOTTISH SALMON WATCH

DISEASES

Scottish Ministers
Scottish Government
St. Andrew's House
Regent Road
Edinburgh
EH1 3DG

30 August 2021

Dear Scottish Ministers,

ISA in Scottish Salmon Farms

Further to the positive test for Infectious Salmon Anaemia Virus at Scottish Sea Farms in Loch Spelve in May what action is the Scottish Government taking to stop the spread of deadly ISA? What other salmon farms are affected and how many other positive cases have been detected?

Case No:	2021-0132	Date of visit:	14/05/2021
Time spent on site:	5.5 hours	Main Inspector:	[redacted]
Site No:	FS0253	Site Name:	Loch Spelve (B)
Business No:	FB0125	Business Name:	Scottish Sea Farms Ltd

Samples were screened for infectious salmon anaemia virus (ISAV) by QPCR as part of surveillance program for control of listed diseases. The samples tested positive for infectious salmon anaemia virus (ISAV) by QPCR and the sequence data confirmed to be ISAV HPR0, the non-pathogenic form of the virus. Additionally, an ISAV immunochemistry (IHC) assay that target against the pathogenic form of the virus (ISA-deleted nucleoprotein) was performed and confirmed to be negative for the pathogenic form.

ISAV

Pool Number	Endogenous control Cp value	Cp Values			Reported Result (PCR)
P1	15.18	35.23	37.01	36.63	POSITIVE

This is believed to be the first time ISA has been publicly reported in Scotland since an outbreak at Norwegian-owned Scottish Sea Farms and Grieg Seafood in Shetland in 2009. In 1998-9, an ISA outbreak in mainland Scotland (traced back to Scottish Sea Farms – formerly known as Hydro Seafoods GSP – in Loch Nevis and then spreading to Loch Creran, the Sound of Mull, Loch Linnhe, Kerrera, Lismore, Shuna and Loch Spelve) cost £100 and led to the loss of 200 jobs.

Here's an excerpt from the Scottish Government's Fish Health Inspectorate's report (Case # 2021-0132) dated 3 June 2021 for the RSPCA Assured salmon farm operated by Scottish Sea Farms at Dalnaha in Loch Spelve:

marinescotland science

Scottish Government
Riaghaltas na h-Alba
gov.scot

FISH HEALTH INSPECTORATE VISIT REPORT

SUMMARY FOR INFORMATION OF SITE OPERATOR

BUSINESS NO	FB0125	**DATE OF VISIT**	14/05/2021
SITE NO	FS0253	**SITE NAME**	Loch Spelve (B)
CASE NO	20210132	**INSPECTOR**	[redacted]

Section 1: Summary

The site was visited following a welfare complaint. During the physical inspection five fish were removed for diagnostic sampling.

Histopathology examination revealed mixed pathology. Integument displayed ulcerative bacterial dermatitis and the gill displayed complex gill pathology, although the reading of the gill, gut and pyloric caeca of some fish was compromised by autolysis artefacts. Liver of F1 displayed mild zonal haemorrhagic hepatocellular necrosis and glomerular necrosis, potentially linked to *Moritella* infection.

Due to gill health issues observed on site samples were screened for *Neoparamoeba perurans*, salmon gill poxvirus (SPGV) & *Paranucleospora theridion* (syn. *Desmozoon lepeophtherii*) by QPCR and tested positive for all three pathogens.

Samples were screened for infectious salmon anaemia virus (ISAV) by QPCR as part of surveillance program for control of listed diseases. The samples tested positive for infectious salmon anaemia virus (ISAV) by QPCR and the sequence data confirmed to be ISAV HPR0, the non-pathogenic form of the virus. Additionally, an ISAV immunochemistry (IHC) assay that target against the pathogenic form of the virus (ISA-deleted nucleoprotein) was performed and confirmed to be negative for the pathogenic form.

Vibrio sp. *Photobacterium* sp. and *Moritella viscosa* were identified, these can be pathogenic however the level and purity would not suggest they are implicated in current morbidity.

Additional information published along with (Case # 2021-0132) detailed Piscine Reovirus:

Complex gill issues diagnosed by FVG on 10/03/2021. FVG called onto site following mortality event. AGD diagnosed by FVG via swabs.
AGD scores improving since mid-April
Fish on site positive for salmonid gill pox, branchiomonas cysticola, piscine reovirus and AGD. Histo results from 13/05/2021, from Pharmaq Analytiq Ltd. Also tested for CMS, HSMI, IPNv but not detected.

Here's photos of farmed salmon at the RSPCA Assured salmon farm in Loch Spelve operated by Scottish Sea Farms (published by the Scottish Government's Fish Health Inspectorate via Case # 2021-0132 in August 2021):

Read more via Damning Disease Report for RSPCA Assured Scottish Sea Farms in Loch Spelve

The Fish Health Inspectorate's damning report blows claims by Scottish Sea Farms that seals are to blame for welfare problems in Loch Spelve out of the water. The fact that Infectious Salmon Anaemia is rearing its ugly head yet again on a Norwegian-owned salmon farm in Scotland is alarming but all too predictable. The ISA virus is a ticking time-bomb with the risk of spreading the deadly disease all too real. RSPCA Assured Scottish Sea Farms in Loch Spelve could be ground zero in another ISA disease outbreak. Remember that Scottish Sea Farms was the company caught spreading ISA around Scotland in both 1998-9 and 2009.

The Scottish Government should immediately quarantine Scottish Sea Farms and test all salmon farms in Scotland for Infectious Salmon Anaemia. Importing ova from Norway – and even Iceland and Ireland – is like playing a risky game of ecological roulette with deadly diseases, viruses and pathogens. Scottish Ministers must urgently close the borders to infectious diseases and viruses imported via ova and stop the spread of ISA dead in its tracks before it causes irreparable economic and environmental damage.

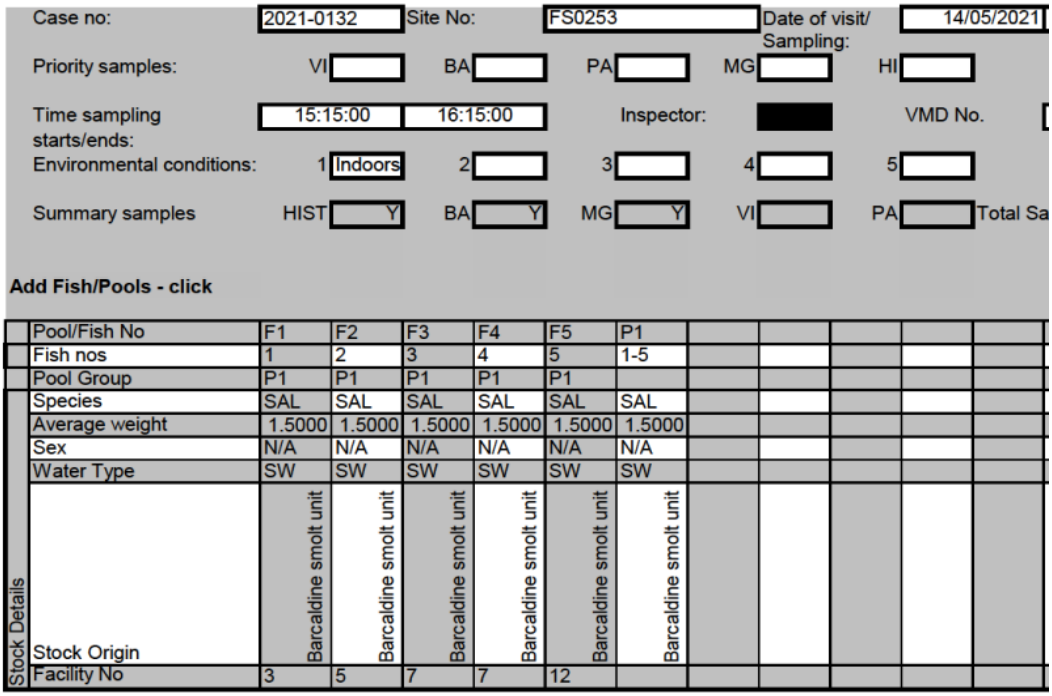
Scientific research reports that ISAV HPR0 – the variant reported at by the Fish Health Inspectorate at Scottish Sea Farms in Loch Spelve in May 2021 – can cause the spread of ISA disease. A scientific paper – "First field evidence of the evolution from a non-virulent HPR0 to a virulent HPR-deleted infectious salmon anaemia virus" - published in the Journal of General Virology in April 2017 (the experiments were carried out in Aberdeen at Marine Scotland Science) reported:

"The putatively non-virulent subtype of infectious salmon anaemia virus (ISAV), ISAV-HPR0, is proposed to act as a progenitor and reservoir for all virulent ISAVs and thus represent a potential risk factor for the emergence of infectious salmon anaemia (ISA) disease. Here, we provide the first evidence of genetic and functional evolution from an ISAV-HPR0 variant (FO/07/12) to a low-virulent ISAV virus (FO/121/14) in a Faroese Atlantic salmon marine farm…This documents that ISAV-HPR0 represents a reservoir and risk factor for the emergence of ISA disease."

A scientific paper published in Frontiers of Veterinary Science in December 2018 reported:

"There are two main variants of ISAV, one variant is highly virulent and associated with ISA outbreaks, termed HPR-deleted ISAV (HPR-del ISAV). The other variant (termed HPR0 ISAV) is assumed to be non-virulent. HPR0 ISAV was proposed in 2002 to be an ancestral form of HPR-del ISAV. A direct link between HPR0 ISAV and HPR-del ISAV remains to be demonstrated, but a strong indication of the evolution from HPR0 ISAV to HPR-del ISAV was recently reported from a Faroese Atlantic salmon marine farm. The transmission mechanisms behind primary ISA outbreaks depend on the introduction of either high virulent strains from unknown reservoirs or non-pathogenic strains of the ISA virus (HPR0 ISAV) that facilitate an evolution toward higher virulence. Therefore, an increased susceptibility of a salmon production site may introduce risk of a primary ISA outbreak."

The Fish Health Inspectorate's report (Case # 2021-0132) details how all the farmed salmon in the RSPCA Assured Loch Spelve salmon farm originated from Barcaldine Smolt Unit (a hatchery which imported potentially ISA-infected ova from AquaGen in Norway).



Case no:	2021-0132	Site No:	FS0253	Date of visit/ Sampling:	14/05/2021							
Priority samples:	VI		BA		PA		MG		HI			
Time sampling starts/ends:	15:15:00	16:15:00	Inspector:		VMD No.							
Environmental conditions:	1	Indoors	2		3		4		5			
Summary samples	HIST	Y	BA	Y	MG	Y	VI		PA		Total Sa	

Add Fish/Pools - click

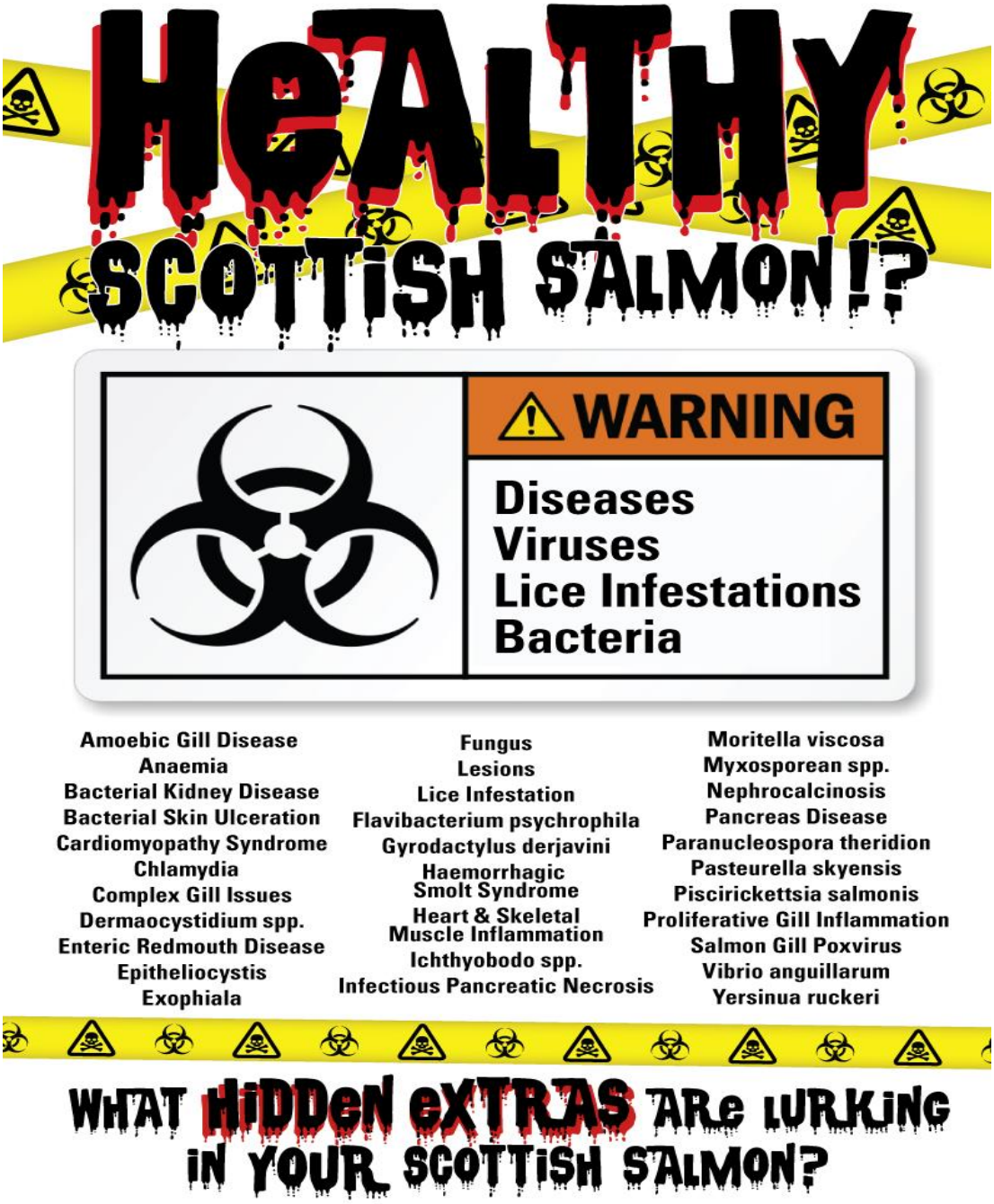
	Pool/Fish No	F1	F2	F3	F4	F5	P1					
	Fish nos	1	2	3	4	5	1-5					
	Pool Group	P1	P1	P1	P1	P1						
Stock Details	Species	SAL	SAL	SAL	SAL	SAL	SAL					
	Average weight	1.5000	1.5000	1.5000	1.5000	1.5000	1.5000					
	Sex	N/A	N/A	N/A	N/A	N/A	N/A					
	Water Type	SW	SW	SW	SW	SW	SW					
	Stock Origin	Barcaldine smolt unit	Barcaldine smolt unit	Barcaldine smolt unit	Barcaldine smolt unit	Barcaldine smolt unit	Barcaldine smolt unit					
	Facility No	3	5	7	7	12						

Samples

Samples were collected from five fish according to the table below:

Fish number	Pool number	Facility number	Species	Stage	Origin
1	1	3	Atlantic salmon (*Salmo salar*)	Grower 2020 S1 ~1.8kg	Barcaldine Smolt Unit
2	1	5	Atlantic salmon (*Salmo salar*)	Grower 2020 S1 ~1.2kg	Barcaldine Smolt Unit
3 and 4	1	7	Atlantic salmon (*Salmo salar*)	Grower 2020 S1 ~1.5kg	Barcaldine Smolt Unit
5	1	12	Atlantic salmon (*Salmo salar*)	Grower 2020 S1 ~1.5kg	Barcaldine Smolt Unit

Scottish Salmon Watch – as well as Hendrix Genetics (Landcatch) – has repeatedly warned Scottish Ministers of the risks associated with the import of potentially ISA-infected ova from Norway in particular. When will Scottish Ministers finally take action to stop the spread of viruses and deadly diseases on salmon farms?



The economic and ecological consequences of ignoring the risks are all too real. In 1998-9 an ISA outbreak traced to Norwegian-owned Scottish Seafarms (then owned by Hydro Seafoods

GSP) cost the industry £100 million and led to the loss of 200 jobs.

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Tuesday, 12 June, 2001, 05:22 GMT 06:22 UK

Report details disease links

ISA is said to have cost Scotland £100m

A disease which ravaged several Scottish salmon farms spread from a single outbreak in Loch Nevis, according to a new report.

The outbreak of infectious salmon anaemia cost £100m and led to the loss of 200 jobs.

The study by the Marine Laboratory in Aberdeen could not pinpoint the origin of the disease.

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See also:
- 16 Nov 00 | Scotland Salmon industry cash appeal
- 15 Dec 99 | Scotland More aid for salmon farmers
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- 06 Sep 99 | Scotland Salmon farmers win compensation
- 19 Aug 99 | Scotland Salmon farming restrictions lifted

In 2009, ISA hit Norwegian-owned Grieg Seafood in Shetland and Scottish Sea Farms. "Local evolution from an avirulent strain of ISAV; importation of ova; or association with movement of equipment could have caused the outbreak," concluded Marine Scotland Science.

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Deadly salmon infection detected

An infectious disease which can devastate farmed Atlantic salmon stocks has been detected on Shetland, the Scottish government has confirmed.

Infectious Salmon Anaemia (ISA) was discovered at one salmon farm site, which has been empty of fish since 21 December, in the Burra area.

An outbreak of ISA in 1998 severely damaged the Scottish salmon industry

"I vividly recall the difficulties for the Shetland salmon industry 10 years ago when ISA caused enormous financial problems"

Tavish Scott MSP

In July 2017, Fish Farming Expert reported:

ISA detected at AquaGen brood site

AquaGen says it has enough back-up capacity to meet orders but "exact delivery time and product type" may be affected.

A virulent variant of Infectious Salmon Anaemia (ISA) virus has been detected in broodfish from a Norwegian sea site operated by AquaGen, which supplies many of the eggs used in Scottish salmon farming.

In July 2017, Hendrix Genetics (owners of Landcatch) asked the Scottish Government "if the ISA outbreaks in Norway, in particular AquaGen, would have any effect on their ability to export eggs into Scotland".

In February 2018, a blistering email to Fergus Ewing (Cabinet Secretary for Rural Economy & Connectivity), the head Landcatch (owned by Hendrix Genetics) accused the Scottish Government of taking a "massive risk" by allowing salmon eggs from Norway and Iceland to flood 'Scottish' salmon farms citing the danger of "transfer of ISA from infected countries such as Norway".

In November 2018, an inspection of AquaGen's Holywood Salmon Farm (owned by Scottish Sea Farms up until September 2018) by the Scottish Government's Fisheries Health Inspectorate reported that: "The biosecurity measures plan for the site was inspected and found to be inadequately maintained".

In February 2019, Scottish Salmon Watch and The Ferret reported that fears over the import of Infectious Salmon Anaemia (ISA) to Scotland via infected eggs (ova) had delayed a shipment to a hatchery operated by Scottish Sea Farms at Barcaldine near Oban.

In March 2019, Insider reported that AquaGen had bought the Holywood Salmon Farm off Scottish Sea Farms and were planning an annual production of 50 million ova.

In April 2019, Scottish Salmon Watch wrote to Scottish Ministers calling for increased testing of farmed salmon for diseases and viruses (including Infectious Salmon Anaemia).

In April 2019, Scottish Salmon Watch called for a ban on imported ova due to fears over the spread of ISA which plagued Scottish salmon farming in the 1990s and in 2008/2009 (with a suspected outbreak in 2004).

In May 2019, a damning inspection by the European Free Trade Association's Surveillance Authority resulted in a ban on exports of Norwegian salmon ova.

In June 2019, Scottish Salmon Watch reported that over 50% of salmon farms in Scotland had tested positive for Piscine Reovirus.

In February 2020, Scottish Salmon Watch and The Ferret revealed that imports of salmon eggs (ova) from Norway were banned in May 2019 following fears of the spread of Infectious Salmon Anaemia.

“It beggars belief that Norway bans imports of Scottish ova yet the Scottish Government recklessly allows imports of ova from countries with a history of disease problems,” stated Don Staniford in a press release (24 February 2020). “Scottish Ministers should stop playing their high risk game of Norwegian, Icelandic and Irish roulette. Is deadly ISA already lurking on Scottish salmon farms?"

Data disclosed by the Scottish Government via FOI-19-02663 on 14 February 2020 details 3 million ova imported by AquaGen from Norway to Scotland in 2018 and 2019 - including to the

Scottish Sea Farms Barcaldine Hatchery officially 'opened' by Scotland's Minister for Public Finance and Digital Economy (Kate Forbes) and AquaGen's own Hollywood Salmon Farm (bought off Scottish Sea Farms and promoted by Scotland's Rural Economy Secretary, Fergus Ewing).

Date consignment due	Destination site name	Destination business name	Species	Stage	Number in consignment	Source Country	Import consignor
27/11/2018	Barcaldine Hatchery Incubation 1	Scottish Sea Farms Ltd	Salmon	Ova	1,250,000	Norway	AquaGen AS
27/11/2018	Barcaldine Hatchery Incubation 3	Scottish Sea Farms Ltd	Salmon	Ova	1,250,000	Norway	AquaGen AS
04/12/2018	Quoys Hatchery	Cooke Aquaculture Scotland Ltd	Salmon	Ova	128,000	Norway	AquaGen AS
17/01/2019	Holywood Salmon Farm	AquaGen Scotland Ltd	Salmon	Ova	42,000	Norway	AquaGen AS
26/02/2019	Ardtaraig Hatchery	Cooke Aquaculture (Freshwater) Ltd	Salmon	Ova	367,500	Norway	AquaGen AS

In April 2020, the Scottish Government admitted that imported eggs (ova) were not tested for ISA or PRV.

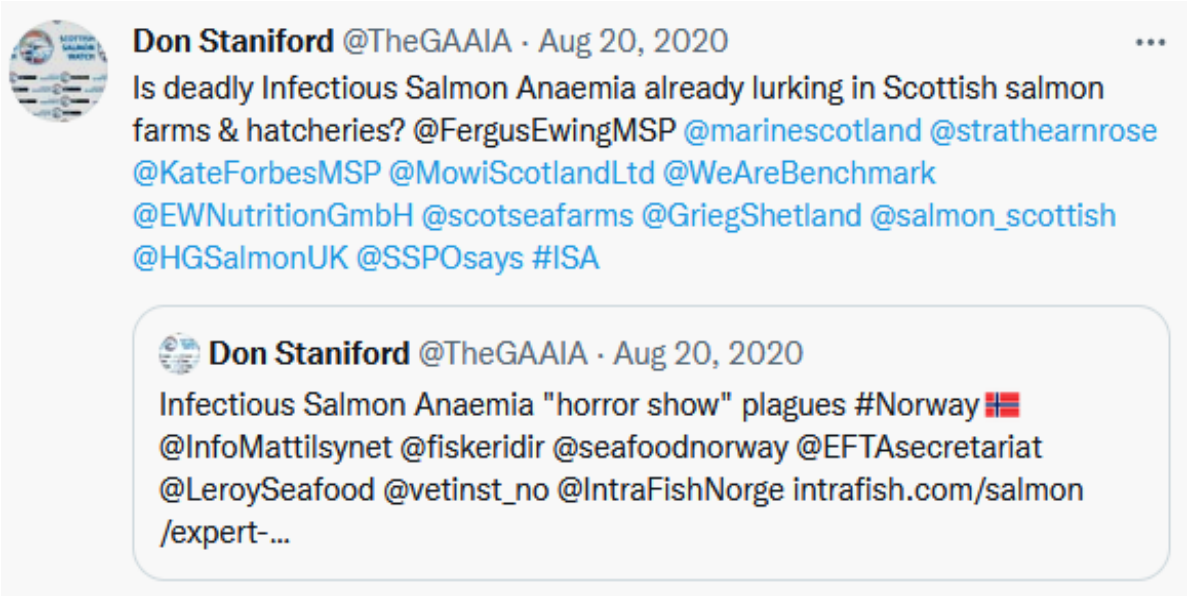
In August 2020, a leading veterinarian warned that salmon farms in Norway were being ravaged by an ISA "horror show" with cases of ISA rising alarmingly during 2020.

> "We must be vigilant, or we will see a horror show with a large spread of ISA infection," Ole Bendik Dale, an aquatic biosafety section leader at the Norwegian Veterinary Institute, told **IntraFish**.
>
> "We come across new variants of the virus, variants we have not seen before. This indicates a turn for the worse."

Dale fears that ISA is now present as a harmless variant of the virus in hatcheries, becoming pathogenic over time.

"Hidden ISA infection can be difficult to detect. We are unsure how effective test methods are. If there are one million individuals in a facility and there are only a few who carry the virus, how can you be sure that you are testing the right individuals? Testing is helpful, but not something you can blindly trust. The biosafety measures must be in place," said Dale.

In August 2020, Scottish Salmon Watch asked the Scottish Government if ISA was back in Scotland.



In October 2020, Scottish Salmon Watch [revealed that Scottish Ministers were warned by Hendrix Genetics (Landcatch)] about "an absurdly flawed bio-security self certification policy that risks the import of further Norwegian disease, a threat capable of destroying Scotland's entire salmon industry" back in 2019.

Scottish Government data published in October 2020 - sourced from the Scottish Fish Farm Production Survey 2019 – detailed how foreign imports of ova (especially from Norway) have flooded 'Scottish' salmon farms:

Table 18: Source, number (000's), previous year's estimate of ova laid down to hatch during 2010-2019 and projected production for 2020

Year	In house broodstock	Out-sourced GB broodstock	GB wild broodstock	Foreign ova	Total	Previous year's estimate
2010	13,744	26,220	0	29,657	69,621	61,011
2011	15,664	14,630	0	34,322	64,616	54,526
2012	18,556	9,981	0	34,700	63,237	55,723
2013	16,996	8,263	0	41,315	66,573	49,249
2014	14,418	2,725	10	53,684	70,837	48,149
2015	6,479	223	10	61,463	68,175	65,284
2016	5,884	4	0	58,458	64,346	59,604
2017	6,228	360	0	59,158	65,746	60,673
2018	8,780	200	0	61,499	70,479	67,374
2019	5,516	1,724	75	63,931	71,246	71,571
2020						70,598

The number of ova laid down to hatch was 71.2 million, an increase of 0.8 million (1.1%) on the 2018 figure. The majority of the ova (89.7%) were derived from foreign sources, this being an increase of 2.4 million (4.0%) on the 2018 figure. Supplies derived from GB broodstock decreased by 1.7 million, an 18.5% decrease on the 2018 figure. In 2019, 75,000 ova from GB wild broodstock were laid down to hatch, ova derived from wild stocks are generally held and hatched for wild stock enhancement by the aquaculture industry in cooperation with wild fisheries managers.

Imports and Exports

Table 22a: Source and number (000's) of salmon ova, fry, parr and smolts imported during 2010-2019 derived from health certificates

Import Year	Ova				Fry, Parr and Smolts	
	EU Member States	EFTA		Total	EU Member States	EFTA-Norway
		Iceland	Norway			
2010	2,150	0	26,533	28,683	452	0
2011	3,400	0	35,851	39,251	800	0
2012	10,134	0	23,849	33,983	0	0
2013	10,700	2,719	35,044	48,463	55	0
2014	5,218	3,813	49,831	58,862	1,602	1,748
2015	4,815	8,978	45,926	59,719	2,118	365
2016	5,444	5,324	38,602	49,370	1,956	0
2017	7,000	13,883	37,025	57,908	2,012	0
2018	7,250	10,116	48,430	65,796	1,700	0
2019	10,184	26,352	23,673	60,209	297	0

Georgia Edkins
@Georgia_Edkins

Record numbers of foreign salmon eggs are being imported by Scottish fish farms - @TheGAAIA in today's Scottish Mail on Sunday:

10

By Georgia Edkins

90% of Scottish salmon 'ISN'T from Scotland'

66m eggs shipped in from abroad

KNOWN as the king of fish, the Scottish salmon is prized by diners around the world.

But campaigners warn that millions of salmon sold by the country's fish farms should not be regarded as Scottish at all.

For fish farms are importing record numbers of foreign salmon eggs – mostly from Norway and Iceland – to boost stocks.

It is thought that around 90 per cent of salmon eggs hatching in Scotland are foreign.

More than 65 million foreign eggs, or ova, were shipped to Scottish fish farms last year, up from 57.9 million in 2017.

The foreign ova are hatched in Scotland and the fish reared in sea cages. Once they have been harvested and packaged, they are marketed as Scottish, despite originally hailing from abroad.

Fish farmers insist importing eggs is vital to grow the salmon industry, which they hope will double in value by 2030.

But critics claim the figures are evidence of 'food fraud' and that consumers are being duped into believing they are buying completely Scottish fish. Some also fear foreign ova could lead to the spread of devastating viral diseases.

Last night, campaigners called for an end to the 'deceptive' use of foreign salmon eggs.

Scottish Salmon Watch's Don Staniford told The Scottish Mail on Sunday: 'This is deceptive marketing and it is a salmon scandal.

'Twenty years ago Scottish salmon came from domestic eggs but the industry are ramping up the number of eggs. Scottish salmon should now be renamed Norwegian salmon with "Made in Norway" stamped on the packaging.

'They are trading on Scotland's good image. We want the importing of eggs to stop.'

Salmon egg imports are monitored by the Scottish Government through its Marine Scotland Directorate. In the first three months of this year 27.4 million eggs were shipped into the country.

Mr Staniford said: 'Importing eggs is a public health hazard. Consumers are thinking salmon is a healthy product but it is sourced from disease-laden farms.'

In 2017, one of the biggest Norwegian fish egg exporters to Scotland suffered an outbreak of infectious salmon anaemia (ISA).

This virus causes severe anaemia in fish, which can develop pale scales and abnormal swimming patterns. The import of eggs to Scotland only resumed once the Norwegian exporter became ISA-free again.

But there is no statutory duty to sample eggs before they are introduced into Scottish waters, according to the Scottish Government.

However, Hamish Macdonell, director of strategic engagement for the Scottish Salmon Producers' Organisation, said: 'All imported eggs are subject to stringent legal controls to ensure their highly regulated biosecurity.

'All of the eggs used by Scottish salmon farmers hatch and complete their life cycle in Scotland. Scottish provenance is defined by the environment in which the fish are grown.

'The number of eggs imported has gone up, from 59.7 million in 2015 to 65.8 million in 2018, a rise of 10 per cent, which is in line with the industry's ambition to achieve 5 per cent year-on-year growth.'

KING OF FISH: Scottish salmon

'Should be renamed as Norwegian'

9:21 AM · Jul 7, 2019

In November 2020, Scottish Salmon Watch asked if ISA had moved from Norway to mainland Scotland.

In April 2021, Scottish Salmon Watch asked Scottish Ministers if ISA was back in Scotland.

In July 2021, Scottish Salmon Watch asked if ISA was back again in the wake of news of ISA outbreaks in Norway (including at Leroy – the co-owner of Scottish Sea Farms).

Read more background via:

Breaking News: ISA reported at RSPCA Assured Scottish Sea Farms on the Isle of Mull
Media Backgrounder: Scottish Salmon's Recurring ISA Nightmare
Media Backgrounder: Norway's Infectious Salmon Aquacalypse – Going Global Since 1984!

In conclusion, please provide data on the number of positive results for ISA (including both HPR0 ISAV and HPR-deleted ISAV) in farmed salmon in hatcheries and sea farms as well as imported and domestically produced ova. Please detail any actions being taken by the Scottish Government to deal with the ISA problem in Scotland.

Please note the recommendations of a report published by the Royal Society of Edinburgh in 2002 in the wake of the 1998-9 ISA outbreak in Scotland:

The Royal Society of Edinburgh

THE SCIENTIFIC ISSUES SURROUNDING THE CONTROL OF INFECTIOUS SALMON ANAEMIA (ISA) IN SCOTLAND

A Report of the Royal Society of Edinburgh Working Party on Infectious Salmon Anaemia

There has been anecdotal and unconfirmed evidence that the ISA virus is prevalent in open waters of Scotland as distinct from in and around fish farms, and limited and fragmentary evidence that it occurs also in other species of fish (paragraph 13, 14, 52). **We conclude that it is impossible to establish on the basis of presently available evidence whether this is the case or whether the virus is exotic to EU waters**. We note that the Fisheries Research Services (FRS) survey of the presence of ISA virus in wild salmon and other fish has been stopped. **We recommend that the survey for ISA virus in wild fish be re-established** (paragraph 52). **We further recommend that there should be extended surveillance of Scottish salmon farms for the ISA virus to determine whether, in the absence of the disease, the virus is still present**.

It is important that continued effort be sustained on surveillance for ISA in Scotland because there is always the possibility that ISA may recur. **We believe that the current eradication policy through withdrawal be continued in confirmed cases of ISA** (paragraphs 50-51). **We also recommend that the scientific criteria for the category "suspicion" of ISA should be re-examined and clearly defined** (paragraphs 53, 59). In the event of suspicion, the recommendations of the Joint Government/Industry Working Group on ISA provides a good basis for management of a potential outbreak (paragraphs 51, 52).

We are fearful that current policy disadvantages Scotland's salmon broodstock industry. The procedures advocated by the Joint Government/Industry Working Group on ISA do not well address the broodstock industry's needs and could result, in certain circumstances, in serious loss of its unique gene pool and resulting serious financial damage. **We recommend that the regulators and the broodstock industry together address the changes necessary to the current regulations to take account of the needs of the Scottish broodstock industry** (paragraph 59).

Please therefore provide details of any "extended surveillance of Scottish salmon farms for the ISA virus". For example, how many samples of farmed salmon (in both hatcheries and sea farms) have been tested annually by the Scottish Government since 2002 and how many samples of farmed salmon have tested positive for ISA (including both HPR0 ISAV and HPR-deleted ISAV)?

If the "extended surveillance of Scottish salmon farms for the ISA virus" failed to materialize please provide information on any testing by salmon farming companies including Scottish Sea Farms, Mowi, The Scottish Salmon Company, Grieg Seafood, Cooke, Loch Duart and Organic Sea Harvest (the foreign owned/controlled companies who together account for 99% of 'Scottish' salmon farming production).

Please also provide information on any scientific studies into the spread of ISA and the presence of ISA (both HPR0 ISAV and HPR-deleted ISAV) in farmed salmon in Scotland. Please note that the authors of a 2017 scientific paper – "First field evidence of the evolution from a non-virulent HPR0 to a virulent HPR-deleted infectious salmon anaemia virus" – conducted the experiments in Aberdeen at Marine Scotland Science.

Please consider this an official request for information under the relevant FOI and Environmental Information regulations.

Yours sincerely,

Don Staniford

Director, Scottish Salmon Watch