Scottish Salmon Watch, 24 February 2020

SCOTTISH SALMON WATCH

DISEASES

'Nightmare Scenario': Norwegian Salmon Egg Exports Banned Due to Disease Risks

- Critical EFTA surveillance report lead to ban in June 2019 (still in place in Feb 2020)
- Infectious Salmon Anaemia cripples Norway leaving companies importing eggs from Stofnfiskur in Iceland (no imports from Norway after 22 May 2019 shipment to Mowi)

Freedom of Information documents and data disclosed by the Scottish Government to Scottish Salmon Watch on 14 February 2020 via FOI-19-02663 [1] reveal:

- In June 2019, exports of Norwegian salmon eggs (ova) were banned due to the risk of spreading Infectious Salmon Anaemia (ISA) following a critical inspection by the European Free Trade Association's Surveillance Authority (ESA) in May 2019 [2]

- "Norway is unable to ensure that farmed fish/shellfish sent for export to other EEA states will not affect the health of farmed fish/shellfish in those receiving countries," explained the Scottish Government in a letter to Scottish Salmon Watch on 14 February 2020. "As of the date of this communication, the suspension remains in place as corrective measures are taken and implemented."

- "ESA found that Norway must improve the controls of diseases in farmed fish/shellfish that will be traded in the EEA," reported ESA in a press release dated 30 September 2019. "Currently, Norway cannot fully ensure that farmed fish/shellfish sent from Norway to other EEA-states does not affect the health of farmed fish/shellfish in the receiving countries."

- "At the time of the mission there was no reliable system in place in Norway enabling identification of farms which have been granted ISA-free status," detailed the ESA report dated 23 September 2019. "Moreover, in the majority of cases, such status has been granted without or with very limited involvement of the NFSA [Norwegian Food Safety Authority] staff prior to the stage when the formal application is forwarded to

the NFSA. The lack of official verification by the NFSA of surveillance activity undertaken to prove freedom from ISA casts significant doubt on the reliability of the statements included in the declaration of free status for compartments submitted by the NFSA since it is not in a position to ascertain the accuracy of the information being certified or ensure that no conflict of interest compromises the process."

"Norway has submitted several declaration for dependent Infectious Salmon Anaemia (ISA)-free compartments: i.e. sites which are dependent on the health status of the surrounding water," detailed the ESA report published in September 2019. "However, in these cases Norway does not apply additional disease surveillance activities to confirm that the sea waters surrounding element of the dependent compartment (e.g. neighbouring salmon farm or susceptible species of wild fish) can also be considered free of ISA. The mission team considers that due to the lack of surveillance in surrounding waters and the absence of any additional measures to prevent the introduction of ISA to sea sites declared free of ISA, such dependent compartments should not be declared and certified for intra-EEA trade and export to third countries as ISA-free compartments."

Conclusion:

34. There is currently no reliable definitive list of ISA-free compartments and zones publicly available for Norway. The information currently available in Norwegian legislation and on the NFSA's website is inaccurate and contradictory. This, combined with the use of inconsistent terminology, has the potential to mislead officials and interested parties regarding which areas in Norway are disease free and from which certification and trade of live fish and products thereof may take place.

Conclusions

89. Due to delays in withdrawing ISA free status, compartments that no longer fulfil the requirements of ISA-free status still appear on the list of ISA-free compartments in the relevant Norwegian legislation. This precludes the possibility of relying on that list to ascertain conclusively that aquaculture animals originate from ISA free areas.

- Norway tried to have ban lifted twice in November 2019 but failed (as of 14 February 2020 the ban is still in place so Scottish salmon farms cannot import ova from Norway)
- Fergus Ewing raised the issue with the Norwegian Government in late November 2019

- FOI documents cited "serious short falls" & "regulatory short comings in Norway"
- "We cannot accept exports from Norway until authorities are able to attest to ISA disease freedom," admitted an internal Scottish Government memo in November 2019

- "Yet another nightmare scenario and example of why we are rigorous in our implementation of the regulations and adherence to surveillance and control requirements to evidence and maintain disease status," said the Scottish Government in October 2019

- "Scottish salmon production is heavily reliant upon the import of Norwegian ova ~ 90% of ova imports come from Norway" claimed the Scottish Government in October

2019. "Scotland is free from ISA, no imports from Norway can be accepted unless an attestation of disease freedom can be signed by Norwegian Authorities."

- "In 2018 we imported 48 million salmon ova (41 consignments) from Norway and nearly 24 million this year (21 consignments)," stated an internal Scottish Government memo in October 2019

- Salmon farmers in Scotland receive Norwegian ova from Mowi Norway (Tveitavag), Aquagen (Rimstad), Salmobreed, Grieg Seafood Rogaland (Erfjord Stamfisk) and AS Bolaks (Eikelandsosen and Nordveitgrend)

- In the few months preceding the ban in June 2019, 10 million ova were imported from Mowi Norway to Scotland at sites operated by Mowi Scotland and Finfish Ltd.

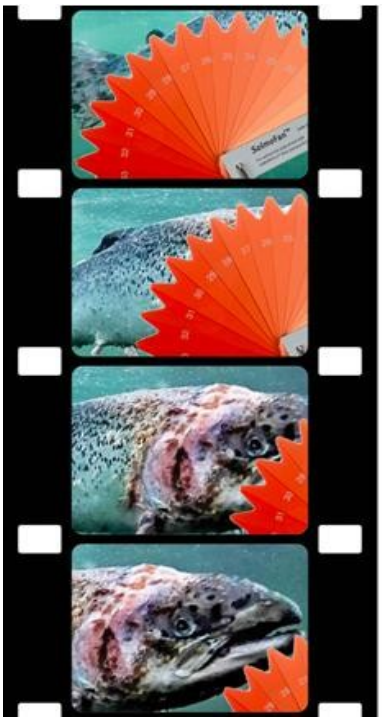
Date consignment due	Destination site name	Destination business name	Species	Stage	Number in consignment	Source Country	Import consignor
04/04/2019	Lochailort Recirculation Hatchery	Mowi Scotland Ltd	SAL	OVA	1,537,191	Norway	Mowi Norway
09/04/2019	Inverpolly	Finfish Ltd	SAL	OVA	1,322,403	Norway	Mowi Norway
10/04/2019	Inverpolly	Finfish Ltd	SAL	OVA	1,247,597	Norway	Mowi Norway
15/05/2019	Inchmore	Mowi Scotland Ltd	SAL	OVA	1,300,000	Norway	Mowi Norway
17/05/2019	Inchmore	Mowi Scotland Ltd	SAL	OVA	1,300,000	Norway	Mowi Norway
22/05/2019	Lochailort Recirculation Hatchery	Mowi Scotland Ltd	SAL	OVA	3,200,000	Norway	Mowi Norway

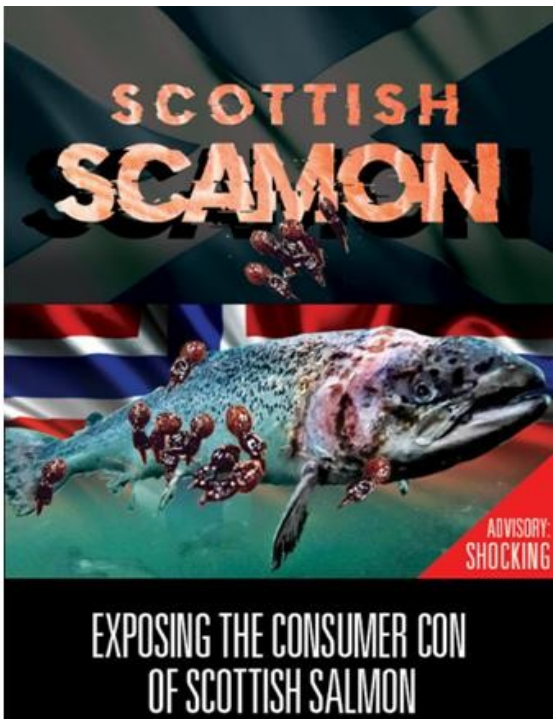
- Between January and 2 April 2019, another 13.8 million ova were imported from Norway including to AquaGen's Hollywood Salmon Farms in Dumfries, Landcatch's Ormsary Hatchery, Mowi's Lochailort Recirculation and Inchmore Hatcheries, Cooke Aquaculture's Ardtaraig Hatchery, Grieg Seafood's Girlsta Hatchery and The Scottish Salmon Company's Kinlochmoidart Hatchery.

Date consignment due	Destination site name	Destination business name	Consignee Business name (if different from destination business)	Species	Stage	Number in consignment	Source Country	Import consignor
16/01/2019	Mill Burn (Old Mill)	Kintail Hatchery	Migdale Smolt Ltd	Salmon	Ova	2,000,000	Norway	Grieg Seafood Rogaland
17/01/2019	Holywood Salmon Farm	AquaGen Scotland Ltd		Salmon	Ova	42,000	Norway	AquaGen AS
24/01/2019	Niall Bromage Freshwater Field Station	University of Stirling		Salmon	Ova	30,000	Norway	MOWI Norway
29/01/2019	Mingarry Hatchery	Hebridean Smolts Ltd	The Scottish Salmon Company	Salmon	Ova	682,500	Norway	Grieg Seafood Rogaland
30/01/2019	Allt Mhor	JS Salmon Ltd	Kames Fish Farming	Salmon	Ova	500,000	Norway	Grieg Seafood Rogaland
30/01/2019	Ormsary Hatchery	Landcatch Natural Selection Ltd	The Scottish Salmon Company	Salmon	Ova	755,300	Norway	Grieg Seafood Rogaland
04/02/2019	Lochailort Recirculation Hatchery	Mowi Scotland Ltd		Salmon	Ova	1,563,000	Norway	MOWI Norway
05/02/2019	Lochailort Recirculation Hatchery	Mowi Scotland Ltd		Salmon	Ova	1,537,000	Norway	MOWI Norway
05/02/2019	Inchmore	Mowi Scotland Ltd		Salmon	Ova	1,000,000	Norway	MOWI Norway
07/02/2019	Kinlochmoidart Hatchery	The Scottish Salmon Company		Salmon	Ova	576,000	Norway	Grieg Seafood Rogaland
13/02/2019	Mingarry Hatchery	Hebridean Smolts Ltd	The Scottish Salmon Company	Salmon	Ova	30,000	Norway	Grieg Seafood Rogaland
20/02/2019	Girlsta Hatchery	Grieg Seafood Shetland Ltd (Hatchery)		Salmon	Ova	1,800,000	Norway	Grieg Seafood Rogaland
26/02/2019	Ardtaraig Hatchery	Cooke Aquaculture (Freshwater) Ltd		Salmon	Ova	367,500	Norway	AquaGen AS
28/03/2019	Lochailort Recirculation Hatchery	Mowi Scotland Ltd		Salmon	Ova	1,350,000	Norway	MOWI Norway
02/04/2019	Lochailort Recirculation Hatchery	Mowi Scotland Ltd		Salmon	Ova	1,562,809	Norway	MOWI Norway

- Fergus Ewing "is eager to ensure our lines and approach is aligned with industry" [stated the Office of the Cabinet Secretary for Rural Economy in November 2019](). "We have to be able to argue that our representations have actually assisted the industry in this case"

- "Imports are essential for the functioning of our salmon industry in particular" [admitted the Scottish Government in an email to DEFRA in October 2019]()
- "It certainly will have a significant impact if there is an impasse into the autumn, around 90% of our salmon ova are foreign sourced, the vast majority from Norway," [stated an internal Scottish Government email in June 2019]()





- "Currently, the salmon production in Scotland and the trout production in UK are fully relying on egg imports," said the CEO of AquaGen to the Department for International Trade in June 2019. "This makes the production vulnerable, and is one of the reasons we are establishing egg production in Scotland. The planned production this year is however not sufficient to support all the salmon producers in Scotland. A stop in egg exports could damage the Scottish salmon production severely....The main issue is that if the salmon farmers in Scotland are short of eggs, the salmon production just stops, nothing less."

"The reason we ask for this is we do not want to be used nor seen as the bad guys, we fully support the Scottish industry and indeed respect the Scottish governments decision around Norway," stated Hendrix Genetics (Landcatch) in June 2018. "After all we have moved on and no longer have our own broodstock in Scotland"

Infectious Salmon Anaemia (ISA) is a deadly notifiable disease which must be reported to the World Organisation for Animal Health. ISA is currently ravaging salmon farms in Norway and plagued Scottish salmon farms in 1998-9 and again in 2009 [3]

Read more below and via: FOI Dossier: Norwegian Salmon Egg Exports Banned Due to Disease Risks (February 2020)

Key Emails Disclosed by the Scottish Government via FOI-19-02663:

From: [Redacted] SG staff
Sent: 22 November 2019 13:19
To: [Redacted] SG staff
Cc: Palmer MR (Mike) <Mike.Palmer@gov.scot>; [Redacted]<[Redacted]@scotland.gsi.gov.uk>
Subject: RE: Briefing and Itinerary - Mr Ewing's visit to Norway 24-26 November

Updated OVA briefing.docx

Hey [Redacted]

Please find attached updated briefing so insert into the pack.

Grateful if you could provide the below text in response;

The ova annex has been updated to include additional background information on the reasons for the suspension and include further details on why the suspension has not yet been lifted. I've also increased information under stakeholder views which explains the industries current position.

In very short summary, there were some serious short falls found with regard to Norway's ability to provide assurance that the compartments they are trading from are free from infectious salmon anaemia. The suspension was recommended until Norway could put forward a justifiable list of ISA free compartments. That process has been delayed on two occasions. The NFSA was due to submit their suggest list to EFTA on 1 November. They did not meet this deadline and we have just had feedback from the Commission that they are still working to bring together documentation. We should press that this list is finalised urgently and shared with us when it is submitted. The suspension will not be lifted until the list is provided to EFTA and they are satisfied Norway can assure that they are free from ISA.

We cannot accept exports from Norway until authorities are able to attest to ISA disease freedom. That process is for Norway and EFTA. For our part, we must apply the pressure that we can to ensure that the situation is resolved as quickly as is possible, whilst respecting that trade can only take place on the basis of assurance of ISA freedom.

The industry accepts that regulatory short comings in Norway have been exposed and that the ban is in place in order to protect the interests of trading partners and Scotland's ISA free disease status. For minimal impact, the industry would like to see the ban lifted by January at the latest. If the Norwegian Minister suggests that this date will not be met, we will engage in further contingency planning discussions with industry in order to reopen previously used broodstock sites, which would allow the stripping of fish in Scotland and create an alternative ova supply.

[Redacted]
[Redacted]

Marine Scotland – Aquaculture, Crown Estate, Recreational Fisheries, EMFF and Europe
[Redacted]@gov.scot
Web: http://www.scotland.gov.uk/marinescotland
Mail: Scottish Government, 1B North, Victoria Quay, Edinburgh EH6 6QQ

From: Cabinet Secretary for the Rural Economy <CabSecRE@gov.scot>
Date: Friday, 22 Nov 2019, 11:40 am
To: [Redacted]@gov.scot
Cc: [Redacted]@gov.scot, Director of Marine Scotland Mailbox <Directormarinescotland@gov.scot>, [Redacted] Mike.Palmer@gov.scot, [Redacted], Cabinet Secretary for the Rural Economy <CabSecRE@gov.scot>
Subject: RE: Briefing and Itinerary - Mr Ewing's visit to Norway 24-26 November

[Redacted],

Mr Ewing has had sight of the briefing and is keen to understand issues surrounding OVA and the reasons why Norwegian authorities have not lifted the suspension.

Furthermore, the Cab Sec is eager to ensure our lines and approach is aligned with industry and that we fully understand problems and have a plan on how to arrive at solutions, noting that we have to be able to argue that our representations have actually assisted the industry in this case.

Grateful if briefing could reflect the above.

Thanks,
[Redacted]

[Redacted]
Cabinet Secretary for the Rural Economy
CabSecRE@gov.scot
0131 24 [Redacted]

From: [Redacted]@gov.scot
Sent: 06 November 2019 21:33
To: Cabinet Secretary for the Rural Economy <CabSecRE@gov.scot>; Minister for Trade, Investment and Innovation <MinisterTII@gov.scot>
Cc: Cabinet Secretary for the Environment, Climate Change and Land Reform <CabSecECCLR@gov.scot>; Minister for Rural Affairs and the Natural Environment <MinisterRANE@gov.scot>; Higgins K (Kate) <Kate.Higgins@gov.scot>; Dobson L (Leanne) <Leanne.Dobson@gov.scot>; Palmer MR (Mike) <Mike.Palmer@gov.scot>; [Redacted]@gov.scot>; Voas S (Sheila) <Sheila.Voas@gov.scot>; [Redacted]@gov.scot>; [Redacted]@gov.scot>; [Redacted]@gov.scot>; [Redacted]@gov.scot>; [Redacted]@gov.scot>; [Redacted]@gov.scot[Redacted]@gov.scot>; [Redacted]@gov.scot>; [Redacted]@gov.scot>; [Redacted]@gov.scot>; Communications Rural Economy & Environment <CommunicationsRuralEconomy&Environment@gov.scot>; [Redacted]@gov.scot>; [Redacted]@gov.scot>; [Redacted]@gov.scot>; Black G (Graham) <Graham.Black@gov.scot>; Director of Marine Scotland Mailbox <Directormarinescotland@gov.scot>; [Redacted]@scotland.gsi.gov.uk>; Mcdonnell T (Tim) <Tim.Mcdonnell@gov.scot>; Moffat C (Colin) (MARLAB) <Colin.Moffat@gov.scot>; [Redacted]@gov.scot>; [Redacted]@gov.scot>
Subject: 6 November update - OVA - RE: Update - To note - TEMPORARY SUSPENSION OF EXPORTS OF SALMON AND RAINBOW TROUT OVA TO SCOTLAND FROM NORWAY - Aquaculture

PS Cabinet Secretary for the Rural Economy

Mr Ewing will wish to be aware that a meeting of the Farmed Fish Health Steering Group took place yesterday. The industry remain concerned about the further delay to the resumption of ova exports from Norway. [Redacted] (Mowi) and [Redacted] (Scottish Sea Farms) expect that they can source stock from elsewhere until the end of the year, but may face ova sourcing problems in Q1 in 2020 if the situation is not resolved. The SSPO were also present at the meeting and we will pass a further update to them to distribute to their membership to ensure that all producers are up to date with the situation as it changes.

Scottish Sea Farms will hold contingency planning discussions with Scottish Government's Fish Health Inspectorate around the potential use of authorised broodstock sites in Scotland to source stock for the production of additional ova in Scotland next year if required.

We will meet with the CEO of AquaGen Norway and the MD of AquaGen Scotland on 4 December. Earlier this year, AquaGen purchased an egg production facility in Dumfries from Scottish SeaFarms. They have been upgrading the facility and working through some water quality issues which are affecting production at the site; https://aquagen.no/en/2019/03/01/aquagen-buys-scottish-sea-farms-freshwater-hatchery/

We will keep Ministers updated

Best regards

[Redacted]
[Redacted]
Marine Scotland – Aquaculture, Crown Estate, Recreational Fisheries, EMFF and Europe
Tel: +44 (0)131 244 [Redacted]
Mob: [Redacted]
E-mail: [Redacted]@gov.scot
Web: http://www.scotland.gov.uk/marinescotland
Mail: Scottish Government, 1B North, Victoria Quay, Edinburgh EH6 6QQ

gov.scot

From: [Redacted]@gov.scot>
Sent: 14 October 2019 10:15
To: [Redacted] <[Redacted]@gov.scot; [Redacted]@gov.scot; [Redacted]@gov.scot; [Redacted]@gov.scot; [Redacted]@gov.scot; [Redacted]@gov.scot; [Redacted]@gov.scot; [Redacted]@scotland.gsi.gov.uk
Subject: RE: NSFA - ISA free - ova suspension

Norwegian Imports 2018 2019.xlsx

Hi [Redacted]

I've attached a summary of the 2018 and 2019 imports from Norway to date.

In 2018 we imported 48 million salmon ova (41 consignments) from Norway and nearly 24 million this year (21 consignments). The number each year has varied, but I would expect a further 15-20 million to be imported during the remainder of this year as we come into ova season. Since the hold was put in place on exports from Norway this summer, the Scottish industry has been supplied with salmon ova from Stofnfiskur in Iceland (over 5.6 million).

We receive ova from a few different sources and the suppliers are Mowi Norway (Tveitavag), Aquagen (Rimstad), Salmobreed, Grieg Seafood Rogaland (Erfjord Stamfisk) and AS Bolaks (Eikelandsosen and Nordveitgrend). I think there have been some changes in who owns sites as exports from Erfjord Stamfisk now have Grieg as consignor rather than Salmobreed. As there is no definitive list of ISA compartments in Norway it is hard to keep track of operator and site names.

I haven't had any discussions with industry about the situation in Norway apart from a general chat with [Redacted] at Benchmark. Benchmark own Stofnfiskur and Salmobreed so I expect that they have a contingency plan in place to import ova from Stofnfiskur instead of Salmobreed if required. I'm surprised, but I think industry are being told that this will be resolved in time for ova season.

From: [Redacted]@gov.scot
Sent: 11 October 2019 14:50
To: [Redacted]@gov.scot; [Redacted]@gov.scot; [Redacted]@gov.scot; [Redacted]@gov.scot; [Redacted]@gov.scot; [Redacted]@gov.scot; [Redacted]@gov.scot
Subject: RE: NSFA - ISA free - ova suspension

Hi All

Yet another nightmare scenario and example of why we are rigorous in our implementation of the regulations and adherence to surveillance and control requirements to evidence and maintain disease status. Well done to policy and science colleagues.

[Redacted – out of scope]

Regards

[Redacted]

From: [Redacted]@defra.gov.uk
Sent: 05 July 2019 16:06
To: [Redacted]@trade.gov.uk; [Redacted]@cefas.co.uk
Cc: [Redacted]@fco.gov.uk; [Redacted]@defra.gov.uk; [Redacted]@gov.scot; [Redacted]@cefas.co.uk; [Redacted]@trade.gov.uk; [Redacted]@mobile.trade.gov.uk
Subject: RE: Norwegian - EU Trade Barrier

Dear [Redacted]

Apologies for the slow response.

I discussed with [Redacted] (Scottish govt), who had more detailed information on the issue:

She confirmed that there is a temporary suspension on the movement of fish and ova from Norway to countries free from Infectious Salmon Anaemia (including the GB health zone). It is her understanding that this temporary suspension has been in place since June. The suspension has been put in place voluntarily following a meeting between the Norwegian Food Safety Authority and the EFTA surveillance authority on 29 May, where issues were raised with the Norwegian documentation system which lists ISA free compartments.

The Norwegian Food Safety Authority (NSFA) has written to all exporters in Norway to state that no export licenses will be issued until resolved, and that they expect that to take 3 – 4 weeks. [Redacted] will check on progress with Norwegian colleagues in the coming days, who are confident that they will be able to resolve the situation and keep disruption to a minimum. [Redacted] is correct in that Scottish gvt is not privy to the exact cause of the suspension, as the NSFA are working to address issues raised before the final findings are published. We are led to believe that they are largely administrative in nature, but we cannot verify this. The Scottish fish farming industry is of course heavily reliant on the import of Norwegian ova and we are monitoring the situation very closely.

Read in full via:
FOI Dossier: Norwegian Salmon Egg Exports Banned Due to Disease Risks (February 2020)

Ova Import Statistics (sourced from Excel spreadsheets disclosed via FOI-19-02663):

Copy of FoI-19-02663 - Salmon ova imports 2016
Copy of FoI-19-02663 Salmon ova imports 2018 to April 2019
Copy of FoI-19-02663 Salmon ova imports April 2019 to December 2019

- Iceland leapfrogged Norway for first time as the largest exporter of ova to Scotland in 2019

- Norway's share of the ova market in Scotland fell from 73% in 2018 to 41% in 2019

- Iceland's share of the ova market in Scotland leaps from 15% in 2018 to 44% in 2019

- Ireland's share of the ova market in Scotland increases from 11% in 2018 to 17% in 2019

- In 2019, Scotland imported 60 million ova with 26.4 million from Iceland (the leading exporter for the first time), 24.7 million from Norway and 9.9 million from the Republic of Ireland.

- The ban on ova exports from Norway in June 2019 led to zero Norwegian imports of ova to Scotland after a shipment to Mowi on 22 May 2019. All shipments after that date - at least up to the end of 2019 when data is available - were from Iceland's Stofnfiskur (a company named as supplying Cooke Aquaculture in the United States with ova infected with Piscine Reovirus leading to the culling of 800,000 farmed salmon). Destinations for the ova included Scottish Sea Farms, Mowi, Grieg Seafood, The Scottish Salmon Company, the Roslin Institute, Landcatch, Lakeland and Organic Sea Harvest (via Landcatch).

Date consignment due	Destination site name	Destination business name	Consignee Business name (if different from destination business)	Species	Stage	Number in consignment	Source Country	Import consignor
14/05/2019	Niall Bromage Freshwater Field Station	University of Stirling		SAL	OVA	18,000	Iceland	Stofnfiskur Hf.
28/05/2019	Roslin Institute Hatchery	The Roslin Institute		SAL	OVA	3,000	Iceland	Stofnfiskur Hf.
27/06/2019	Girlsta Hatchery	Grieg Seafood Shetland Ltd (Hatchery)		SAL	OVA	1,751,000	Iceland	Stofnfiskur Hf.
30/07/2019	Barcaldine Hatchery Incubation 2	Scottish Sea Farms Ltd		SAL	OVA	1,200,000	Iceland	Stofnfiskur Hf.
30/07/2019	Barcaldine Hatchery Incubation 3	Scottish Sea Farms Ltd		SAL	OVA	1,200,000	Iceland	Stofnfiskur Hf.
13/08/2019	Inchmore	Mowi Scotland Ltd		SAL	OVA	1,450,000	Iceland	Stofnfiskur Hf.
20/08/2019	Roslin Institute Hatchery	The Roslin Institute		SAL	OVA	10,000	Iceland	Stofnfiskur Hf.
15/10/2019	Kinlochmoidart Hatchery	The Scottish Salmon Company		SAL	OVA	537,810	Iceland	Stofnfiskur Hf.
24/10/2019	Mingarry Hatchery	Hebridean Smolts Ltd		SAL	OVA	955,500	Iceland	Stofnfiskur Hf.
31/10/2019	Girlsta Hatchery	Grieg Seafood Shetland Ltd (Hatchery)		SAL	OVA	1,800,000	Iceland	Stofnfiskur Hf.
29/10/2019	Barcaldine Hatchery Incubation 3	Scottish Sea Farms Ltd		SAL	OVA	1,125,000	Iceland	Stofnfiskur Hf.
29/10/2019	Barcaldine Hatchery Incubation 2	Scottish Sea Farms Ltd		SAL	OVA	1,125,000	Iceland	Stofnfiskur Hf.
30/10/2019	Appleburn Incubation Unit	The Scottish Salmon Company		SAL	OVA	1,030,575	Iceland	Stofnfiskur Hf.
12/11/2019	Ormsary Hatchery	Landcatch Natural Selection Ltd	Loch Duart Ltd	SAL	OVA	450,000	Iceland	Stofnfiskur Hf.
12/11/2019	Barvas Hatchery	The Scottish Salmon Company		SAL	OVA	443,625	Iceland	Stofnfiskur Hf.
13/11/2019	Lochailort Recirculation Hatchery	Mowi Scotland Ltd		SAL	OVA	1,900,000	Iceland	Stofnfiskur Hf.
19/11/2019	Niall Bromage Freshwater Field Station	University of Stirling		SAL	OVA	15,000	Iceland	Stofnfiskur Hf.
20/11/2019	Cairndow Hatchery	Lakeland (Cairndow) Ltd		SAL	OVA	1,000,000	Iceland	Stofnfiskur Hf.
19/11/2019	Applecross Hatchery	The Scottish Salmon Company		SAL	OVA	1,800,000	Iceland	Stofnfiskur Hf.
26/11/2019	Cairndow Hatchery	Lakeland (Cairndow) Ltd		SAL	OVA	1,500,000	Iceland	Stofnfiskur Hf.
27/11/2019	Ormsary Hatchery	Landcatch Natural Selection Ltd	Organic Sea Harvest L	SAL	OVA	675,900	Iceland	Stofnfiskur Hf.
28/11/2019	Ormsary Hatchery	Landcatch Natural Selection Ltd	The Scottish Salmon (	SAL	OVA	2,320,500	Iceland	Stofnfiskur Hf.
11/12/2019	Ormsary Hatchery	Landcatch Natural Selection Ltd	Saumon de France	SAL	OVA	350,000	Iceland	Stofnfiskur Hf.

- In 2019, the largest importers of ova were Iceland's Stofnfiskur Hf. (26.4 million); Mowi Norway (17 million); Mowi Ireland (9.9 million); Norway's Grieg Seafood Rogaland (6.3 million).

- In 2018, Scotland imported 66 million ova with 48.3 million from Norway, 10.1 million from Iceland and 7.3 million from the Republic of Ireland.

- In 2018, the largest importers of ova were Marine Harvest Norway (34.9 million); Iceland's Stofnfiskur Hf. (10.1 million); Norway's Salmobreed (7.6 million); Marine Harvest Ireland (7.3 million).

- In 2017, Scotland imported 58 million ova with 37 million from Norway, 13.9 million from Iceland and 7 million from the Republic of Ireland.

- In 2016, Scotland imported 48 million ova with 38.6 million from Norway, 5.3 million from Iceland and 4.1 million from the Republic of Ireland.

Data disclosed by the Scottish Government via FOI in November 2018 detailed a staggering 342 million ova imported from Norway between 2003 and 2015 (out of 462 million ova imported - i.e. Norway represented 74% of ova imports):

Country of origin	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Australia	550,000	1,860,000	0	2,400,000	0	0	0	0	0	0	0	0	0
Iceland	9,518,000	3,475,000	570,000	300,000	0	0	0	0	0	0	2,719,000	4,346,000	8,978,000
Norway	2,900,000	6,750,000	13,210,000	15,940,000	33,555,000	22,703,000	29,938,000	26,533,000	35,851,000	23,848,000	35,044,000	49,831,000	45,926,000
Rep of Ireland	7,820,000	4,450,000	2,610,000	11,575,000	10,511,000	5,600,000	5,460,000	2,150,000	3,400,000	10,134,000	10,700,000	5,218,000	4,815,000
USA	400,000	450,000	450,000	0	0	0	0	0	0	0	0	0	0

Numbers of salmon ova collated from health certificates

A paper published in the journal Aquaculture in 2016 revealed how Scottish salmon farming has been flooded by imports of foreign ova since the early 2000s:

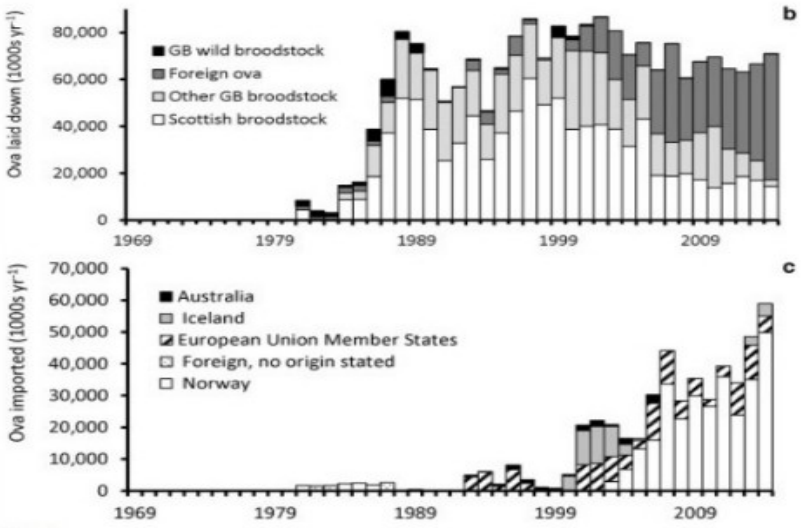


Fig. 2.
Data on salmon ova in Scotland. a: Numbers of ova produced in Scotland, subdivided into laid down in Scotland, exported and not laid or exported. Data available 1984/1994/1995–2014. b: Origins of ova laid down to hatch within Scottish salmon industry. Data available 1981–2014. c: Origins of foreign (imported) ova. Data available 1981–2014.

The 'Scottish Fish Farm Production Survey 2018' published in September 2019 included:

Ova Production

Table 17: Number (000s) of salmon ova produced during 2009-2018

Year	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
No. of ova	91,964	91,655	78,208	57,489	56,904	33,450	11,605	13,689	12,631	15,228

In 2018, 15.2 million ova were stripped, an increase of 21% from the number of ova produced in 2017.

Table 18: Source, number (000's), previous year's estimate of ova laid down to hatch during 2009-2018 and projection for 2019

Year	In-house broodstock	Out-sourced GB broodstock	GB wild broodstock	Foreign ova	Total	Previous year's estimate
2009	17,148	20,158	65	30,200	67,571	64,693
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						71,571

The number of ova laid down to hatch was 70.5 million, an increase of 4.7 million (7.2%) on the 2017 figure. The majority of the ova (87.3%) were derived from foreign sources, this being an increase of 2.3 million (4.0%) on the 2017 figure. Supplies derived from GB broodstock increased by 2.4 million, a 36.3% increase on the 2017 figure. No ova from GB wild broodstock were laid down in 2018, however, in previous years the ova derived from wild stocks were generally held and hatched for wild stock enhancement by the aquaculture industry in cooperation with wild fisheries managers.

Norway has imported between 24 million and 50 million ova every year for the last decade:

Imports and Exports

Table 22a: Source and number (000's) of salmon ova, fry, parr and smolts imported during 2009-2018 derived from health certificates

Import Year	Ova				Fry, Parr and Smolts	
	EU Member States	EFTA		Total	EU Member States	EFTA-Norway
		Iceland	Norway			
2009	5,460	0	29,938	35,398	328	0
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

The numbers of ova imported increased by 13.6%. The number of fry, parr and smolts imported decreased from that observed in 2017, with just 1.7 million fry, parr and smolts imported from EU member states. There have been no imports from Third Countries such as the USA since 2005.

Table 22b: Destination and number (000's) of salmon ova, fry, parr and smolts exported during 2009-2018 derived from health certificates

Export year	Farmed origin ova				Total	Fry, Parr and Smolts
	Chile	EU	Norway	Others		
2009	7,181	317	0	0	7,498	89
2010	0	189	600	0	789	130
2011	0	0	0	820	820	183
2012	0	0	0	0	0	55
2013	0	650	0	0	650	404
2014	0	0	0	0	0	259
2015	0	93	0	2	95	8
2016	0	335	0	23	358	173
2017	0	16	0	323	339	206
2018	0	23	0	0	23	71

In 2018, 23,000 ova were exported. Fry, parr and smolt exports decreased by 135,000 fish on the 2017 figure.

Reaction from Scottish Salmon Watch who uncovered the documents via FOI-19-02663:

"Salmon farming is a disease-ridden nightmare," said Don Staniford, Director of Scottish Salmon Watch. "The ban on imports from Norway should be extended to other countries to protect the genetic integrity of Scottish salmon. Discerning consumers will be shocked to discover that the vast majority of 'Scottish' salmon marketed in glossy advertising by supermarkets is actually sourced as eggs from Norway, Iceland and Ireland. Iceland has now become the #1 importer of eggs for use in Scottish salmon due to disease risks in Norway."

"Farmed salmon is a pariah not a panacea which should be avoided like the plague," continued Staniford (author of 'Scottish Scamon'). "A staggering 99% of co-called 'Scottish' salmon is actually controlled by foreign companies with 65% under Norwegian control. The ban on ova imports from Norway is a slap in the face for Norwegian companies exploiting Scotland's wild image. 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. Scottish Ministers should stop playing their high risk game of Norwegian, Icelandic and Irish roulette. Is deadly ISA already lurking on Scottish salmon farms?"

In June 2019, Scottish Salmon Watch revealed that over 50% of farmed salmon sampled by Marine Scotland Science tested positive for Piscine Reovirus **[4]**.

"Salmon farming is dead in the water due to diseases and viruses," said Don Staniford, Director of Scottish Salmon Watch. "Switching from disease-ridden Norwegian ova to Icelandic ova is akin to leaping off the Titanic onto the Exxon Valdez. The Icelandic company (Stofnfiskur) now supplying salmon farms in Scotland with imported ova was named in the spread of virus-laden ova to Cooke Aquaculture in Washington State leading to the mass slaughter of infected farmed salmon due to Piscine Reovirus. And ISA-ridden AquaGen is producing 'Scottish' salmon through the back door via potentially infected ova imported from Norway at their Holywood Salmon Farm in Dumfries."

"If the Scottish Government genuinely wanted to protect Scotland's iconic wild salmon it would start closing down salmon feedlots rather than lobby in support of salmon farming expansion. Fergus Ewing has acted as a cheerleader for Norwegian salmon farming to such an extent he should change his job title from Cabinet Secretary for Rural Economy to Norwegian Minister of Salmon Farming."

"The ban blows out of the water Norway's claims to 'healthy' salmon," said Don Staniford, Director of Scottish Salmon Watch. "Infectious diseases are ravaging salmon farms across Norway. EFTA's damning report caught the Norwegian salmon farming industry riding roughshod over bio-security and safety protocols. Shame on Norwegian salmon and shame on the Norwegian Food Safety Authority for risking the spread of the deadly ISA."

"The stench of disease coming from Norway is nauseating," continued Staniford (an award-winning campaigner). "Norwegian salmon is a virus-laden disease disaster and is about as welcome as a dose of Coronavirus. Serious questions must now be asked of the Norwegian salmon farming industry and the Norwegian Government's handling of the ISA crisis. And why has such a financially crippling crisis been covered up by the media?"

Scottish Salmon Watch today (24 February 2020) wrote to the Norwegian Food Safety Authority asking for an update on ISA in Norway and wrote to the Scottish Government demanding increased surveillance and testing for ISA in Scottish salmon.

Contact: Don Staniford: 07771 541826 (salmonfarmingkills@gmail.com)

Documents Disclosed by the Scottish Government:

FOI documents disclosed to Scottish Salmon Watch by the Scottish Government via FOI-19-02663 on 14 February 2020:

marinescotland

Scottish Government
Riaghaltas na h-Alba
gov.scot

T: +44 (0)131 244 2500 F: +44 (0)1224 295511
marinescotland@gov.scot

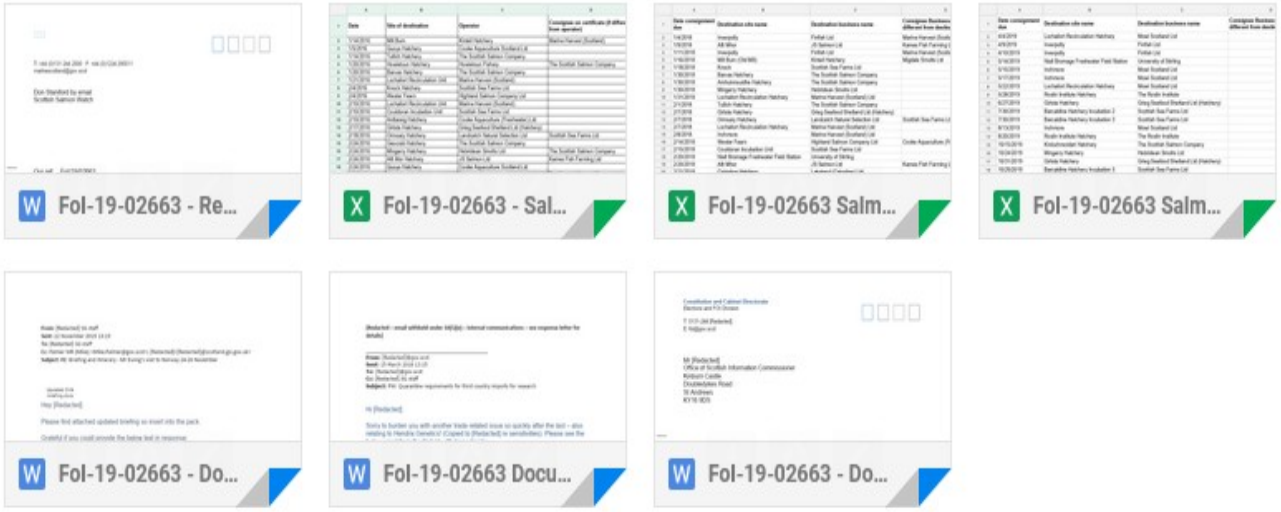
Don Staniford by email
Scottish Salmon Watch

Our ref: FoI/19/02663

14 February 2020

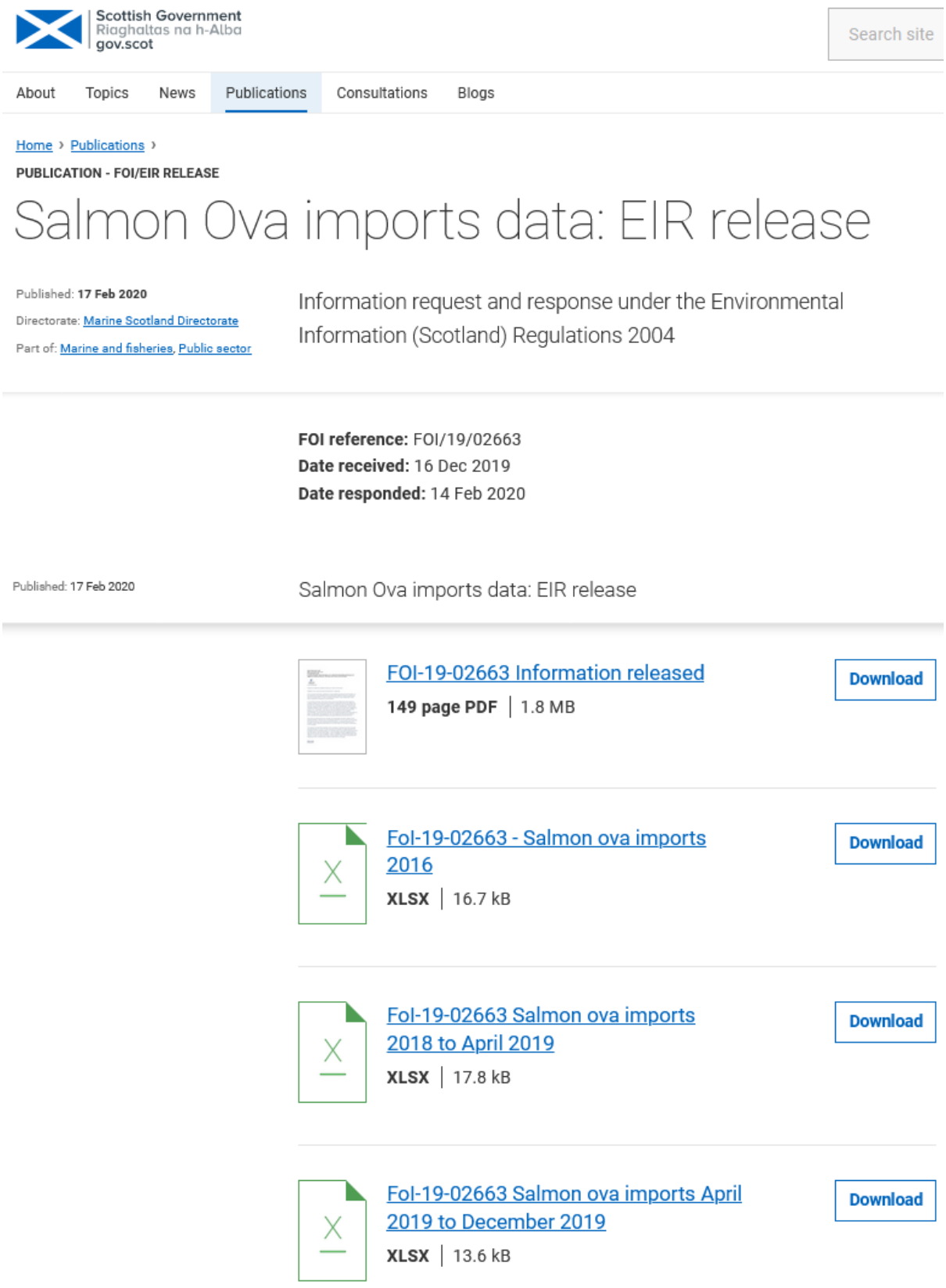
FoI-19-02663 - Response letter from Scottish Government dated 14 February 2020
FoI-19-02663 - Documents for release (1)
FoI-19-02663 Documents for release (2)
FoI-19-02663 - Documents for release (3)
Copy of FoI-19-02663 - Salmon ova imports 2016
Copy of FoI-19-02663 Salmon ova imports 2018 to April 2019
Copy of FoI-19-02663 Salmon ova imports April 2019 to December 2019

7 Attachments



Summary via:
FOI Dossier: Norwegian Salmon Egg Exports Banned Due to Disease Risks (February 2020)

FOI documents [published online by the Scottish Government on 17 February 2020]:



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PUBLICATION - FOI/EIR RELEASE

Salmon Ova imports data: EIR release

Published: **17 Feb 2020**

Directorate: Marine Scotland Directorate

Part of: Marine and fisheries, Public sector

Information request and response under the Environmental Information (Scotland) Regulations 2004

FOI reference: FOI/19/02663
Date received: 16 Dec 2019
Date responded: 14 Feb 2020

Published: 17 Feb 2020

Salmon Ova imports data: EIR release

FOI-19-02663 Information released
149 page PDF | 1.8 MB
Download

FoI-19-02663 - Salmon ova imports 2016
XLSX | 16.7 kB
Download

FoI-19-02663 Salmon ova imports 2018 to April 2019
XLSX | 17.8 kB
Download

FoI-19-02663 Salmon ova imports April 2019 to December 2019
XLSX | 13.6 kB
Download

Context:

The Scottish Government's FOI-19-02663 response letter dated 14 February 2020 explained:

> **Response to your request**
>
> In relation to the various aspects of your request please refer to the responses detailed below.
>
> **1. Ova import data since 8 June 2018 to 16 December 2019; and**
>
> **2. Ova import data for 2016.**
>
> Please find enclosed relevant information in relation to part 1 and part 2 of your request.
>
> **3. Information in relation to discussions re. ova imports since 29 March 2018; and**
>
> **4. Information on any disease risks and biosecurity concerns of ova imports**
>
> Please find enclosed relevant information in relation to part 3 and part 4 of your request. This includes information relating to Ministerial briefings and communications, stakeholder communications, internal discussions as well as communications with other government agencies and departments and the Office of the Scottish Information Commissioner. This information relates to the following subject areas:
>
> - Ministerial meetings and visits
> - Import notifications and imports
> - Clarification of errors on health certificates accompanying exports into Scotland
> - Norwegian declarations relating to the health status of specific areas (in Norway)
> - The suspension of ova exports from Norway
> - The release and withholding of information relating to 'ova import data'
> - The appeal associated with FoI/18/01553
>
> In addition to the information provided and to facilitate your understanding of the same, context to some of the above subject areas is attached in Annex 1 of this reply.

Please be aware that, in addition to all of the information provided through this response, several other requests for information, involving the same or similar subject area 'salmon ova imports [into Scotland]' have been handled. These may include additional information, already released, which is relevant to this request. These requests include, but are not limited to:

FoI/19/00976 - https://www.gov.scot/publications/foi-19-00976/

FoI/18/03773 - https://www.gov.scot/publications/foi-18-03773/

FoI/18/02912 - https://www.gov.scot/publications/foi-18-02912/

FoI/18/01553 - https://www.gov.scot/publications/foi-18-01553/

References to published responses are provided above. You can find copies to other requests and their associated responses on the Scottish Government website: https://www.gov.scot/publications/

Further, with respect to the subject area of disease risks and biosecurity concerns of ova imports, information is provided within the attached and is covered in discussions relating to ova imports more generally. I wish to refer you back to our reply to FoI/18/03773 (referenced above) which sets out some specific information relating to disease control and imports of ova.

Some of the information referred to is publicly available. Where this is the case, this is noted within the information supplied and a web link or suitable reference is provided. In particular, Marine Scotland holds a copy of the final report of the EFTA Surveillance Authority's mission to Norway from 20 to 29 May 2019 in order to evaluate animal health controls in relation to aquaculture, which is available online at http://www.eftasurv.int/press--publications/press-releases/internal-market/esa-norway-needs-to-improve-official-controls-of-trade-of-live-farmed-fish-shellfish. We also hold a copy of a presentation relating to this report, also available online at https://ec.europa.eu/food/sites/food/files/animals/docs/reg-com_ahw_20191221_efta-report.pdf.

Under regulation 6(1)(b) of the EIRs, we do not have to give you information which is already publicly available and easily accessible to you in another form or format.

You will note that some information has been redacted from that supplied. This is because exceptions at 11(2) (personal data) and at 10(4)(e) (internal communications) of the EIRs apply to some of the information relevant to your request. The reasons why these exceptions apply are set out in the Annex 2 of this letter.

ANNEX 1

CONTEXT TO INFORMATION PROVIDED

Norwegian Declarations

In accordance with Council Directive 2006/88/EC, EU and EFTA[1] member states can submit declarations of disease status based upon specific criteria and relevant supporting evidence. Declarations are presented at the Standing Committee on Plants, Animals, Food and Feed (SCoPAFF) and followed up with a period of consultation with other EU Member States, where questions, queries and opinion can be expressed about each specific declaration. Declarations can be made at the farm, compartment/area or country level. Queries raised are part of the SCoPAFF process for considering declarations where clarification is required to support the proposed health status of the application.

Within the information released in response to FoI/19/02663 you will find comments from Marine Scotland concerning a number of declarations concerning specific areas in Norway. These feed in to the overall response issued by Cefas/Defra, responsible for representing the UK member state at the international level.

Suspension of ova imports from Norway

Following an EFTA surveillance authority inspection in May 2019, a temporary suspension of exports of salmon and rainbow trout ova from Norway was established. The restrictions imposed relate to the certification of aquatic animals from ISA free compartments and do not relate to all exports. The report concerning the same is publicly available and referred to in the letter above. The EFTA Surveillance Authority, responsible for assessing control systems related to food and feed safety, raised a number of concerns relating to the trade in live aquatic animals (including ova). Norway is unable to ensure that farmed fish/shellfish sent for export to other EEA[2]-states will not affect the health of farmed fish/shellfish in those receiving countries. As of the date of this communication, the suspension remains in place as corrective measures are taken and implemented.

Within the information released in response to FoI/19/02663 you will find various communications relating to this subject area.

---

[1] European Free Trade Association

[2] European Economic Area

Marine Laboratory, 375 Victoria Road,
Aberdeen AB11 9DB
www.gov.scot/marinescotland

ANNEX 2

REASONS FOR NOT SUPPLYING INFORMATION

Exceptions apply

An exception under regulation 11(2) of the EIRs (personal information) applies to some of the information requested because it is personal data of a third party and disclosing it would contravene the data protection principles in Article 5(1) of the General Data Protection Regulation and in section 34(1) of the Data Protection Act 2018. This exception is not subject to the 'public interest test', so we are not required to consider if the public interest in disclosing the information outweighs the public interest in applying the exception.

An exception under regulation 10(4)(e) of the EIRs (internal communications) applies to some of the information requested because these communications relate to legal advice, the disclosure of which would breach legal professional privilege. This exception is subject to the 'public interest test'. Whilst we recognise that there may be some public interest in releasing information concerning legal advice, there is greater public interest in protecting this space to allow free and frank discussions to take place over the interpretation and implementation of legislation. Exception 10(4)(e) also applies to a very small amount of information that has been redacted and that is not legal advice. Again, this is subject to the 'public interest test'. We recognise that there is a public interest in disclosing information as part of open, transparent and accountable government, and to inform public debate. However, there is a greater public interest in allowing a private space within which Ministers and officials can exchange free and frank advice and views. It is clearly in the public interest that Ministers can properly defend the Government's policies and decisions, and full and candid exchanges enable them to do so. Disclosure of this type of information could lead to Ministers being less able to defend Government policies and decisions, which is not in the public interest.

Media Backgrounder:

In December 2019, Scottish Salmon Watch published 'commercially damaging' information on the import of salmon ova from Mowi Ireland and Stofnfiskur in Iceland to Scottish Sea Farms. This following a ruling by the Scottish Information Commissioner in November 2019 forcing disclosure despite a confidentiality agreement between Norwegian-owned Scottish Sea Farms, German-based AquaGen and Landcatch (owned by Dutch company Hendrix Genetics).

The National reported (11 November 2019):

In July 2019, the Mail On Sunday reported that "around 90 per cent of salmon eggs hatching in Scotland are foreign" with 66 million salmon eggs shipped in from abroad (mostly Norway).

10

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

66m eggs shipped in from abroad

By Georgia Edkins

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'

The Press & Journal reported via "Scottish Salmon Not Scottish, Campaigners Claim" (8 July 2019):

> Scottish Salmon Watch's Don Staniford said: '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.'

Read more via:
Mail On Sunday: "90% of Scottish salmon 'ISN'T' from Scotland' - 66m eggs shipped in from abroad"
Scottish salmon not Scottish, campaigners claim
Salmon Eggsclusive: Scotland's 'King of Fish' is Now Viking Not Scottish!

A [letter sent by Scottish Salmon Watch to Scottish Ministers in April 2019] called for increased surveillance of ova, smolts and farmed salmon for infectious diseases, pathogens, bacteria, parasites and viruses.

In a [FOI reply dated 6 March 2019 (FOI/19/00420)], the Scottish Government admitted that "there is no statutory sampling conducted with respect to ova and smolts prior to their entry into sea water, either in relation to imported or domestically produced animals".

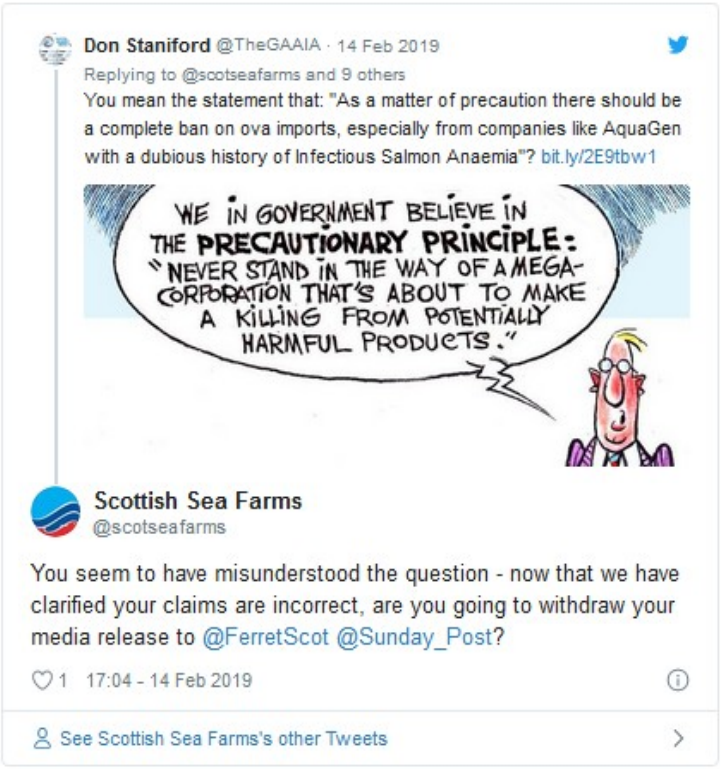
In February 2019, [The Ferret revealed] that Government officials raised concerns over the import to Scotland of salmon eggs from a Norwegian company called AquaGen after the outbreak of a deadly virus.

The documents also show that in July 2017, Hendrix Genetics – owners of Landcatch, the only independent Scottish salmon egg producer – 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 a later email to Fergus Ewing, Cabinet Secretary for Rural Economy, in February 2018, Landcatch 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".

> Scottish Salmon Watch accused the salmon industry of playing "a deadly game of Norwegian roulette." The group's director, Don Staniford, called for a "complete ban" on ova imports.
>
> He said: "If the Scottish Government is so proud of 'Scottish' salmon then why not source ova from Scotland? Scottish salmon is a sham, scam and a consumer con which should be avoided like the plague."

According to Scottish Salmon Watch, the outbreak of ISA in Norway delayed a shipment of 2.5 million salmon ova from AquaGen to a firm called Scottish Sea Farms for a new hatchery in Oban. But this denied by the company, and prompted a public argument on social media.



An inspection of AquaGen's Holywood Salmon Farm in November 2018 (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".

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

In December 2018, The Seattle Times reported that Cooke Aquaculture were forced to destroy 800,000 juvenile Atlantic salmon after testing required by the Washington Department of Fish and Wildlife determined the fish were infected with an exotic strain of Piscine Orthoreovirus (PRV).

Salmon Business reported that the Icelandic company StofnFiskur – a subsidiary of Norwegian-controlled Benchmark Genetics – supplied the ova to Cooke Aquaculture. Scottish Salmon Watch revealed in June 2019 that over half the farmed salmon from Scotland (and other unnamed countries) tested in 2018 and 2019 by Marine Scotland Science were positive for PRV.

In November 2018, The Oban Times reported that 2.5 million ova will be imported from AquaGen in Norway to the Barcaldine Hatchery operated by Scottish Sea Farms.

In May 2018, Scottish Salmon Watch revealed that the Norwegian Government had banned imports of salmon ova from Scotland citing unacceptable disease risks. A front page article in The National newspaper reported:


THURSDAY MAY 31, 2018

THE NATIONAL

WWW.THENATIONAL.SCOT 80p

THE NEWSPAPER THAT SUPPORTS AN INDEPENDENT SCOTLAND

Lesley Riddoch Scotland doesn't have to look far for inspiration

'Ministers are failing to protect Scottish salmon'

Exclusive: Call for import ban on eggs to safeguard native species

In February 2018, Norway's Ministry of Climate & Environment banned the import of Scottish salmon eggs citing risks of disease and genetic impacts of escapes under the Norwegian Nature Diversity Act.

"Farmed salmon with partial Scottish origin increases the likelihood of a negative impact on Norwegian wild populations above negative effects with Norwegian farmed strains," stated the 22-page letter of refusal dated 9 February 2018 from Norway's Ministry of Climate & Environment to Hendrix Genetics (owners of Landcatch). "There is a high probability that genetic mixing between Norwegian wild salmon and farmed salmon of partly Scottish origin will increase the loss of genetic diversity."

In a blistering email to Fergus Ewing (Cabinet Secretary for Rural Economy & Connectivity) in February 2018, 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".

"This means that the Scottish salmon industry is now 100% reliant on imported eggs - both a massive risk in the event of borders closing for disease issues (and also the transfer of ISA from infected countries such as Norway), but also making a complete mockery of the brand 'Scottish Salmon'," stated the email to Fergus Ewing dated 12 February 2018.

In an email obtained via FOI in December 2018 from the Scottish Government, the Cabinet Secretary for Rural Economy & Connectivity (Fergus Ewing) was warned that Norway's ban on ova imports "reeks of discriminatory trade practice".

FOI documents disclosed by the Scottish Government to Scottish Salmon Watch on 1 February 2019 reveal that Scottish salmon and trout farmers received ova during the 2016/2017 season from broodstock held at a ISA suspected site operated by AquaGen at Tingvoll.

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".

Read more via:
'Scottish' Salmon Exposed As Made in Ireland & Iceland
FOI Victory: Scottish Ministers Forced to Come Clean on 'Scottish' Salmon
The National: "Watchdog demands release of government facts about Scottish Salmon"
Scottish Government ordered to release 'confidential' salmon farming data
Scottish government ordered to give up information about imported salmon eggs
Mail On Sunday: "90% of Scottish salmon 'ISN'T' from Scotland' - 66m eggs shipped in from abroad"
Scottish salmon not Scottish, campaigners claim
Salmon Eggsclusive: Scotland's 'King of Fish' is Now Viking Not Scottish!
Easter Egg Ban for 'Scottish' Salmon?
Deadly virus outbreak prompted fears over import of fish farm eggs to Scotland
Game Ova for Scottish Salmon - Deadly disease delays egg imports from AquaGen in Norway
Concerns raised over Scottish salmon roe imports

'Secret' Scottish Salmon - Norwegian-owned Scottish Sea Farms refuse to disclose information for ova imports as it would "cause substantial harm to their commercial interests"
Government 'failing to protect Scottish salmon'
Complete Mockery of the Brand 'Scottish Salmon': Norway bans import of Scottish salmon eggs citing disease risks & genetic impacts under the Nature Diversity Act
Imported eggs ruling 'makes a mockery of Scottish salmon'
Norway keeps ban on import of Scottish roe
Tartan imposters' charge as fish egg imports hit 90%
Invasion of the Viking salmon

Documents Not Disclosed:

"An exception under regulation 10(4)(e) of the EIRs (internal communications) applies to some of the information requested because these communications relate to legal advice, the disclosure of which would breach legal professional privilege," explained the Scottish Government's FOI response letter to Scottish Salmon Watch dated 14 February 2020. "This exception is subject to the 'public interest test'. Whilst we recognise that there may be some public interest in releasing information concerning legal advice, there is greater public interest in protecting this space to allow free and frank discussions to take place over the interpretation and implementation of legislation. Exception 10(4)(e) also applies to a very small amount of information that has been redacted and that is not legal advice. Again, this is subject to the 'public interest test'. We recognise that there is a public interest in disclosing information as part of open, transparent and accountable government, and to inform public debate. However, there is a greater public interest in allowing a private space within which Ministers and officials can exchange free and frank advice and views. It is clearly in the public interest that Ministers can properly defend the Government's policies and decisions, and full and candid exchanges enable them to do so. Disclosure of this type of information could lead to Ministers being less able to defend Government policies and decisions, which is not in the public interest."

Scottish Salmon Watch is considering filing an appeal.

Summary of Documents Disclosed via FOI-19-02663:

Read in full via:
FOI Dossier: Norwegian Salmon Egg Exports Banned Due to Disease Risks (February 2020)

A Freedom of Information disclosure by the Scottish Government to Scottish Salmon Watch (FOI-19-02663) revealed:

"Attached is a link to a presentation given at ScoPAFF re the EFTA audit of Norway's fish health surveillance regime," stated an internal Scottish Government email dated 23 November 2019. "It provides an outline of the process they are going through to re-establish the list of ISA free compartments, but no details on when they expect to complete this task (the last suggested deadline being 1 November). Mr Ewing will be in Norway on Monday and Tuesday and will raise with the Fisheries Minister. Once the list is submitted, there will be a process of scrutiny by EFTA."

Web-link: https://ec.europa.eu/food/sites/food/files/animals/docs/reg-com_ahw_20191221_efta-report.pdf

"There were some serious short falls found with regard to Norway's ability to provide assurance that the compartments they are trading from are free from infectious salmon anaemia," stated an internal Scottish Government email re. 'Briefing and Itinerary - Mr Ewing's visit to Norway 24-26 November' dated 22 November 2019. "The suspension will not be lifted until the list is provided to EFTA and they are satisfied Norway can assure that they are free from ISA. We cannot accept exports from Norway until authorities are able to attest to ISA disease freedom. That process is for Norway and EFTA. For our part, we must apply the pressure that we can to ensure that the situation is resolved as quickly as is possible, whilst respecting that trade can only take place on the basis of assurance of ISA freedom."

"The industry accepts that regulatory short comings in Norway have been exposed and that the ban is in place in order to protect the interests of trading partners and Scotland's ISA free

disease status," continued an internal Scottish Government email re. 'Briefing and Itinerary - Mr Ewing's visit to Norway 24-26 November' dated 22 November 2019. For minimal impact, the industry would like to see the ban lifted by January at the latest. If the Norwegian Minister suggests that this date will not be met, we will engage in further contingency planning discussions with industry in order to reopen previously used broodstock sites, which would allow the stripping of fish in Scotland and create an alternative ova supply."

"The Cab Sec is eager to ensure our lines and approach is aligned with industry and that we fully understand problems and have a plan on how to arrive at solutions, noting that we have to be able to argue that our representations have actually assisted the industry in this case," stated an email dated 22 November 2019 from the office of the Cabinet Secretary for Rural Economy (Fergus Ewing) to Scottish Government staff re. 'Briefing and Itinerary - Mr Ewing's visit to Norway 24-26 November'.

"Norway confirmed that it is still working towards a deadline of 1 November to provide documents to EFTA for review and to re-establish a list of ISA free compartments. They have confirmed that they will not resume exports without positive feedback from EFTA," explained an email dated 6 November 2019 from the Scottish Government to the Scottish Salmon Producers Organisation. "The Commission requested that Norway keeps it updated with any plans to resume trade and to confirm that it will not resume certification before the next committee meeting. This means that **certification will not resume until 21/22 November at the earliest**, pending acceptance of each ISA free area put forward and its related documentation. There is the potential for further delay."

"Mr Ewing will wish to be aware that a meeting of the Farmed Fish Health Steering Group took place yesterday," stated an email from the Scottish Government to the Cabinet Secretary for Rural Economy and Minister for Trade, Investment & Innovation dated 6 November 2019. "The industry remain concerned about the further delay to the resumption of ova exports from Norway. [Redacted] (Mowi) and [Redacted] (Scottish Sea Farms) expect that they can source stock from elsewhere until the end of the year, but may face ova sourcing problems in Q1 in 2020 if the situation is not resolved."

"Scottish Sea Farms will hold contingency planning discussions with Scottish Government's Fish Health Inspectorate around the potential use of authorised broodstock sites in Scotland to source stock for the production of additional ova in Scotland next year if required," continued the email titled '6 November update - OVA - RE: Update - To note - TEMPORARY SUSPENSION OF EXPORTS OF SALMON AND RAINBOW TROUT OVA TO SCOTLAND FROM NORWAY - Aquaculture'. "We will meet with the CEO of AquaGen Norway and the MD of AquaGen Scotland on 4 December. Earlier this year, AquaGen purchased an egg production facility in Dumfries from Scottish SeaFarms. They have been upgrading the facility and working through some water quality issues which are affecting production at the site; https://aquagen.no/en/2019/03/01/aquagen-buys-scottish-sea-farms-freshwater-hatchery/ ."

"Yesterday at a subgroup meeting of the Farmed Fish Health Framework industry members expressed concern that there was to be a further delay," stated an email from the Scottish Government to the Cabinet Secretary for Rural Economy and Minister for Trade, Investment & Innovation dated 29 October 2019 "A meeting of the Farmed Fish Health Framework Steering Group will take place on 5 November. We will table the suspension as an agenda

item and further discuss the suspension with industry members, including Ben Hadfield Mowi MD and Jim Gallagher, Scottish Seafarms MD."

"Imports are essential for the functioning of our salmon industry in particular," stated an email from the Scottish Government to DEFRA dated 28 October 2019.

"I think from this we can expect that there will be a delay until the end of November (although I note that neither EFTA nor Norway agreed at the end of the meeting to keep the suspension in place until the next ScoPAFF meeting)," stated an internal Scottish Government email dated 28 October 2019. "Although we haven't had much in the way of correspondence from industry on this, they are concerned and we can raise at the meeting on 5 November."

At a meeting of the EU's Standing Committee on Plants, Animals, Food and Feed on 24 October 2019, an agenda item was the temporary suspension of ova exports from Norway in relation to ISA certification.

"Mr Ewing is keen to be kept closely advised on this," stated an email on behalf of the Cabinet Secretary for the Rural Economy dated 22 October 2019.

"The suspension has been in place since June, following an internal audit by the EFTA surveillance authority (responsible for assessing controls systems related to food and feed safety)," stated a Scottish Government briefing to the Private Secretaries of the Cabinet Secretary for the Rural Economy and Minister for Trade, Investment and Innovation dated 15 October 2019. "A number of issues with the Norwegian official control system were identified which meant that the Norwegian Food Safety Authority (NFSA) could not provide a reliable list of Infectious Salmon Anaemia (ISA) disease free compartments. Scotland is free from ISA, no imports from Norway can be accepted unless an attestation of disease freedom can be signed by Norwegian Authorities."

"Mr Ewing raised this issue at a meeting with Mr Nesvik, the Norwegian Fisheries Minister, at AquaNOR in August," continued the Scottish Government briefing dated 15 October 2019 (also copied to Scotland's Chief Vet Sheila Voas and the Minister for Rural Affairs and the Natural Environment (Mairi Gougeon). "The NFSA has been working hard to address the concerns raised during in the audit report however this has taken longer than expected. Current advice from the NFSA is that they are working along a plan which will enable exports from 1st November. This would be the start of Norway's normal peak in ova exports. Part of this process involves establishing a new list of ISA free compartments and discussions with EFTA to determine whether the issues raised have been satisfactorily resolved. Correspondence suggests that some areas will lose their ISA free status, and therefore the areas open to trade with Scotland will reduce. A risk of further delay, pending discussions with EFTA, also remains."

"Scottish salmon production is heavily reliant upon the import of Norwegian ova ~ 90% of ova imports come from Norway," continued the Scottish Government briefing dated 15 October 2019. "We have been in discussion with industry contacts in Norway and with the Scottish Salmon Producers' Organisation to discuss potential impacts. Relatively few queries have been received by Scottish Government and the SSPO regarding the suspension. This suggests that commercial discussions between producers and suppliers have been positive or reassuring. The Fish Health Inspectorate has noted an increased in imports from Iceland and

some resilience may also exist within Scottish supplies – for example the new AquaGEN facility which has been established in Dumfries and Galloway. The SSPO has been asked to inform us if any of its members report concerns. Rigorous application of European aquatic animal health law is essential in order to evidence and maintain disease free status and support trade. The surveillance programme implemented by Scottish Government's Fish Health Inspectorate protects Scotland's high health status. The Marine Scotland aquatic animal health programme will continue to be vital if the UK leaves the European Union."

"In 2018 we imported 48 million salmon ova (41 consignments) from Norway and nearly 24 million this year (21 consignments)," stated an internal Scottish Government email dated 14 October 2019. "The number each year has varied, but I would expect a further 15-20 million to be imported during the remainder of this year as we come into ova season. Since the hold was put in place on exports from Norway this summer, the Scottish industry has been supplied with salmon ova from Stofnfiskur in Iceland (over 5.6 million). We receive ova from a few different sources and the suppliers are Mowi Norway (Tveitavag), Aquagen (Rimstad), Salmobreed, Grieg Seafood Rogaland (Erfjord Stamfisk) and AS Bolaks (Eikelandsosen and Nordveitgrend). I think there have been some changes in who owns sites as exports from Erfjord Stamfisk now have Grieg as consignor rather than Salmobreed. As there is no definitive list of ISA compartments in Norway it is hard to keep track of operator and site names. I haven't had any discussions with industry about the situation in Norway apart from a general chat with [Redacted] at Benchmark. Benchmark own Stofnfiskur and Salmobreed so I expect that they have a contingency plan in place to import ova from Stofnfiskur instead of Salmobreed if required. I'm surprised, but I think industry are being told that this will be resolved in time for ova season."

"Yet another nightmare scenario and example of why we are rigorous in our implementation of the regulations and adherence to surveillance and control requirements to evidence and maintain disease status," stated an internal Scottish Government email dated 11 October 2019. "Well done to policy and science colleagues."

"In the days of the 20-29th May 2019 there was an EFSA audit in Norway, to evaluate animal health control," explained an email from Nina Santi of AquaGen to the Scottish Government dated 10 October 2019. "The EFSA had some serious findings during this audit related to the ISA-free compartments and recommended a temporary stop in the export of eggs from Norway. I have attached the final report from the 23rd September 2019 to this mail.....The most serious issue in the report was that the Food Safety Authority (NFSA) in Norway could not show a reliable and definite list of ISA-free compartments and zones publicly available for Norway. This is of course unacceptable and have to be corrected immediately."

"So far our impression is that the Ministry is relying on the NFSA to handle this," concluded the CEO of AquaGen in her email to the Scottish Government dated 10 October 2019 (in 2011 The New York Times fingered AquaGen in relation to the spread of ISA from Norway to Chile via infected eggs). "We fear that this is not enough and the consequence will be that very few compartments are reopened in the end."

"Would it be possible for you to share the list of sites which will be suggested for opening for trade once you have concluded your considerations, noting that this would not be a confirmed final list and that there would still be discussions with ESA and details to be considered before any suspension can be lifted?" stated an email from the Scottish Government to the Norwegian Food Safety Authority (Mattilsynet) dated 3 October 2019. "The reason I ask is

that I am trying to get a grasp of whether there might still be an issue with supply to Scottish customers if the temporary ban is lifted, and a number of hatcheries which have historically supplied Scotland are in compartments which cannot achieve ISA free status yet."

"It goes without saying that protection of Scotland's fish health status is essential and we fully support the scrutiny and large volume of work being undertaken by you to ensure that the requirements for ISA freedom are met. My considerations are purely in a policy sense for potential knock on impacts," continued the email dated 3 October 2019. "You might not be able to share the suggested list, in which case I would be grateful for an indication if you think there might still be a supply issue for Scotland post 1 November if you can. Finally, I recognise the risk remains that the temporary suspension could still be in place post 1 November, pending further discussions."

"We have reviewed all existing ISA-free segments, including surveillance, biosecurity and relocation of fish, as well as the need of extra measures to safeguard category I for ISA.," stated an email from the Norwegian Food Safety Authority (Mattilsynet) to the Scottish Government dated 3 October 2019. "We are about to conclude on a list of sites we think would be justifiable to open for trade. However, NFSA will seek consultations with ESA on practical details before we consider lifting the suspension."

"I previously advised Ministers of a temporary suspension of ova exports from Norway," stated an email from the Scottish Government briefing the Cabinet Secretary for Rural Economy (copied also to the Cabinet Secretary for Culture, Tourism and External Affairs; Cabinet Secretary for Justice; Cabinet Secretary for the Environment, Climate Change and Land Reform; and the Minister for Rural Affairs and the Natural Environment) dated 17 August 2019. "Please find attached an FMQ style brief on the temporary suspension which Mr Ewing should be aware of whilst attending AquaNOR. The suspension is temporary and has been in place since June as a the result of an audit by the European surveillance authority as EFTA. The Norwegian Food Safety Authority (NSFA) has implemented the suspension on export certification as a precaution whilst it address issues raised by EFTA before its final findings are published. This process is taking longer than expected, with initial advice suggesting that the suspension would likely be lifted by the start of August.

"Due to the delay, officials have consulted with the Scottish Salmon Producers' Organisation with regard to potential production concerns (90% of Scottish production relies on imports from Norway) and contingency planning," continued the email dated 17 August 2019. "Initial feedback is that operators are confident that outstanding issues will be resolved soon, and before the start of the main egg exporting season from Norway in November. We continue to keep the situation under review and are in regular contact with the NSFA on the matter. This issue was originally brought to our attention through the Department of International Trade who received correspondence from Nina Santi, CEO of Aquagen. Earlier this year AquaGen signed a deal to buy Scottish Sea Farms' freshwater hatchery at Holywood near Dumfries which will provide a new supply of eggs in Scotland and contribute to ova security."

"I can confirm that we have been in regular contact with the Norwegian Food Safety Authority regarding the temporary suspension of export certification of ova from Norway," stated an email from the Scottish Government to Scottish Development International and Scottish Enterprise dated 16 August 2019. "Ministers are aware of the suspension although I

have not provided a recent update (we last thought the temporary suspension might be lifted mid-July)."

"I have already an understanding that contacts between Scottish authorities and Norwegian authorities have contributed in moving this issue higher on the agenda with the Norwegian Authorities," stated an email from AquaGen's CEO Nina Santi to the Department of International Trade dated 13 August 2019. "The temporary suspension is still in force, and according to our information the Food Safety Authority in Norway have asked the ESA for a delay until September 1st before they submit a final response to the audit, partly because of the holiday season. I know that several deliveries were held back from this earlier this summer, but this issue is hopefully resolved by November when the next egg delivery season normally starts. It is also my information that the issues are mainly of administrative nature and probably an effect of too little resources being allocated to follow up on this over time. Salmonid egg exports are a very tiny issue for the authorities but of major importance to the producers, so a little push from outside Norway can be essential to resolve this. "

"Nothing yet, but I was speaking with [Redacted] at Benchmark yesterday and he had heard that there was a possibility this wouldn't be resolved until the end of the year," stated an internal Scottish Government email dated 13 August 2019 (in answer to "Has there been any update regarding the temporary suspension of exports from Norway? Has it been lifted?"). "He sent me the attached article (English translation isn't great and I can't access the original as it is from a subscription website) and had heard the issue was delays in responding to/controlling ISA."

"I have had no information that is has been lifted and no further information to suggest that it will be lifted soon," stated an internal Scottish Government email dated 10 August 2019 (in answer to "Has there been any update regarding the temporary suspension of exports from Norway? Has it been lifted?"). "[Redacted] has put feelers out to the industry in terms of contingency planning. I assume that you haven't had any import notifications through?"

"I can confirm that we wish to maintain reliance on regulation 10(5)(e) to withhold information containing data on the imports of salmon ova to Scotland relating to Scottish Sea Farms (SSF)," wrote the Scottish Government's Constitution and Cabinet Directorate (Elections and FOI Division in a letter to the Scottish Information Commissioner dated 16 July 2019. "When dealing with the initial request, Marine Scotland contacted all companies that had imported ova into Scotland since 1 January 2017, asking for their views on whether the information we held relating to them should be disclosed. In response, SSF set out their views against disclosing the specific information as they considered that it was excepted under regulation 10(5)(e) of the EIRs (although they incorrectly cited regulation 12(5)(e), which is the equivalent regulation under the EIRs in England). In support of this, SSF gave their reasonings and provided extracts of specific confidentiality clauses within contractual agreements that they have in place with their suppliers and contract growers."

"We consider that there is a clear commercial nature to this information as it contains details of third party operators and source companies that have imported salmon ova into Scotland and, as detailed above, Scottish Seas Farms have entered into a mutual confidentiality agreement with Aqua Gen AS, and Landcatch Natural Selection Limited," continued the Scottish Government's Constitution and Cabinet Directorate (Elections and FOI Division in a letter to the Scottish Information Commissioner dated 16 July 2019. "We believe that this shows that the information concerned is commercially confidential in nature, as it is covered

by the terms of this agreement, and thus falls within the scope for assessment under Regulation 10(5)(e). We believe that disclosure of this information would breach the terms of the confidentiality agreement in place, and cause substantial harm to the interests of SSF. If the information were released it would disclose company or commercial strategy in the production of salmon in freshwater, which would substantially prejudice future production strategies."

"In their email of 12 June 2018, attached above, SSF stated *"Specifically, the information categories relating to third party 'Operator' and 'Site of Destination' (Ormsary Hatchery, Landcatch Natural selection Ltd.), 'Source Country' for entries Republic of Ireland as Marine Harvest Ireland are the only supplier in that country and all entries under category 'Number' and 'Source Company', as this information is subject to confidentiality clauses within contractual agreements provided by law between Scottish Sea Farms Ltd., and third party producer or egg supplier respectively and as such the disclosure of the information would invalidate our contractual obligations. This confidentiality is protecting a legitimate economic interest as disclosure this information would reveal company or industrial commercial strategy for production of salmon in freshwater and intellectual property knowhow on commercial strategy of genetic selection programme which is based on an extensive research and development by Scottish Sea Farms Ltd.",* continued the Scottish Government's Constitution and Cabinet Directorate (Elections and FOI Division in a letter to the Scottish Information Commissioner dated 16 July 2019. "We recognise that similar information relating to other companies has been released, however this is because those other companies did not object to the release of that information. SSF were the only company to provide evidence of a confidentiality agreement that they had in place with their suppliers and contract growers."

"We recognise that there is some public interest in release in order to promote openness and transparency, and to inform public debate, as the information relates to aquaculture, which is an industry of some importance to the Scottish economy and therefore may be of interest to some people," concluded the Scottish Government's Constitution and Cabinet Directorate (Elections and FOI Division in a letter to the Scottish Information Commissioner dated 16 July 2019. "However, we feel that there is a stronger public interest in avoiding significant harm to the commercial interests of Scottish Sea Farms by breaching its confidentiality agreement made between Aqua Gen AS, and Landcatch Natural Selection Limited. The public interest in protecting the confidentiality of companies that deal with the Scottish Government is high. Commercial companies should be able to trust that the Scottish Government can protect confidential information, and not release information that will cause substantial prejudice to their interests. We feel that maintaining this trust, and not damaging the commercial interests of companies that deal with the Scottish Government outweighs the public interest in the release of the information in this case." [In November 2019, the Scottish Government lost the case with the Scottish Information Commissioner ruling via Decision Notice 160/2019 that disclosure must take place in December 2019 - with the 'commercially damaging' information disclosed by Scottish Salmon Watch on 18 December 2019]

"Ministers will wish to be aware that officials have received an update on the temporary suspension of export of salmon and rainbow trout ova from Norway to Scotland from the Norwegian Food Safety Authority (NSFA)," stated a Briefing for the Cabinet Secretary for the Rural Economy and Minister for Trade, Investment and Innovation dated 8 July 2019. "The NSFA expect Norway's Infectious Salmon Anaemia disease free compartment listing to

be published on 15th of July and expect to be able to resume export certification at this time, pending feedback from the EFTA surveillance authority"

"Apologies for the slow response," stated an email from DEFRA to the Ministry of Trade, the Foreign & Commonwealth Office and CEFAS dated 5 July 2019. "I discussed with [Redacted] (Scottish govt), who had more detailed information on the issue: She confirmed that there is a temporary suspension on the movement of fish and ova from Norway to countries free from Infectious Salmon Anaemia (including the GB health zone). It is her understanding that this temporary suspension has been in place since June. The suspension has been put in place voluntarily following a meeting between the Norwegian Food Safety Authority and the EFTA surveillance authority on 29 May, where issues were raised with the Norwegian documentation system which lists ISA free compartments."

"The Norwegian Food Safety Authority (NSFA) has written to all exporters in Norway to state that no export licenses will be issued until resolved, and that they expect that to take 3 – 4 weeks," continued the email from DEFRA to the Ministry of Trade, the Foreign & Commonwealth Office and CEFAS dated 5 July 2019. "[Redacted] will check on progress with Norwegian colleagues in the coming days, who are confident that they will be able to resolve the situation and keep disruption to a minimum. [Redacted] is correct in that Scottish gvt is not privy to the exact cause of the suspension, as the NSFA are working to address issues raised before the final findings are published. We are led to believe that they are largely administrative in nature, but we cannot verify this. The Scottish fish farming industry is of course heavily reliant on the import of Norwegian ova and we are monitoring the situation very closely."

"Fair point. As follows. Thanks," stated an internal Scottish Government email titled 'RE: SpAd view - lines to take - suspension of salmon ovia from Norway' dated 26 June 2019. "SG spokesperson said:

“Following discussions between the EFTA surveillance authority and Norwegian Food Safety Authority, a temporary suspension has been placed on exports of live fish and ova from Norway.

“Protecting the health of our marine species and environment is paramount, so these precautions are being taken – in accordance with international standards – to minimise the risk of contamination and disease.

“We are working closely with our UK counterparts and Norwegian colleagues to monitor the situation and we expect that certification will resume in the next 3-4 weeks.”

"As you will be aware, there is a temporary suspension of exports of salmon ova from Norway," stated an internal Scottish Government email titled 'RE: SpAd view - lines to take - suspension of salmon ovia from Norway' dated 26 June 2019. "Given the recent interests in salmon farm health and danger of this being conflated with that issue, thought it would be prudent to clear some media lines."

"Please find attached a submission regarding a temporary suspension of exports of salmon and rainbow trout ova from Scotland to Norway," stated a Briefing for the Cabinet Secretary for the Rural Economy and Minister for Trade, Investment and Innovation dated 25 June 2019. "Officials are closely monitoring the situation and will keep Ministers updated."

"A meeting took place between EFTA and Norwegian authorities on 29 May (?) in relation ISA free compartments," stated an email titled 'Exports of Salmon Ova to Scotland' from the Scottish Government to the Norwegian Government's Ministry of Trade, Industry & Fisheries and Norwegian Food Safety Authority (Mattilsynet) dated 21 June 2019. "Issues were raised with the Norwegian documentation system for ISA free compartments. As a result of the meeting, the Norwegian Food Safety Authority suspended the certification of salmon ova from 'ISA free compartments' (i.e health certificates to countries which are ISA free, such as Scotland, are not being permitted). The NSFA is working to resolve the issue, to ensure that their list of ISA free compartments is reliable, before authorising any exports. It is now known how long the suspension will be required. Is there anything else to add? I am not aware that any official notification has gone out? Also that you are working to resolve as quickly as possible. [Redacted], is it possible for you to give me a call?"

"It has been suggested to us by a Norwegian ova supplier (AquaGen) that there may be a temporary stop on all egg exports to the EU from Norway," stated an email from the Scottish Government to the Norwegian Food Safety Authority (Mattilsynet) dated 20 June 2019. "Separately, we have been contacted by Scottish producers who are concerned that supply will be affected this year."

"It certainly will have a significant impact if there is an impasse into the autumn, around 90% of our salmon ova are foreign sourced, the vast majority from Norway," stated an internal Scottish Government email dated 20 June 2019.

"The main question seems to be whether we have been putting pressure on Norway through the EU (however indirectly) on ISA free compartments?" stated an email from the Foreign & Commonwealth Office to DEFRA and the Department for International Trade dated 11 June 2019. "From a quick bit of desk research I haven't found anything specific on the ESA inspection or a temporary stop in exports."

"We appreciate that our initiatives in Scotland have been welcomed by both local and central authorities," stated an email from Nina Santi, CEO of AquaGen to the Department of International Trade dated 10 June 2019. "Currently, the salmon production in Scotland and the trout production in UK are fully relying on egg imports. This makes the production vulnerable, and is one of the reasons we are establishing egg production in Scotland. The planned production this year is however not sufficient to support all the salmon producers in Scotland."

"During the last year, the declaration of ISA free compartments from Norway has become increasingly difficult, and last week this situation seemed to escalate to another level," continued an email from Nina Santi, CEO of AquaGen to the Department of International Trade dated 10 June 2019. "We do not have all the information yet, but from our understanding we face a temporary stop in all egg exports to EU from Norway after an ESA inspection earlier this year.....From what I understand some of the concerns leading up to this situation have come from UK. With this in mind, and from the understanding that a stop in egg exports could damage the Scottish salmon production severely, I wanted to raise your attention to this issue."

"Are there any ways you can assist in this situation?" continued an email from Nina Santi, CEO of AquaGen to the Department of International Trade dated 10 June 2019. "For

AquaGen we need to get new genetic material into Scotland to continue the breeding program locally, but this is of less concern. The main issue is that if the salmon farmers in Scotland are short of eggs, the salmon production just stops, nothing less."

"I would like to apologize for contacting you regarding this rather complex matter but I feel we have to do something on behalf of our Scottish customers," concluded an email from Nina Santi, CEO of AquaGen to the Department of International Trade dated 10 June 2019. "They are not fully aware of the situation since last week, and I would rather not alarm them before we have more information."

"We must be requester-blind, which means we must treat everyone equally and we can't consider why they are requesting the information," explained the Scottish Government in an email to Scottish Sea Farms on 29 June 2018 (in response to a FOI request from Scottish Salmon Watch. "On this occasion we will be withholding the information requested which relates to your business interest as we accept the arguments you have put forward in relation to confidentiality of commercial or industrial information."

"I confirm as previously described we consider the release of information relating to SSF with ova (including imports) involving Mowi / Marine Harvest would cause substantial prejudice to confidentiality of commercial information and as such we request this information is exempt from release to the public under 10(5)e of the EIRs," said Scottish Sea Farms in an email to the Scottish Government dated 1 May 2019 (in December 2019 a ruling from the Scottish Information Commissioner forced disclosure by the Scottish Government).

"We have redacted the published case material as requested," stated the Scottish Government in an email to Scottish Sea Farms dated 13 March 2019. "It would be beneficial if you could confirm exactly the information which relates to commercial confidentiality – I presume that this is just the supplier site and company of any ova imported or provided by a 3rd party – does this relate to fish as well as ova where supplied from out with the company? Also, I think we were withholding information about sites operating on behalf of SSF on a contract growing relationship – but is this just in relation to the import of ova? Going forwards, we will look to redact this type of information from cases as they are completed and published, but we need to be clear exactly what should be withheld."

"Further to this email communication and my telephone call with you last week, the attached information relating to SSF concerning the request for information on Scottish Sea Farms in relation to the import of ova from Norway and disease concerns since 1 January 2016, is proposed for release," stated an email from the Scottish Government to Scottish Sea Farms dated 12 March 2019. "The sections highlighted in pink are areas to be redacted on the basis of being either personal information or relating to the confidentiality of commercial information. In relation to the later, please confirm with me that you wish to maintain this position in this case. I should also highlight that case information relating to site inspections at Barcaldine Hatchery Incubation 1 (case 2018-0646) and Barcladine Hatchery Incubation 3 (case 2018-0645) stipulates: *Site fully stocked with one input 27/11/18 from Aquagen, Norway* and that this information has been published on the Marine Scotland web site. If you feel that this information falls under the confidentiality of commercial information then please let me know. In addition I attach a background note on the ISA status history of Rimstad – the intention was to release this as part of the context to the request and as a follow up to previous suggestions made about the importation of ISA infected ova."

"For your information I'm drawing your attention to the attached publication made by Scottish Salmon Watch Game Ova for Scottish Salmon - Deadly disease delays egg imports from AquaGen in Norway," stated the Scottish Government in an email to Scottish Sea Farms dated 14 February 2019. "An FoI request was received and dealt with covering the subject area of on bio-security and disease risk in relation to the import of salmon ova and lumpsucker ova into Scotland for the use on salmon farms. The detailed request and response is available here: https://www.gov.scot/publications/foi-18-03773/. As part of the release of information, documentation covering the detection of ISA in Rimstad (Norway) along with the declaration made by the Norwegian officials to regain disease free status was released. Caught up in this information, which involved discussion between Scottish and central UK governments, was information relating to the potential import of eggs to Barcaldine from Aquagen back in November and with reference to the ability for the Norwegian site to trade in terms of disease status. The subsequent article was produced by Scottish Salmon Watch."

"Following this, a further request for information has been received covering information on Scottish Sea Farms in relation to the import of ova from Norway and disease concerns since 1 January 2016," continued the Scottish Government in an email to Scottish Sea Farms dated 14 February 2019. "Whilst some of this request will have been covered by responses to previous requests (from last year), we are still to undertake search activity to capture any additional information which we hold which may be relevant. We will consult with you on the same once this activity has been conducted. One area which will fall under this new request is the information associated with ova imports into Barcaldine (and any other additional sites which have imported ova). Given the previous discussions around the release of this information I am seeking your opinion over this in relation to any existing confidentiality agreements. Amongst other things, the information would include site and company of origin and destination, the number of ova shipped and the date that the shipment was made. I would be grateful for a written opinion on this from SSF. As I have explained previously, this consultation is a courtesy, not a statutory obligation, and you do not have a veto on disclosure of the information. Under the terms of the EIRs, the decision on whether or not to release the information is for the Scottish Government alone. However, we will take account of your views."

"With regard to the other two documents which relate to the Rimstad approved compartment declaration I am not aware of the Commission policy on the publishing of any of the comments from the Commission itself or Member States with regard to declarations presented at SCoPAFF," stated CEFAS in an email to the Scottish Government dated 29 January 2019. "As far as we know they do not appear anywhere in public and we would be interested if you have had feedback from the Commission on this point. Obviously the actual declaration is still available on the Commission and Norwegian websites and having reviewed the attached documents in the short time available this evening I cannot see anything that I would not be prepared to see released. I would ask the current relevance of including the Rimstad information at this stage because the last correspondence we had on the 19th November 2018 stated that the deceleration was on hold pending a resolution between the Commission, Germany and Norway. Therefore I presume you are not yet trading with the Rimstad site so it is not bio-security or disease risk in relation to the import of salmon ova."

"The response from Norway clarifies why the 26 fish were not tested for ISA and, in relation to their assessment of surveillance needs before and after the re-interpretation of the Directive's needs, the explanation is reasonable," stated an email from CEFAS to DEFRA

dated 15 November 2018. "I was somewhat concerned by their statements that the operator was making decisions about which fish were to be sampled, rather than an independent veterinarian or competent authority veterinary inspector but, given that they have now conducted testing on a very large number of broodstock, we think these concerns can be ignored. I have just spoken with [Redacted] and he has confirmed that the Scots are equally happy with the information supplied and believe that the declaration is acceptable. We could perhaps note that with plans to introduce rainbow trout to the farm at some future point, it would be necessary to ensure that these and any further salmon introductions were from ISA-free sources."

"I have received a further email from Finfish following my request for supporting evidence regarding their concerns about the release of data to [Redacted] on imports," said the Scottish Government in an internal email dated 22 June 2018. "I'm not sure if this is sufficient evidence, but I will leave this with you to consider."

"We can see the potential commercial risks to our private limited company of your acceding to this EIR request but have difficulty understanding why our company data is not protected under the law and where the public interest lies in divulging the source hatchery of the imported certified eggs we are rearing, the identity of our farm and the number of salmon eggs in our care," said Finfish in an email to the Scottish Government dated 22 June 2018. "Due to the relatively long farm growth cycle for salmon this is commercially sensitive data which can be used by both competitor farms and by customers for the final fish products. The collation and use of this hatchery data, coupled with data from other sources, will be of market value to our farm competitors and eventually adversely impact the financial returns to the Scottish salmon industry from both export and internal UK markets."

"Specifically the information categories relating to third party 'Operator' and 'Site of Destination' (Ormsary Hatchery, Landcatch Natural selection Ltd.), 'Source Country' for entries Republic of Ireland as Marine Harvest Ireland are the only supplier in that country and all entries under category 'Number' and 'Source Company', as this information is subject to confidentiality clauses within contractual agreements provided by law between Scottish Sea Farms Ltd., and third party producer or egg supplier respectively and as such the disclosure of the information would invalidate our contractual obligations," said Scottish Sea Farms in an email to the Scottish Government dated 12 June 2018. "This confidentiality is protecting a legitimate economic interest as disclosure this information would reveal company or industrial commercial strategy for production of salmon in freshwater and intellectual property knowhow on commercial strategy of genetic selection programme which is based on an extensive research and development by Scottish Sea Farms Ltd. As such, disclosure would adversely affect the confidentiality and therefore the public interest in disclosure is not outweighed by the public interest in upholding the exception."

"We are unable to provide copies of the full contractual agreements based on the same confidentiality restrictions, however extracts of the specific confidentiality clauses are provided below as requested to help with your decision," continued Scottish Sea Farms in an email to the Scottish Government dated 12 June 2018 (who were forced in December 2019 by a ruling from the Scottish Information Commissioner to disclose this ova import information). "As you will read, public disclosure of the content of the supply agreement is restricted by contract Law, i.e. 'source company', 'destination site', 'operator' and 'number of eggs' supplied due to the economic value of this Evaluation material of business strategy and as such we further request that this information not be released into the public domain.

Should you decide to proceed to publish the information I would gratefully ask for prior notice so that we can honour our contractual obligation to inform our suppliers specifically under clause 7 of the 2) mutual confidentiality agreement in order to make any legal challenge."

"We do not want to be used nor seen as the bad guys, we fully support the Scottish industry and indeed respect the Scottish governments decision around Norway," stated an email from Hendrix Genetics (owners of Landcatch) to the Scottish Government dated 8 June 2018. "After all we have moved on and no longer have our own broodstock in Scotland".

"Thank you for notifying TSSC of the intended release of information on ova imports," stated an email from The Scottish Salmon Company (TSSC) to the Scottish Government dated 8 June 2018. "We object in the strongest terms to confidential supplier information being available to the public, on the grounds of its extreme commercial sensitivity. We request confirmation from Marine Scotland that no release of this information will take place."

"None of us here have a problem with the information being disclosed," said Grieg Seafood in an email to the Scottish Government dated 8 June 2018.

"I am sure you are aware of the recent press release which was in the National newspaper, basically highlighting the failures in Scottish Government to enforce an import ban on Norwegian eggs," stated an email from Hendrix Genetics (owners of Landcatch) to the Scottish Government dated 8 June 2018. "The paper had requested details under FOI from Scottish Government in relation to our own set of circumstances being denied access to the Norwegian market. Anyway, I am not sure if the below request is linked in anyway to that but if at all possible can we restrict the information you release? Ideally we would not share Site of destination, Operator and Consignee on certificate. The reason we ask for this is we do not want to be used nor seen as the bad guys, we fully support the Scottish industry and indeed respect the Scottish governments decision around Norway. After all we have moved on and no longer have our own broodstock in Scotland. Let me know what you think?" (the National article - "Government 'Failing to Protect Scottish Salmon'" - dated 31 May 2018 is available online here)

"Further to the request below under (Environmental Information (Scotland) Regulations 2004) regarding the release of information in relation to the Import of Atlantic Salmon Ova," stated Cooke Aquaculture in an email to the Scottish Government dated 7 June 2018. "Cooke Aquaculture Scotland Limited strongly feel that the information should be withheld by the Scottish Government, on the grounds of commercial sensitivity. Please see the reasoning below. The information that you intend to release directly relates to the production of Cooke Aquacultures S1 and S0 smolts for our future production, that will have gone to sea in late 2017 as S0s or will go to sea in 2018/2019 as S1s and S0s The release of this information has the ability to give our competitors a distinctive market advantage, as it would give them the opportunity to calculate the number of fish that have been put to sea or we intend to put to sea and also know approximately when these fish will be subsequently harvested. As such Cooke Aquaculture Scotland wish to reiterate our concerns with regards to the release of the said information contained below, due to commercial sensitivity reasons."

"Happy for you to release the information, [Redacted]," stated JS Salmon Ltd in an email to the Scottish Government dated 7 June 2018. "The numbers and dates are correct. All Mhor should be Allt Mor. The consignee was Kames Fish Farming Ltd on all 4 occasions."

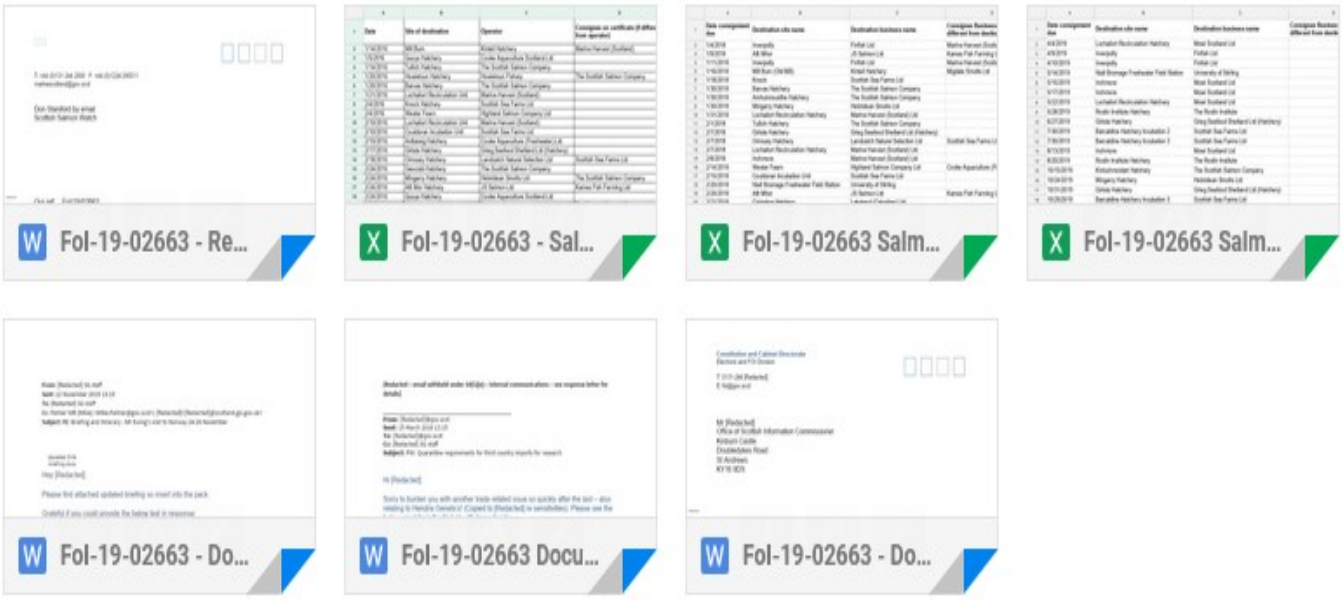
Download documents in full via:

FOI Dossier: Norwegian Salmon Egg Exports Banned Due to Disease Risks (February 2020)

Download FOI documents via the Scottish Government web-site via FOI-19-02663 and here:

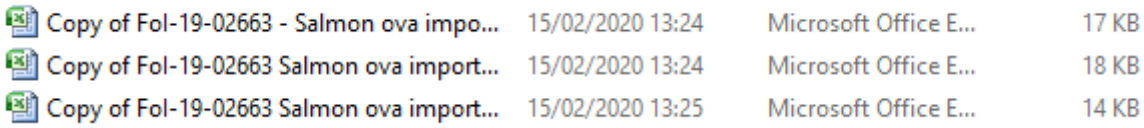
FoI-19-02663 - Response letter from Scottish Government dated 14 February 2020
FoI-19-02663 - Documents for release (1)
FoI-19-02663 Documents for release (2)
FoI-19-02663 - Documents for release (3)
Copy of FoI-19-02663 - Salmon ova imports 2016
Copy of FoI-19-02663 Salmon ova imports 2018 to April 2019
Copy of FoI-19-02663 Salmon ova imports April 2019 to December 2019

7 Attachments



Notes to Editors:

[1] Data on imports of salmon ova (disclosed by the Scottish Government on 14 February 2020 via FOI-19-02663):



Copy of FoI-19-02663 - Salmon ova imports 2016
Copy of FoI-19-02663 Salmon ova imports 2018 to April 2019
Copy of FoI-19-02663 Salmon ova imports April 2019 to December 2019

2019 (January to 2 April):

Date consignment due	Destination site name	Destination business name	Consignee Business name (if different from destination business)	Species	Stage	Number in consignment	Source Country	Import consignor
10/01/2019	Barcaldine Hatchery Incubation 4	Scottish Sea Farms Ltd		Salmon	Ova	1,500,000	Republic of Ireland	Mowi Ireland
10/01/2019	Barcaldine Hatchery Incubation 2	Scottish Sea Farms Ltd		Salmon	Ova	1,500,000	Republic of Ireland	Mowi Ireland
16/01/2019	Knock	Scottish Sea Farms Ltd		Salmon	Ova	1,500,000	Republic of Ireland	Mowi Ireland
16/01/2019	Mill Burn (Old Mill)	Kintail Hatchery	Migdale Smolt Ltd	Salmon	Ova	2,000,000	Norway	Grieg Seafood Rogaland
17/01/2019	Holywood Salmon Farm	AquaGen Scotland Ltd		Salmon	Ova	42,000	Norway	AquaGen AS
17/01/2019	Couldoran Incubation Unit	The Scottish Salmon Company		Salmon	Ova	1,500,000	Iceland	Stofnfiskur Hf.
24/01/2019	Niall Bromage Freshwater Field Station	University of Stirling		Salmon	Ova	30,000	Norway	MOWI Norway
29/01/2019	Barvas Hatchery	The Scottish Salmon Company		Salmon	Ova	436,800	Iceland	Stofnfiskur Hf.
29/01/2019	Mingarry Hatchery	Hebridean Smolts Ltd	The Scottish Salmon Company	Salmon	Ova	682,500	Norway	Grieg Seafood Rogaland
30/01/2019	Allt Mhor	JS Salmon Ltd	Kames Fish Farming	Salmon	Ova	500,000	Norway	Grieg Seafood Rogaland
30/01/2019	Ormsary Hatchery	Landcatch Natural Selection Ltd	The Scottish Salmon Company	Salmon	Ova	755,300	Norway	Grieg Seafood Rogaland
04/02/2019	Lochailort Recirculation Hatchery	Mowi Scotland Ltd		Salmon	Ova	1,563,000	Norway	MOWI Norway
05/02/2019	Lochailort Recirculation Hatchery	Mowi Scotland Ltd		Salmon	Ova	1,537,000	Norway	MOWI Norway
05/02/2019	Inchmore	Mowi Scotland Ltd		Salmon	Ova	1,000,000	Norway	MOWI Norway
07/02/2019	Kinlochmoidart Hatchery	The Scottish Salmon Company		Salmon	Ova	576,000	Norway	Grieg Seafood Rogaland
13/02/2019	Mingarry Hatchery	Hebridean Smolts Ltd	The Scottish Salmon Company	Salmon	Ova	30,000	Norway	Grieg Seafood Rogaland
14/02/2019	Wester Fearn	Highland Salmon Company Ltd	Cooke Aquaculture Scotland Ltd	Salmon	Ova	700,000	Republic of Ireland	Mowi Ireland
14/02/2019	Cairndow Hatchery	Lakeland (Cairndow) Ltd	Cooke Aquaculture Scotland Ltd	Salmon	Ova	1,100,000	Republic of Ireland	Mowi Ireland
14/02/2019	Ormsary Hatchery	Landcatch Natural Selection Ltd	Organic Sea Harvest	Salmon	Ova	584,000	Republic of Ireland	Mowi Ireland
20/02/2019	Girlsta Hatchery	Grieg Seafood Shetland Ltd (Hatchery)		Salmon	Ova	1,800,000	Norway	Grieg Seafood Rogaland
26/02/2019	Ardtaraig Hatchery	Cooke Aquaculture (Freshwater) Ltd		Salmon	Ova	367,500	Norway	AquaGen AS
21/03/2019	Barcaldine Hatchery Incubation 1	Scottish Sea Farms Ltd		Salmon	Ova	1,500,000	Republic of Ireland	Mowi Ireland
21/03/2019	Barcaldine Hatchery Incubation 3	Scottish Sea Farms Ltd		Salmon	Ova	1,500,000	Republic of Ireland	Mowi Ireland
28/03/2019	Lochailort Recirculation Hatchery	Mowi Scotland Ltd		Salmon	Ova	1,350,000	Norway	MOWI Norway
28/03/2019	Cairndow Hatchery	Lakeland (Cairndow) Ltd	Cooke Aquaculture Scotland Ltd	Salmon	Ova	1,800,000	Iceland	Stofnfiskur Hf.
02/04/2019	Lochailort Recirculation Hatchery	Mowi Scotland Ltd		Salmon	Ova	1,562,809	Norway	MOWI Norway

Iceland: 3.7 million
Norway: 13.8 million
Republic of Ireland: 9.9 million

2019 (4 April to 11 December):

Date consignment due	Destination site name	Destination business name	Consignee Business name (if different from destination business)	Species	Stage	Number in consignment	Source Country	Import consignor
04/04/2019	Lochailort Recirculation Hatchery	Mowi Scotland Ltd		SAL	OVA	1,537,191	Norway	Mowi Norway
09/04/2019	Inverpolly	Finfish Ltd		SAL	OVA	1,322,403	Norway	Mowi Norway
10/04/2019	Inverpolly	Finfish Ltd		SAL	OVA	1,247,597	Norway	Mowi Norway
14/05/2019	Niall Bromage Freshwater Field Station	University of Stirling		SAL	OVA	18,000	Iceland	Stofnfiskur Hf.
15/05/2019	Inchmore	Mowi Scotland Ltd		SAL	OVA	1,300,000	Norway	Mowi Norway
17/05/2019	Inchmore	Mowi Scotland Ltd		SAL	OVA	1,300,000	Norway	Mowi Norway
22/05/2019	Lochailort Recirculation Hatchery	Mowi Scotland Ltd		SAL	OVA	3,200,000	Norway	Mowi Norway
28/05/2019	Roslin Institute Hatchery	The Roslin Institute		SAL	OVA	3,000	Iceland	Stofnfiskur Hf.
27/06/2019	Girlsta Hatchery	Grieg Seafood Shetland Ltd (Hatchery)		SAL	OVA	1,751,000	Iceland	Stofnfiskur Hf.
30/07/2019	Barcaldine Hatchery Incubation 2	Scottish Sea Farms Ltd		SAL	OVA	1,200,000	Iceland	Stofnfiskur Hf.
30/07/2019	Barcaldine Hatchery Incubation 3	Scottish Sea Farms Ltd		SAL	OVA	1,200,000	Iceland	Stofnfiskur Hf.
13/08/2019	Inchmore	Mowi Scotland Ltd		SAL	OVA	1,450,000	Iceland	Stofnfiskur Hf.
20/08/2019	Roslin Institute Hatchery	The Roslin Institute		SAL	OVA	10,000	Iceland	Stofnfiskur Hf.
15/10/2019	Kinlochmoidart Hatchery	The Scottish Salmon Company		SAL	OVA	537,810	Iceland	Stofnfiskur Hf.
24/10/2019	Mingarry Hatchery	Hebridean Smolts Ltd		SAL	OVA	955,500	Iceland	Stofnfiskur Hf.
31/10/2019	Girlsta Hatchery	Grieg Seafood Shetland Ltd (Hatchery)		SAL	OVA	1,800,000	Iceland	Stofnfiskur Hf.
29/10/2019	Barcaldine Hatchery Incubation 3	Scottish Sea Farms Ltd		SAL	OVA	1,125,000	Iceland	Stofnfiskur Hf.
29/10/2019	Barcaldine Hatchery Incubation 2	Scottish Sea Farms Ltd		SAL	OVA	1,125,000	Iceland	Stofnfiskur Hf.
30/10/2019	Appleburn Incubation Unit	The Scottish Salmon Company		SAL	OVA	1,030,575	Iceland	Stofnfiskur Hf.
12/11/2019	Ormsary Hatchery	Landcatch Natural Selection Ltd	Loch Duart Ltd	SAL	OVA	450,000	Iceland	Stofnfiskur Hf.
12/11/2019	Barvas Hatchery	The Scottish Salmon Company		SAL	OVA	443,625	Iceland	Stofnfiskur Hf.
13/11/2019	Lochailort Recirculation Hatchery	Mowi Scotland Ltd		SAL	OVA	1,900,000	Iceland	Stofnfiskur Hf.
19/11/2019	Niall Bromage Freshwater Field Station	University of Stirling		SAL	OVA	15,000	Iceland	Stofnfiskur Hf.
20/11/2019	Cairndow Hatchery	Lakeland (Cairndow) Ltd		SAL	OVA	1,000,000	Iceland	Stofnfiskur Hf.
19/11/2019	Applecross Hatchery	The Scottish Salmon Company		SAL	OVA	1,800,000	Iceland	Stofnfiskur Hf.
26/11/2019	Cairndow Hatchery	Lakeland (Cairndow) Ltd		SAL	OVA	1,500,000	Iceland	Stofnfiskur Hf.
27/11/2019	Ormsary Hatchery	Landcatch Natural Selection Ltd	Organic Sea Harvest Ltd	SAL	OVA	675,900	Iceland	Stofnfiskur Hf.
28/11/2019	Ormsary Hatchery	Landcatch Natural Selection Ltd	The Scottish Salmon Company	SAL	OVA	2,320,500	Iceland	Stofnfiskur Hf.
11/12/2019	Ormsary Hatchery	Landcatch Natural Selection Ltd	Saumon de France	SAL	OVA	350,000	Iceland	Stofnfiskur Hf.

Iceland: 22.7 million
Norway: 9.9 million

2019 in total:

Iceland: 26.4 million
Norway: 24.7 million
Republic of Ireland: 9.9 million

Imports of salmon

Stage & origin	2018
Ova	
Iceland	10,119,000
Norway	48,345,000
Republic of Ireland	7,250,000

Salmon imports

Stage & origin	2017
Ova	
Iceland	13,883,000
Norway	37,049,000
Republic of Ireland	7,003,000

Salmon ova imports: 2016

Iceland: 5.3 million
Norway: 38.6 million
Republic of Ireland: 4.1 million

Includes:

Date	Site of destination	Operator	Consignee on certificate (if different from operator)	Species	Stage	Number	Source Country	Source Company
17/11/2016	Couldoran Incubation Unit	Scottish Sea Farms Ltd		Salmon	Ova	1,000,000	Norway	Aquagen AS
04/02/2016	Knock Hatchery	Scottish Sea Farms Ltd		Salmon	Ova	1,100,000	Rep of Ireland	Marine Harvest (Ireland)
10/02/2016	Couldoran Incubation Unit	Scottish Sea Farms Ltd		Salmon	Ova	150,000	Rep of Ireland	Marine Harvest (Ireland)
08/12/2016	Ormsary Hatchery	Landcatch Natural Selection Ltd	Scottish Sea Farms Ltd	Salmon	Ova	988,000	Norway	Aquagen AS
18/02/2016	Ormsary Hatchery	Landcatch Natural Selection Ltd	Scottish Sea Farms Ltd	Salmon	Ova	2,100,000	Rep of Ireland	Marine Harvest (Ireland)
03/03/2016	Ormsary Hatchery	Landcatch Natural Selection Ltd	Scottish Sea Farms Ltd	Salmon	Ova	144,000	Rep of Ireland	Marine Harvest (Ireland)

[2] The European Free Trade Association (EFTA) is the intergovernmental organisation of Iceland, Liechtenstein, Norway and Switzerland. It was set up in 1960 by its then seven Member States for the promotion of free trade and economic integration between its members.

The EFTA Surveillance Authority (ESA) monitors compliance with the Agreement on the European Economic Area (EEA Agreement) in Iceland, Liechtenstein and Norway, enabling those States to participate in the Internal Market of the European Union.

EFTA Surveillance Authority press release (30 September 2019) & Final Report: EFTA Surveillance Authority's mission to Norway from 20 to 29 May 2019 in order to evaluate animal health controls in relation to aquaculture (23 September 2019):

Internal Market

ESA: Norway needs to improve official controls of trade of live farmed fish/shellfish

30.9.2019

PR(19)27

EN | NO

This is the main conclusion in a report published by ESA (the EFTA Surveillance Authority) after an audit in Norway in May.

Norway has put in place a system of official controls of farmed fish/shellfish focusing mainly on diseases which are of national concern. However, ESA found that Norway must improve the controls of diseases in farmed fish/shellfish that will be traded in the EEA.

Currently, Norway cannot fully ensure that farmed fish/shellfish sent from Norway to other EEA-states does not affect the health of farmed fish/shellfish in the receiving countries.

After the audit, Norway has taken and planned a number of corrective measures, to allow for continuation of the EEA trade and export of farmed fish/shellfish.

Read the full report here .

For further information, please contact:

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Brussels, 23 September 2019
Case No: 83033
Document No: 1085525

Final report

EFTA Surveillance Authority's mission to Norway from 20 to 29 May 2019 in order to evaluate animal health controls in relation to aquaculture

Executive Summary

This report describes the outcome of a mission carried out by the EFTA Surveillance Authority in Norway from 20 to 29 May 2019.

The objective of the mission was to verify that official controls related to animal health of aquaculture animals were carried out in compliance with European Economic Area (EEA) legislation.

It is not clear that Commission Implementing Decision (EU) 2015/1554 of 11 September 2015 laying down rules for the application of Directive 2006/88/EC as regards requirements for surveillance and diagnostic methods has been fully or properly made part of the Norwegian legal order. Norway has not formally notified the Authority how this Decision is implemented and the relevant administrative procedures for surveillance of listed fish and molluscs diseases, which Norway claims implements the Decision, does not reflect all the provisions of the Decision.

At the time of the mission there was no reliable system in place in Norway enabling identification of farms which have been granted ISA-free status. Moreover, in the majority of cases, such status has been granted without or with very limited involvement of the NFSA staff prior to the stage when the formal application is forwarded to the NFSA. The lack of official verification by the NFSA of surveillance activity undertaken to prove freedom from ISA casts significant doubt on the reliability of the statements included in the declarations of free status for compartments submitted by the NFSA since it is not in a position to ascertain the accuracy of the information being certified or ensure that no conflict of interest compromises the process.

Norway has submitted several declarations for dependent Infectious Salmon Anaemia (ISA)-free compartments; i.e. sites which are dependent on the health status of the surrounding waters. However, in these cases Norway does not apply additional disease surveillance activities to confirm that the sea waters surrounding elements of the dependent compartment (e.g. neighbouring salmon farms or susceptible species of wild fish) can also be considered free of ISA. The mission team considers that due to the lack of surveillance in surrounding waters and the absence of any additional measures to prevent introduction of ISA to sea sites declared free of ISA, such dependent compartments should not be declared and certified for intra-EEA trade and export to third countries as ISA-free compartments.

Current certification arrangements attesting the free status of aquaculture production businesses from Bacterial Kidney Disease lack transparency regarding the disease surveillance programme and which entities are considered by the NFSA as compliant with the relevant requirements.

A network of diagnostic laboratories has been designated by the competent authority and independently accredited. The national reference laboratories for all listed diseases of aquatic animals participate in proficiency testing organised by the relevant EU reference laboratories and, in addition, organise periodic ring tests of diagnostic procedures at national level with the designated private laboratories to ensure standardisation. This ensures that the laboratory network can provide a reliable diagnostic service for listed aquaculture diseases.

The report includes a number of recommendations addressed to the Norwegian competent authority aimed at rectifying the identified shortcomings and enhancing the control system in place.

Conclusions

82. Limited involvement by the NFSA in the process of declaring compartments/zones disease-free precludes the NFSA from being able to verify compliance with surveillance requirements throughout the process or ensure that no conflict of interest compromises the process.

83. The fact that the surveillance program establishes sampling throughout the year rather than during two 1-month test periods per year, combined with absence of official verification by the NFSA of surveillance undertaken to establish freedom of ISA, undermines the reliability of the statements included in the declarations of disease free status of compartments submitted by the NFSA. This, along with insufficient description of the disease control systems in place in such declarations, precludes a proper assessment of the underlying guarantees provided by the NFSA and weakens the overall procedure for granting ISA-free status.

84. The absence of additional measures in relation to dependent ISA-free compartments further reduces the reliability of the system in place. In particular, since such compartments are a potential source of fish to independent compartments, this potentially exposes all ISA free compartments in Norway to fish from Category III areas.

5.3.6.2 Withdrawal of ISA-free status

85. According to information provided by Norway in its reply to the Authority's pre-mission document, the criteria and administrative procedures for declaration, maintenance, suspension and restoration of a zone or a compartment within Norwegian territory free of a non-exotic disease are in accordance with Article 50, 52 and 53 of Directive 2006/88/EC.

86. ISA free status will be withdrawn in case of suspicion, or confirmation, of ISA in a zone or compartment or in case of breach of the conditions of maintenance of ISA-free zones or compartments – for example, insufficient number of samples, intake of biological material from areas of lower health status or inadequate biosecurity measures. The regional offices of the NFSA have legal competence to suspend disease free status upon suspicion of ISA, while the head office has the competence to withdraw disease free status following confirmation of the disease in a relevant compartment or zone.

87. The mission team noted that the OK 2019 states that, in case of withdrawal, ISA free status will be withdrawn for the entire compartment and all sites within. However, Point 6 of the "Instruction for suspension and withdrawal of ISA free status" (*ILA-fritt segment og ILA-fri sone – instruks om suspensjon og tilbaketrekking for tilsynet)* outlines an option of partial withdrawal.

88. Following a suspicion of ISA on a sea site, the NFSA suspended the ISA free status of a compartment close by. The disease free status of the compartment was suspended by a regional office of the NFSA in June 2018, two days after initial suspicion of ISA on the neighbouring farm. Nevertheless, the site number still appears on the list of ISA-free compartments in Annex 2 to Regulation NO of 17 June 2008 No 822.

7 Recommendations

In order to facilitate the follow-up of the recommendations hereunder, Norway should notify the Authority no later than 20 November 2019, by way of written evidence, of additional corrective actions planned or taken other than those already indicated in the reply to the draft report of the Authority. In case no additional corrective actions have been planned, the Authority should be advised. The Authority should be kept continuously informed of changes made to the already notified corrective actions and measures, including changes of deadlines for completion, and completion of the measures included in the timetable.

Annex 5 - Norway's action plan for corrective actions

No	Recommendation	Corrective actions	Deadline
1	Ensure that Commission Implementing Decision (EU) 2015/1554 is made part of the Norwegian legal order. Conclusion: 3 Associated finding: 1, 2	1. Implement the Commission Implementing Decision (EU) 2015/1554 in the Norwegian legal order.[1] 2. Notify the Authority of the implementation. 3. Publish a guide for the industry about the requirements for declare and maintain disease-free status for non-exotic diseases. 4. Publish internal guidelines for how to declare and maintain disease-free status for non-exotic diseases.	1 January 2020[2] 5 January 2020 1 April 2020[3] 1 April 2020[3]

[1] Commission Implementing Decision (EU) 2015/1554 of 11 September 2015 laying down rules for the application of Directive 2006/88/EC as regards requirements for surveillance and diagnostic methods ('Decision (EU) 2015/1554') is implemented by administrative procedures for surveillance programmes and chapters on Infectious salmon anaemia (ISA), Viral haemorrhagic septicaemia (VHS), Infectious haematopoietic necrosis (IHN) and Bonamia ostreae (B. ostreae) and Marteilia refringens (M. refringens) specified in the Norwegian Food Safety Authority's Instruction for OIE programs 2019 ('OIE instruks 2019'). See attachment 1. Please note that the date of the 'OIE-instruks' is not updated.
[2] In the previous version of the table, the NFSA stated that the deadline to implement the Commission Implementing Decision (EU) 2015/1554 was 1 July 2020.
[3] In the previous version of the table, the NFSA stated that the guidelines to the industry and the internal guidelines will be publish 1 July 2020. Please also see recommendations #3 and 7.

Annex 7 - Actions proposed by Norway in reply to the Authority's request for urgent action

(Received on 25 June 2019)

Answer to the request for urgent action by Norway concerning animal health requirements for aquaculture animals

Reference is made to the mission of the EFTA Surveillance Authority ("the Authority") to Norway from 20 to 29 May 2019 in order to evaluate official controls of animal health requirements for aquaculture animals.

The Norwegian government is required to provide the Authority with its comments on the principal findings - including proposing a comprehensive remedial action plan with specific details of how changes will be effected within a timetable reflecting the urgency of the situation.

The principal findings for the mission to Norway are:

I. Management of Infectious Salmon Anemia ("ISA")
   i. significant delay in official confirmation of an outbreak of ISA or of its absence following initial notification of suspicion of an ISA outbreak;
   ii. insufficient control of surrounding areas from the time of initial notification of suspicion of an ISA outbreak until measures are taken to delimit the containment area (protection and surveillance zones) surrounding a compartment or zone in which an ISA outbreak has been officially confirmed, thereby failing to prevent continuation of activities in surrounding areas with potential to spread disease such as movement of well-boats bringing and taking animals to and from the relevant compartment or zone;
   iii. failure to impose additional measures in ISA-free compartments dependent on the health status of surrounding waters in order to prevent introduction of ISA from surrounding Category III sea waters;
   iv. limited and late involvement in the procedure for granting ISA-free status, precluding the possibility of effectively controlling compliance with surveillance and related sampling requirements prior to submission of a formal declaration of ISA-free status or of ensuring that such procedure is not compromised by conflicts of interest;

Download 50 page EFTA report online here

Cited in Norwegian Fish Farmer magazine article (30 September 2019): "ESA reprimands Norway: Poor control of trade in live farmed fish" (rough Google Translation)

Norge må forbedre kontrollen med handel av levende oppdrettsfisk og skjell. Det er hovedkonklusjonen i en rapport som EØS-tilsynet ESA offentliggjorde på septembers siste dag, etter å ha vært på inspeksjon i Norge i mai.

Av Pål Mugaas Jensen

På sine hjemmesider gir ESA Norge kreditt for at de har et velutviklet kontrollsystem for helse til oppdrettsfisk og skjell, med særlig fokus på sykdommer som er prioritert nasjonalt. Men:

- ESA fant likevel at kontrollsystemet ikke gir tilstrekkelig garantier for sykdomsfrihet i anlegg som sender levende oppdrettsfisk og skjell til oppdrettere i andre EØS-land.

De mener Norge for tiden ikke kan garantere at utsendelser av oppdrettsfisk/skjell sendt fra Norge til andre EØS-land ikke vil påvirke helsen til oppdrettsfisk skjell i mottakerlandene.

Etter inspeksjonen har imidlertid Norge planlagt og gjennomført flere tiltak for å rette opp svakhetene og forbedre systemet som allerede er på plass, for å kunne opprettholde handel med oppdrettsfisk/skjell.

Tilsynet som rapporten baserer seg på ble utført av EFTAs overvåkningsorgan i Norge fra 20. til 29. mai 2019.

Kan ikke garantere ILA-frihet

I selve rapporten skriver ESA at målet med oppdraget var å verifisere at offisiell kontroll knyttet til dyrehelse til akvakulturdyr ble utført i samsvar med lovgivningen til European Economic Area (EEA).

- Det fremstår ikke som klart at EU-kommisjonens gjennomføringsvedtak (EU) 2015/1554 fra 11. september 2015 om regler for anvendelse av direktiv 2006/88 / EF for krav til overvåkings- og diagnosemetoder har blitt fullstendig eller riktig gjort del av det norske lovverket, heter den byråkratiske formuleringen i rapportens oppsummering.

Da man utførte tilsynet var det ifølge ESA ikke noe pålitelig system i Norge som muliggjorde identifikasjon av anlegg som har fått ILA-fri-status.

Norge har avgitt flere erklæringer for betingete ILA-frie lokaliteter, dvs lokaliteter som er avhengig av helsetilstanden i det omkringliggende vannet. ESA påpeker at Norge i disse tilfellene ikke har satt i gang ekstra overvåkningsaktivitet for å bekrefte at havvannet som omgir lokalitetene også er fri for ILA.

- ESA mener på grunn av denne manglende overvåkningen i omliggende farvann og fravær av ytterligere tiltak for å forhindre innføring av ILA til sjøområder erklært fri for ISA, kan ikke slike områder deklareres og sertifiseres for handel og eksport innen EØS eller til tredjeland som «ILA-fri».

- Les hele rapporten her

More via:

The EEA agrement

The Agreement on the European Economic Area extends the principles of the European Union internal market to three out of the four EFTA countries: Iceland, Liechtenstein and Norway. As a result, the four fundamental freedoms of the internal market - free movement of goods, services, capital and persons -apply in the EEA in the same way as they do in the European Union.

- As a result of the agreement, EC law on the four freedoms is incorporated into the domestic law of the participating EFTA States
- All new relevant EU legislation is introduced through the EEA Agreement so that it applies throughout the EEA, ensuring uniform application of laws relating to the internal market
- The EFTA Surveillance Authority (ESA) monitors compliance with the EEA Agreement
- EU Member States are supervised by the European Commission; while the participating EFTA States are supervised by the ESA
- ESA regularly preform on-the-spot inspections to ensure that the EFTA Countries apply EEA legislation correctly within the field of food and feed safety, animal health and welfare. Findings are published in reports by ESA
- Since 2006 over 60 inspections has been carried out in Norway
- Observers from Directorate F/National experts from the EU often participate in the inspections

ESAs recommendations

- The Norwegian Food Safety Authority will continue with the self-imposed voluntary suspension of the certification of live aquaculture animals, until the recommendations of the report from ESA are satisfactorily addressed.

Self imposed voluntary suspension

All compartments and zones listed as Category I health status for ISA are at the moment subject to a voluntary self imposed suspension.

- During the suspension period all zones and compartments have been subject to a comprehensive scrutiny and evaluation based on the following criteria:

- The requirements set out in Decision (EU) 1554/2015 with regard to:
  - The number of health inspections (Annex 1, Part 3, Table 3b)
  - The number and quality of samples and laboratory examinations (Annex 1, Part 3, Table 3b and Annex 1, Part 3, Points II.1 and II.)

- The requirements laid down in Directive (EC) 2006/88 with regard to:
  - The quality of official controls (Article 7)
  - The need for additional measures to prevent introduction of ISA into the compartment (Annex V, Part II, Point 2.4)

Determination of the need for additional measures

The requirements of Directive (EU) 2006/88 foresees a risk based approach. i.e. Evaluation of the compartment risk of being exposed to ISAV HPR-deleted.

The most important criteria:

- Distance to other farms keeping species susceptible to ISA
- Distance to slaughtering or processing plants processing species susceptible to ISA
- Distance to a known outbreak and an established containment area for ISA
- Distance to frequently used sailing routes for well boats
- The need for transport through an unknown or infected area of live fish for the purpose of restocking of the Category I compartment or zone.

Determination of the need for additional measures

The most relevant actions:

- The establishing of a buffer zone including one or more of the following measures:
  - Increased number of health inspections
  - Increased surveillance for ISAV HPR-deleted
  - Restrictions with regard to restocking of fish (only Category I material is allowed)
  - Specific requirements with regard to the use of transport vehicles, equipment etc.
- Similar increased biosecurity requirements within the ISA-free compartment or zones

Criteria for further listing as ISA-free compartments or zones

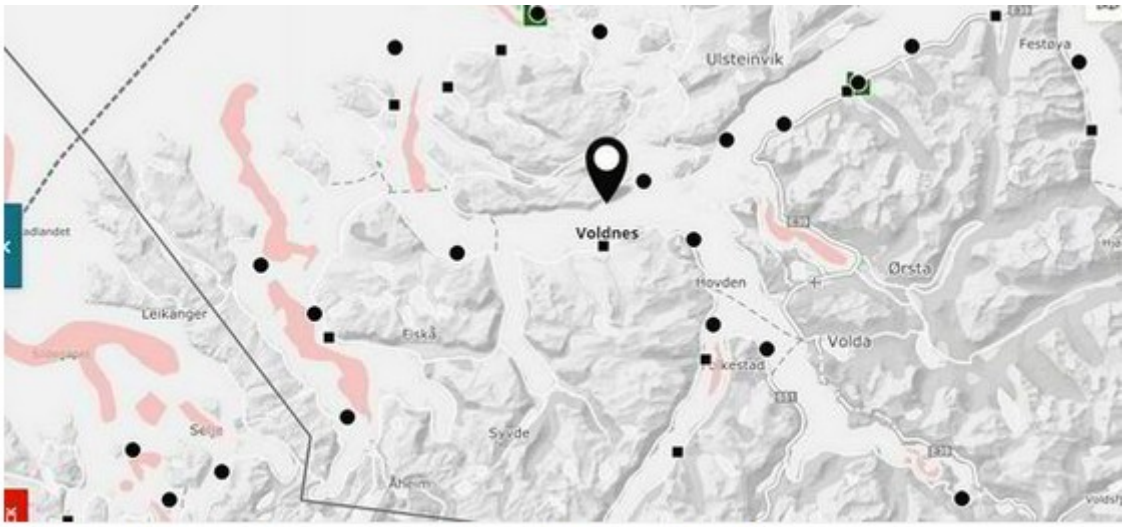
- All farms keeping susceptible species for ISA must have fulfilled the previous mentioned requirements set out in Decision (EU) 2015/1554 with regard to health inspections, sampling and laboratory examinations for the years 2017, 2018 and 2019.
- The requirements concerning official control laid down in Directive (EC) 2006/88 must have been fulfilled for each of the units/farms of concern.
- The need for additional measures, including the need for establishing a buffer zone has been evaluated and addressed. Only farms where this need has been considered to be unnecessary or such measures has been imposed for an appropriate period, will be kept on the list.

[3] A Primer: The Spread of Infectious Salmon Anaemia Via Infected Eggs

Infectious Salmon Anaemia (ISA) is a notifiable disease which must be reported to the World Organisation for Animal Health (OIE) and infection with genotype HPR-deleted of the genus Isavirus (ISAV) is listed as a non-exotic disease under Annex IV, Part II of Council Directive 2006/88/EC (as amended in 2014/22/EU).

In Norway, ISA was reported at a Mowi salmon farm in Nordland in July 2019 and at another Mowi salmon farm in Aukrasanden in April 2019 and at another Mowi salmon farm in Kjeahola in November 2019 and at Mowi's salmon farm at Finnoy in Rogaland also in November 2019.

A suspected case of ISA at Laholmen in Finnmark was reported by Grieg to the Norwegian Food Safety Authority in January 2020. Intrafish reported in January 2020:



ISA virus detected at Mowi site

Authorities were notified and are taking necessary actions to mitigate any further risks.

20 January 2020 8:35 GMT *UPDATED 20 January 2020 8:35 GMT*
By **Demi Korban**

Norwegian salmon giant Mowi is under suspicion of an infectious salmon anemia (ISA) outbreak at its Voldnes site in Norway's Heroy municipality.

The company notified the Norwegian Food Safety Authority on Jan. 17 of the possibility based on samples taken a few days earlier.

The authority will inspect the site with results expected to be available next week.

In order to prevent any spread of the infection, the company is restricted from harvesting or relocating the fish.

Intrafish reported in November 2019 that SalMar (owner of Scottish Sea Farms) notified the Norwegian Food Safety Authority of a positive test for ISA.

ISA detected at SalMar-run salmon farm

Salmar notified the authorities on Nov. 15 following a positive test, leading to restrictions on the movement of fish from the site.

22 November 2019 3:50 GMT *UPDATED 28 November 2019 16:18 GMT*
By **John Evans**

Traces of ISA disease have been detected at a salmon farm operated by Norwegian producer SalMar in conjunction with Havbrukstasjonen in Tromso, Norway, according to feed producer Skretting and Stim, the Norwegian Food Safety Authority.

SalMar notified the authority on Nov. 15 following a positive test.

Intrafish reported in April 2019:

Over 1 million fish at risk from ISA outbreak at Mowi site

17 April 2019 12:56 GMT *UPDATED 17 April 2019 13:03 GMT*
By **Joar Grindheim**

Mowi, the world's largest salmon farming company, on Monday reported a suspected finding of the infectious salmon anemia (ISA) virus at its farm in Aukrasanden, in Norway's More og Romsdal region.

The site has around 1.3 million fish, with an average weight of 3.5 kilograms.

If the sample is confirmed, the farms will be quarantined, and the fish destroyed.

In May 2019, Intrafish reported: "Mowi begins slaughter of 1.3 million fish in ISA outbreak".

Intrafish reported in February 2019:

ISA the 'biggest threat' to salmon farming

Experts warn that the deadly virus is not just a danger to netpens, but land-based salmon facilities as well.

22 February 2019 8:53 GMT *UPDATED 22 February 2019 13:33 GMT*
By **Anders Furuset**

Infectious Salmon Anemia (ISA) is currently the largest threat to the salmon farming industry, with both the Norwegian Food Safety Authority and the Veterinary Institute warning against potential infection in hatcheries and RAS facilities.

During the recent Norwegian Research Institute (Sintef) conference in Trondheim, Norway, Ole Bendik Dale, veterinarian and section leader at the Veterinary Institute, said the salmon farming industry needs to carefully guard against ISA, and take high precautions.

"We must be extremely careful not to let this virus spread. It is a willing virus that quickly becomes 'greedy' in dense fish farms," Dale said.

The harmless HRP0 virus can easily mutate to HRPdel -- and create huge losses for salmon farmers, he warned.

"HRP0 is not very dangerous in itself, more like a cold -- with HPR0, the origin of HRPdel that is infected internally is unstoppable and creates high mortality," Dale said.

Widespread in hatcheries

ISA was first detected in Norway in 1984, and peaked in 1990 with around 80 known outbreaks, Dale said. Rates have now come down considerably.

There are two types of origin for ISA outbreaks: so-called primary outbreaks and secondary outbreaks. In the past, there have been several primary outbreaks, which in Dale's mind is worrying.

"We know that there is a lot of HPR0 in hatcheries. Then there is hardly ever an ISA outbreak there, but now we see that we have had several ISA outbreaks early in the sea phase," he said.

According to Dale, a nightmare scenario would be the spread of several strains of HRP0 virus in hatcheries.

"The virus can spread before it is detected, thereby providing more secondary outbreaks," he said.

Read more via the World Organisation for Animal Health (OIE):
"INFECTION WITH HPR-DELETED OR HPR0INFECTIOUS SALMON ANAEMIA VIRUS"

A scientific paper published in 2017 reported that "ISAV-HPR0 represents a reservoir and risk factor for the emergence of ISA disease":

J Gen Virol. 2017 Apr;98(4):595-606. doi: 10.1099/jgv.0.000741.

First field evidence of the evolution from a non-virulent HPR0 to a virulent HPR-deleted infectious salmon anaemia virus.

Christiansen DH[1], McBeath AJA[2], Aamelfot M[3], Matejusova I[2], Fourrier M[2], White P[2], Petersen PE[1], Falk K[3].

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3 Norwegian Veterinary Institute, Oslo, Norway.

Abstract

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. The FO/121/14 virus infection was not associated with specific clinical signs of ISA and was confined to a single net-pen, while various ISAV-HPR0 subtypes were found circulating in most epidemiologically linked marine and freshwater farms. Sequence analysis of all eight segments revealed that the FO/121/14 virus was identical, apart from a substitution in the fusion (F) gene (Q266L) and a deletion in the haemagglutinin-esterase (HE) gene, to the FO/07/12 variant from a freshwater farm, which supplied smolts exclusively to the FO/121/14-positive net-pen. An immersion challenge with the FO/121/14 virus induced a systemic infection in Atlantic salmon associated with a low mortality and mild clinical signs confirming its low pathogenicity. Our results demonstrate that mutations in the F protein and deletions in the highly polymorphic region (HPR) of the HE protein represent a minimum requirement for ISAV to gain virulence and to switch cell tropism from a localized epithelial infection to a systemic endotheliotropic infection. This documents that ISAV-HPR0 represents a reservoir and risk factor for the emergence of ISA disease.

Read more via:

Front Vet Sci. 2018; 5: 308.
Published online 2018 Dec 6. doi: 10.3389/fvets.2018.00308
PMCID: PMC6292176
PMID: 30574509

Risk Factors Associated With Outbreaks of Infectious Salmon Anemia (ISA) With Unknown Source of Infection in Norway

Trude Marie Lyngstad, Lars Qviller, Hilde Sindre, Edgar Brun, and Anja B. Kristoffersen*

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Abstract Go to:

The occurrence of infectious salmon anemia (ISA) outbreaks in marine farmed Atlantic salmon constitutes a recurring challenge in Norway. Here, we aim to identify risk factors associated with ISA outbreaks with an unknown source of infection (referred to as primary ISA outbreaks). Primary ISA outbreaks are here defined by an earlier published transmission model. We explored a wide range of possible risk factors with logistic regression analysis, trying to explain occurrence of primary ISA with available data from all Norwegian farm sites from 2004 to June 2017. Explanatory variables included site latitude and a range of production and disease data. The mean annual risk of having a primary outbreak of ISA in Norway was 0.7% during this study period. We identified the occurrence of infectious pancreatic necrosis (IPN), having a stocking period longer than 2 months, having the site located at high latitude and high fish density (biomass per cage volume) in the first six months after transfer to sea site as significant risk factors ($p < 0.05$). We have identified factors related to management routines, other disease problems, and latitude that may help to understand the hitherto unidentified drivers behind the emergence of primary ISA outbreaks. Based on our findings, we also provide management advice that may reduce the incidence of primary ISA outbreaks.

Data disclosed by the Scottish Government via FOI-19-02663 on 14 February 2020 details 9.9 million ova imported by Mowi Norway between 4 April and 22 May 2019 (just before the Norwegian ban was imposed in June 2019):

Date consignment due	Destination site name	Destination business name	Species	Stage	Number in consignment	Source Country	Import consignor
04/04/2019	Lochailort Recirculation Hatchery	Mowi Scotland Ltd	SAL	OVA	1,537,191	Norway	Mowi Norway
09/04/2019	Inverpolly	Finfish Ltd	SAL	OVA	1,322,403	Norway	Mowi Norway
10/04/2019	Inverpolly	Finfish Ltd	SAL	OVA	1,247,597	Norway	Mowi Norway
15/05/2019	Inchmore	Mowi Scotland Ltd	SAL	OVA	1,300,000	Norway	Mowi Norway
17/05/2019	Inchmore	Mowi Scotland Ltd	SAL	OVA	1,300,000	Norway	Mowi Norway
22/05/2019	Lochailort Recirculation Hatchery	Mowi Scotland Ltd	SAL	OVA	3,200,000	Norway	Mowi Norway

And another 7 million ova imported by Mowi Norway from January to 2 April 2019.

Date consignment due	Destination site name	Destination business name	Species	Stage	Number in consignment	Source Country	Import consignor
24/01/2019	Niall Bromage Freshwater Field Station	University of Stirling	Salmon	Ova	30,000	Norway	MOWI Norway
04/02/2019	Lochailort Recirculation Hatchery	Mowi Scotland Ltd	Salmon	Ova	1,563,000	Norway	MOWI Norway
05/02/2019	Lochailort Recirculation Hatchery	Mowi Scotland Ltd	Salmon	Ova	1,537,000	Norway	MOWI Norway
05/02/2019	Inchmore	Mowi Scotland Ltd	Salmon	Ova	1,000,000	Norway	MOWI Norway
28/03/2019	Lochailort Recirculation Hatchery	Mowi Scotland Ltd	Salmon	Ova	1,350,000	Norway	MOWI Norway
02/04/2019	Lochailort Recirculation Hatchery	Mowi Scotland Ltd	Salmon	Ova	1,562,809	Norway	MOWI Norway

Data disclosed by the Scottish Government via FOI-19-02663 on 14 February 2020 details 34.9 million ova imported by Marine Harvest Norway in 2018:

Date consignment due	Destination site name	Destination business name	Consignee Business name (if different from destination business)	Species	Stage	Number in consignment	Source Country	Import consignor
04/01/2018	Inverpolly	Finfish Ltd	Marine Harvest (Scotland) Ltd	Salmon	Ova	2,600,000	Norway	Marine Harvest Norway
11/01/2018	Inverpolly	Finfish Ltd	Marine Harvest (Scotland) Ltd	Salmon	Ova	87,639	Norway	Marine Harvest Norway
31/01/2018	Lochailort Recirculation Hatchery	Marine Harvest (Scotland) Ltd		Salmon	Ova	216,592	Norway	Marine Harvest Norway
07/02/2018	Lochailort Recirculation Hatchery	Marine Harvest (Scotland) Ltd		Salmon	Ova	1,884,000	Norway	Marine Harvest Norway
08/02/2018	Inchmore	Marine Harvest (Scotland) Ltd		Salmon	Ova	2,300,000	Norway	Marine Harvest Norway
27/02/2018	Ardtaraig Hatchery	Cooke Aquaculture (Freshwater) Ltd		Salmon	Ova	350,000	Norway	Marine Harvest Norway
20/03/2018	Cairndow Hatchery	Lakeland (Cairndow) Ltd		Salmon	Ova	1,800,000	Norway	Marine Harvest Norway
04/04/2018	Inverpolly	Finfish Ltd		Salmon	Ova	2,300,000	Norway	Marine Harvest Norway
18/04/2018	Lochailort Recirculation Hatchery	Marine Harvest (Scotland) Ltd		Salmon	Ova	3,500,000	Norway	Marine Harvest Norway
15/05/2018	Inchmore	Marine Harvest (Scotland) Ltd		Salmon	Ova	1,300,000	Norway	Marine Harvest Norway
16/05/2018	Lochailort Recirculation Hatchery	Marine Harvest (Scotland) Ltd		Salmon	Ova	3,800,000	Norway	Marine Harvest Norway
14/06/2018	Inchmore	Marine Harvest (Scotland) Ltd		Salmon	Ova	1,900,000	Norway	Marine Harvest Norway
14/06/2018	Inchmore	Marine Harvest (Scotland) Ltd		Salmon	Ova	1,900,000	Norway	Marine Harvest Norway
28/06/2018	Inchmore	Marine Harvest (Scotland) Ltd		Salmon	Ova	310,000	Norway	Marine Harvest Norway
15/11/2018	Lochailort Recirculation Hatchery	Marine Harvest (Scotland) Ltd		Salmon	Ova	2,500,000	Norway	Marine Harvest Norway
04/12/2018	Quoys Hatchery	Cooke Aquaculture Scotland Ltd		Salmon	Ova	495,000	Norway	Marine Harvest Norway
05/12/2018	Inchmore	Marine Harvest (Scotland) Ltd		Salmon	Ova	1,400,000	Norway	Marine Harvest Norway
06/12/2018	Cairndow Hatchery	Lakeland (Cairndow) Ltd		Salmon	Ova	2,500,000	Norway	Marine Harvest Norway
12/12/2018	Ardtaraig Hatchery	Cooke Aquaculture (Freshwater) Ltd		Salmon	Ova	350,000	Norway	Marine Harvest Norway
17/12/2018	Inverpolly	Finfish Ltd		Salmon	Ova	1,300,000	Norway	Marine Harvest Norway
18/12/2018	Inverpolly	Finfish Ltd		Salmon	Ova	500,000	Norway	Marine Harvest Norway
18/12/2018	Inchmore	Marine Harvest (Scotland) Ltd		Salmon	Ova	800,000	Norway	Marine Harvest Norway
18/12/2018	Temperate Facilities	University of Stirling		Salmon	Ova	3,000	Norway	Marine Harvest Norway
20/12/2018	Inverpolly	Finfish Ltd		Salmon	Ova	770,000	Norway	Marine Harvest Norway

In 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.

"We have found another solution. We lost the one export permit to Scotland and found another solution this year with a partner that delivers to Scotland," AquaGen's Nina Santi told SalmonBusiness in January 2018. "We'll be back with deliveries to Scotland in mid-2018."

ISA in roe could create supply bottleneck

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

AquaGen chairman Odd Magne Rødseth, speaking to Fish Farming Expert in November 2017: "said the move to start egg production in Scotland would help serve the Scottish industry better and was also a precautionary measure against any ban on the import of eggs. "You never know whether will find some reason to close the border," he said at the time.

Data disclosed by the Scottish Government via FOI-19-02663 on 14 February 2020 details 30 shipments of ova totalling 24.6 million from AquaGen in Norway to Scotland in 2016.

Date	Site of destination	Operator	Consignee on certificate (if different from operator)	Species	Stage	Number	Source Country	Source Company
14/01/2016	Mill Burn	Kintail Hatchery	Marine Harvest (Scotland)	Salmon	Ova	2,000,000	Norway	Aquagen AS
05/01/2016	Quoys Hatchery	Cooke Aquaculture Scotland Ltd		Salmon	Ova	550,000	Norway	Aquagen AS
20/01/2016	Howietoun Hatchery	Howietoun Fishery	The Scottish Salmon Company	Salmon	Ova	400,000	Norway	Aquagen AS
20/01/2016	Barvas Hatchery	The Scottish Salmon Company		Salmon	Ova	1,908,540	Norway	Aquagen AS
10/02/2016	Ardtaraig Hatchery	Cooke Aquaculture (Freshwater) Ltd		Salmon	Ova	400,000	Norway	Aquagen AS
24/02/2016	Geocrab Hatchery	The Scottish Salmon Company		Salmon	Ova	461,160	Norway	Aquagen AS
24/02/2016	Mingarry Hatchery	Hebridean Smolts Ltd	The Scottish Salmon Company	Salmon	Ova	564,375	Norway	Aquagen AS
24/02/2016	Allt Mor Hatchery	JS Salmon Ltd	Kames Fish Farming Ltd	Salmon	Ova	500,000	Norway	Aquagen AS
02/03/2016	Kinlochmoidart Hatchery	Sunbeam Aquaculture	The Scottish Salmon Company	Salmon	Ova	575,000	Norway	Aquagen AS
02/03/2016	Amhuinnsuidhe Hatchery	The Scottish Salmon Company		Salmon	Ova	275,000	Norway	Aquagen AS
02/03/2016	Quoys Hatchery	Cooke Aquaculture Scotland Ltd		Salmon	Ova	70,000	Norway	Aquagen AS
17/03/2016	Furnace (FW)	Cooke Aquaculture (Freshwater) Ltd		Salmon	Ova	650,000	Norway	Aquagen AS
02/06/2016	Lochailort Recirculation Unit	Marine Harvest (Scotland)		Salmon	Ova	1,333,333	Norway	Aquagen AS
02/06/2016	Lochailort Recirculation Unit	Marine Harvest (Scotland)		Salmon	Ova	1,333,333	Norway	Aquagen AS
02/06/2016	Lochailort Recirculation Unit	Marine Harvest (Scotland)		Salmon	Ova	1,333,333	Norway	Aquagen AS
23/08/2016	Girlsta Hatchery	Grieg Seafood Shetland Ltd (Hatchery)		Salmon	Ova	1,500,000	Norway	Aquagen AS
09/11/2016	Kinlochmoidart Hatchery	Sunbeam Aquaculture	The Scottish Salmon Company	Salmon	Ova	562,500	Norway	Aquagen AS
09/11/2016	Allt Mor Hatchery	JS Salmon Ltd	Kames Fish Farming Ltd	Salmon	Ova	350,000	Norway	Aquagen AS
15/11/2016	Furnace (FW)	Cooke Aquaculture (Freshwater) Ltd		Salmon	Ova	800,000	Norway	Aquagen AS
15/11/2016	Cairndow Hatchery	Lakeland (Cairndow) Ltd		Salmon	Ova	1,800,000	Norway	Aquagen AS
17/11/2016	Couldoran Incubation Unit	Scottish Sea Farms Ltd		Salmon	Ova	1,000,000	Norway	Aquagen AS
22/11/2016	Girlsta Hatchery	Grieg Seafood Shetland Ltd (Hatchery)		Salmon	Ova	1,500,000	Norway	Aquagen AS
22/11/2016	Quoys Hatchery	Cooke Aquaculture Scotland Ltd		Salmon	Ova	400,000	Norway	Aquagen AS
06/12/2016	Mingarry Hatchery	Hebridean Smolts Ltd	The Scottish Salmon Company	Salmon	Ova	918,750	Norway	Aquagen AS
06/12/2016	Kinlochmoidart Hatchery	Sunbeam Aquaculture	The Scottish Salmon Company	Salmon	Ova	628,500	Norway	Aquagen AS
06/12/2016	Barvas Hatchery	The Scottish Salmon Company		Salmon	Ova	735,000	Norway	Aquagen AS
08/12/2016	Ormsary Hatchery	Landcatch Natural Selection Ltd	Scottish Sea Farms Ltd	Salmon	Ova	988,000	Norway	Aquagen AS
15/12/2016	Ardtaraig Hatchery	Cooke Aquaculture (Freshwater) Ltd		Salmon	Ova	350,000	Norway	Aquagen AS
21/12/2016	Allt Mor Hatchery	JS Salmon Ltd	Kames Fish Farming Ltd	Salmon	Ova	325,000	Norway	Aquagen AS
21/12/2016	Quoys Hatchery	Cooke Aquaculture Scotland Ltd		Salmon	Ova	400,000	Norway	Aquagen AS

Numbers of salmon ova collated from health certificates

Data disclosed by the Scottish Government in December 2019 via FOI-18-01553 details 5.5 million ova imported from Norway by AquaGen in 2017 including to The Scottish Salmon Company's Kinlochmoidart Hatchery, Loch Duart's Duartmore Hatchery, Kames Fish Farming's Allt Mor (via JS Salmon) and Cooke Aquaculture's Ardtaraig Hatchery.

Date	Site of destination	Operator	Consignee on certificate (if different from operator)	Species	Stage	Number	Source Country	Source Company
11/01/2017	Kinlochmoidart Hatchery	Sunbeam Aquaculture	The Scottish Salmon Company	Salmon	Ova	785,250	Norway	AquaGen AS
18/01/2017	Mill Burn (Old Mill)	Kintail Hatchery	Migdale Smolts Ltd	Salmon	Ova	2,000,000	Norway	AquaGen AS
01/02/2017	Mingarry Hatchery	Hebridean Smolts Ltd	The Scottish Salmon Company	Salmon	Ova	525,000	Norway	AquaGen AS
09/02/2017	Allt Mor	JS Salmon Ltd	Kames Fish Farming Ltd	Salmon	Ova	350,000	Norway	AquaGen AS
16/02/2017	Duartmore Hatchery	Loch Duart		Salmon	Ova	330,000	Norway	AquaGen AS
16/02/2017	Ardtaraig Hatchery	Cooke Aquaculture (Freshwater) Ltd		Salmon	Ova	400,000	Norway	AquaGen AS
16/02/2017	Kinlochmoidart Hatchery	Sunbeam Aquaculture	The Scottish Salmon Company	Salmon	Ova	562,500	Norway	AquaGen AS
01/03/2017	Geocrab Hatchery	The Scottish Salmon Company		Salmon	Ova	396,000	Norway	AquaGen AS
09/03/2017	Rysa Incubation Unit	Rysa Salmon Farm	Cooke Aquaculture Freshwater Ltd	Salmon	Ova	170,000	Norway	AquaGen AS

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":

From: <REDACTED> <REDACTED>@hendrix-genetics.com
Sent: 11 July 2017 13:19
To: <REDACTED> (MARLAB)
Subject: ISA in Norway

Hi <REDACTED>

I was just wondering if the ISA outbreaks in Norway, in particular Aquagen, would have any effect on their ability to export eggs into Scotland this year.
Where does Marine Scotland stand on this issue.

Any information would be gratefully received.

Kind Regards

<REDACTED>

From: <REDACTED> <REDACTED>@hendrix-genetics.com
Sent: 19 July 2017 10:02
To: <REDACTED> (MARLAB)
Subject: Aquagen eggs

Hi <REDACTED>

I was just wondering what your thoughts are on the Aquagen situation now that the site at Hemne also seems to be affected. Can MS ask for 100% testing for ISA on all broodfish parents of eggs destined for Scotland or are you still reliant on the Norwegians to say they are free of the disease.

Kind Regards

<REDACTED>

<REDACTED>
<REDACTED>
Atlantic Salmon

T <REDACTED>
M <REDACTED>475
<REDACTED>
W www.landcatch.co.uk

HENDRIX GENETICS

Landcatch Natural Selection Ltd
Ormsary Fish Farm, Lochgilphead
Argyll, PA31 8PE, Scotland, UK-EU

Read more via:
Restrictions due to ISA suspicion also attached to AquaGens' broodfish departments at the Vestseøra site in Hemne municipality
ISA detected at salmon broodstock sites
Aquagen ISA outbreak: cause unknown, but damage contained

Information obtained via FOI from the Scottish Government in February 2019 included:

From: <REDACTED> (MARLAB)
Sent: 12 July 2017 13:49
To: <REDACTED> (MARLAB) <REDACTED>@gov.scot>; <REDACTED> (MARLAB) <REDACTED>@gov.scot>; <REDACTED> (MARLAB) <REDACTED>@gov.scot>
Cc: <REDACTED> (MARLAB) <REDACTED>@gov.scot>
Subject: FW: Information update

Hi

This is the information from <REDACTED> on the ISA detection at Aquagen.

In summary, Aquagen have detected ISA at the seawater broodstock site Merraberget and the freshwater site at Rimstad, Tingvoll which received broodstock from Merraberget in May. This is to be confirmed by Mattilsynet. Samples taken in April, May and June by a private laboratory for ISA were negative, but the July samples were positive.

Scottish sites received ova in 2016/2017 from both Hemne (unconnected location) and Tingvoll hatcheries but the broodstock stripped for the 2016/2017 season were held previously at a sea site known as Hegebergetroa, not the currently affected site. I don't know the relation of the two sea sites to one another, but the reports state that Merraberget is more than 10km from any other site.

Andy has provided a list of the source hatcheries for all of the 2016/2017 consignments delivered to Scotland. Do we need to conduct any follow up surveillance at this point or do we need to contact Mattilsynet for further information?

Thanks

<REDACTED>

Read more via: Game Ova for Scottish Salmon - Deadly disease delays egg imports from AquaGen in Norway

In 2013, Marine Harvest sold their 31% stake in AquaGen with Cermaq selling their shares in AquaGen on the same day. In 2008, AquaGen was bought by the German-owned EW Group.

In 2011, The New York Times fingered AquaGen as the likely source of the ISA outbreak in Chile following a scientific paper published in the Archives of Virology.

The New York Times

Norwegians Concede a Role in Chilean Salmon Virus

By Alexei Barrionuevo

July 27, 2011

The scientific study at the University of Bergen linking the virus to eggs was commissioned by Cermaq and first published in 2008 in the Archives of Virology. But in early 2009, shortly after publication, a Norwegian company that breeds fish eggs, Aqua Gen — which is partly owned by both Cermaq and Marine Harvest — filed a formal complaint about the study with Norway's National Commission for the Investigation of Scientific Misconduct, arguing that the science was flawed.

Patrick Dempster, general manager of Aqua Gen in Chile, said that Aqua Gen complained about the study because in 2006 they became the principal exporter of salmon eggs to Chile and were worried about losing business over concern about any vertical transmission connection with Norway.

The commission ruled on April 6 that there had been no scientific misconduct, clearing the three authors from the University of Bergen. Mr. Dempster said Aqua Gen stood by a study from the University of Prince Edward Island that concluded that the virus most likely entered Chile in 1996, when Aqua Gen was not exporting fish eggs to Chile. He noted that between 1996 and 2007 "a multitude" of Chilean and Norwegian companies sent eggs from Norway to Chile.

"We initiated that research because we wanted to understand how I.S.A. was transmitted," Ms. Bergan said. "Before that, the scientific consensus" was that the virus "could not be transmitted by eggs."

Read the Archives of Virology scientific paper published online in 2008.

Arch Virol
DOI 10.1007/s00705-008-0251-2

ORIGINAL ARTICLE

ISA virus in Chile: evidence of vertical transmission

Siri Vike · Stian Nylund · Are Nylund

Read more via "Nylund, Vike - The Famous ISA Chile Paper, Scientists Harassed in Norway, AquaGen" and "ISA - Diary of Disease Disaster"

Read more via:

J Virol. 2014 Jun;88(11):6012-8. doi: 10.1128/JVI.03670-13. Epub 2014 Mar 12.

Bona fide evidence for natural vertical transmission of infectious salmon anemia virus in freshwater brood stocks of farmed Atlantic salmon (Salmo salar) in Southern Chile.

Marshall SH[1], Ramírez R, Labra A, Carmona M, Muñoz C.

Author information

Abstract

Infectious salmon anemia (ISA) is a severe disease that affects farmed Atlantic salmon (Salmo salar), causing outbreaks in seawater in most salmon-producing countries worldwide, with particular aggressiveness in southern Chile. The etiological agent of this disease is a virus belonging to the Orthomyxoviridae family, named infectious salmon anemia virus (ISAV). Although it has been suggested that this virus can be vertically transmitted, even in freshwater, there is a lack of compelling experimental evidence to confirm this. Here we demonstrate significant putative viral loads in the ovarian fluid as well as in the eggs of two brood stock female adult specimens that harbored the virus systemically but without clinical signs. The target virus corresponded to a highly polymorphic region 3 (HPR-3) variant, which is known to be virulent in seawater and responsible for recent and past outbreaks of this disease in Chile. Additionally, the virus recovered from the fluid as well as from the interior of the eggs was fully infective to a susceptible fish cell line. To our knowledge, this is the first robust evidence demonstrating mother-to-offspring vertical transmission of the infective virus on the one hand and the asymptomatic transmission of a virulent form of the virus in freshwater fish on the other hand.

IMPORTANCE: The robustness of the data presented here will contribute to a better understanding of the biology of the virus but most importantly will constitute a key management tool in the control of an aggressive agent constantly threatening the sustainability of the global salmon industry.

Wild and farmed salmon (*Salmo salar*) as reservoirs for infectious salmon anaemia virus, and the importance of horizontal- and vertical transmission

Are Nylund, Jarle Brattespe, Heidrun Plarre, Martha Kambestad, Marius Karlsen

Published: April 16, 2019 • https://doi.org/10.1371/journal.pone.0215478

Abstract

The infectious salmon anaemia virus (ISAV) is an important pathogen on farmed salmon in Europe. The virus occurs as low- and high virulent variants where the former seem to be a continuous source of new high virulent ISAV. The latter are controlled in Norway by stamping out infected populations while the former are spreading uncontrolled among farmed salmon. Evidence of vertical transmission has been presented, but there is still an ongoing discussion of the importance of circulation of ISAV via salmon brood fish. The only known wild reservoirs are in trout (*Salmo trutta*) and salmon (*Salmo salar*). This study provides the first ISAV sequences from wild salmonids in Norway and evaluates the importance of this reservoir with respect to outbreaks of ISA among farmed salmon. Phylogenetic analyses of the surface protein hemagglutinin-esterase gene from nearly all available ISAV from Norway, Faeroe Islands, Scotland, Chile and wild salmonids in Norway show that they group into four major clades. Including virulent variants in the analysis show that they belong in the same four clades supporting the hypothesis that there is a high frequency of transition from low to high virulent variants in farmed populations of salmon. There is little support for a hypothesis suggesting that the wild salmonids feed the virus into farmed populations. This study give support to earlier studies that have documented local horizontal transmission of high virulent ISAV, but the importance of transition from low- to high virulent variants has been underestimated. Evidence of vertical transmission and long distance spreading of ISAV via movement of embryos and smolt is presented. We recommend that the industry focus on removing the low virulent ISAV from the brood fish and that ISAV-free brood fish salmon are kept in closed containment systems (CCS).

Including:

> Since the discovery of vertical transmission of ISA virus via eggs from farmed salmon in 2005 there has been an ongoing discussion of the relative importance of vertical and horizontal transmission. The Chilean salmon farming industry will no doubt consider vertical transmission, after receiving both Norwegian and Scottish ISA virus via import of embryos, as very important [34, 53]; present study Fig 6). Considering the fact that the dominating ISA viruses in the Norwegian salmon farming industry belong to clade CIII and CIV, and not to the two clades where the majority known viruses from Norwegian wild salmon can be found, suggest that the viruses causing the majority of the ISA outbreaks in Norway are maintained or circulated in farmed salmon. It has already been thoroughly documented that HPR0 viruses can be found in brood fish, in fresh water production, and in salmon at marine sites [48, 53, 55]. Presence of ISA virus in brood fish and at fresh water sites, and the knowledge that the virus can be vertical transmitted, suggest that there could be a high frequency of transmission of HPR0 variants via brood fish in Norway. If this is an important transmission route for ISAV then one should expect to find different ISAV during the annual outbreaks of ISA in Norway. If, on the other hand, horizontal transmission is dominating the pattern should include locally (neighbouring farms) identical ISAV with identical HPRΔ. In Troms county in 2007–2009 the industry experienced 21 separate outbreaks of ISA where a number of these were closely related (CIIIb) and had the same HPRΔ. This was interpreted as an example of horizontal transmission resulting from a primary outbreak [52]. The analyses of our data give support this conclusion, but the situation was more complex, and the hypothesis suggesting an epizootic resulting from a primary outbreak does not give the complete picture of what happened in this area. A total of 78 HE sequences are available from the 21 outbreaks in Troms and these show the presence of seven unique HPRΔ variants which mean that 33.3% of the ISA viruses associated with disease in this area were not a result of horizontal transmission (S1 Table). This observation is best explained as a result of transition from HPR0 already present in the farmed salmon to virulent HPRΔ viruses [46, 48, 53, 55, 58].

A Scottish Executive report - "Final Report of the Joint Government/Industry Working Groupon Infectious Salmon Anaemia (ISA) in Scotland" - published in 2000 included:

Final Report of the Joint Government/Industry Working Group on Infectious Salmon Anaemia (ISA) in Scotland

Chapter 2: Vertical Transmission and Ova Disinfection

Whilst neither intra- nor extra-ovum vertical transmission has been shown to occur, a precautionary approach is advocated. The following management recommendations are intended for inclusion in a Code of Practice. To avoid any possibility of intra-ovum vertical transmission, it is recommended that gametes should not be taken from ISA infected broodstock (2.3.1). As a precaution against extra-ovum transmission, recommendations are made for avoidance of contamination of gametes through hygiene protocols and disinfection of ova (2.3.2).

In 2010, a scientific paper authored by Marine Scotland Science included:

Vol. 91: 189–200, 2010
doi: 10.3354/dao02262

DISEASES OF AQUATIC ORGANISMS
Dis Aquat Org

Published September 17

Epidemiological investigation into the re-emergence and control of an outbreak of infectious salmon anaemia in the Shetland Islands, Scotland

Alexander G. Murray*, Lorna A. Munro, I. Stuart Wallace, Barbara Berx, Daniel Pendrey, David Fraser, Rob S. Raynard

Marine Laboratory, Marine Scotland Science, 375 Victoria Road, Aberdeen, AB11 9DB, UK

Vertical transmission: There is disagreement as to whether ISAV is vertically transmitted (Lyngstad et al. 2008, Vike et al. 2009). If vertical transmission did occur then this could be significant both as a potential source of the Shetland outbreak, since imported ova are used (although these are certified ISAV-free), and as a potential route of spread within Scotland and beyond via Shetland-reared broodstock. It is also possible that ISAV could be transmitted on the outside of poorly disinfected eggs (pseudovertical transmission). Therefore, the sources of input of smolts to Shetland and the potential exposure of ova that were produced from broodstock within Shetland are assessed.

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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Page last updated at 15:15 GMT, Sunday, 4 January 2009

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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 2004, a suspected case of ISA was reported at Marine Harvest (re-named Mowi in 2019) Loch Sheilavaig salmon farm in South Uist.

ISA disease suspected at Marine Harvest Farm

London, UK:The Scottish Executive has confirmed that the presence of Infectious Salmon Anaemia (ISA) is suspected at Marine Harvest's Loch Sheilavaig salmon farm in South Uist.

22 November 2004 9:46 GMT *UPDATED 10 July 2012 5:34 GMT*

FRS Fish Health Inspectors are currently investigating the affected farm. In a statement, the Scottish Executive confirmed that statutory restrictions are in place controlling the movement into and out of the farm of all fish.

Marine Harvest is working with the Scottish Executive Environment and Rural Affairs Department to minimise any risk and ensure the health of its fish. A Scottish Executive spokesman said inspectors would monitor the situation for six months and take appropriate action should the ISA's presence be confirmed.

In 1998-9 an ISA outbreak traced to Norwegian-owned Hydro Seafoods (re-named Scottish Sea Farms - a subsidiary of Norskott Havbruk AS owned jointly by the Norwegian companies Leroy and SalMar) cost the industry £100 million and led to the loss of 200 jobs.

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SCOTLAND

Thursday, November 4, 1999 Published at 15:29 GMT

UK: Scotland

Lethal fish infection spreads

Millions of salmon have been destroyed because of the disease

A deadly fish disease is believed to have spread for the first time to wild salmon in Scotland and has been detected on another six salmon farms.

The new scare involving Infectious Salmon Anaemia in the Shetland Isles, the Western Isles and Orkney has prompted the Scottish Executive to embark on an urgent review of the present controls.

A spokesman confirmed these were among the first cases in the world of the ISA virus being detected in wild salmon.

Relevant Stories

19 Aug 99 | Scotland
Salmon farming restrictions lifted

09 Aug 99 | Scotland
Fish farming 'damaging' wild stocks

15 Jul 99 | The Company File
Dutch firm nets salmon producer

08 Feb 99 | UK
¿9m aid for salmon farmers

Internet Links

Highlands and Islands Enterprise

Scottish Salmon Farming (Unofficial)

Fisheries Research Services

Scottish Executive

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In this section

Read more via:
[Infectious Salmon Anaemia - Diary of Disease Disaster]
[Scottish Sea Farms confirms it owns ISA-infected site]
[Minister criticises industry over ISA]
[Shetland Islands to cut salmon farms as ISA spreads]
[ISA will put 27 Scottish fish farms out of action]
[Shetlanders get £3m ISA loan]
[New ISA Case Found in Shetland Control Zone]
[Fish virus detected at third farm]
[Second ISA case confirmed in Scotland]
[ISA back to haunt fish farmers]
[Deadly salmon infection detected]
[ISA disease suspected at Marine Harvest farm]
[The scientific issues surrounding the control of Infectious Salmon Anaemia in Scotland]
[ISA cost Scottish industry £100 million]
[ISA report published by Scottish Executive]
[Lethal fish infection spreads]
[£25.68 million loss in Scotland]
[ISA can wipe out farms]
[More ISA found]
[Fish Farmageddon - The Infectious Salmon Aquacalypse]

[4] Scottish Salmon Watch reported in June 2019 via: "[Virus-Laden Farmed Salmon - FOI reveals over half of samples test positive for Piscine Reovirus]":

A FOI reply by the Scottish Government [published online yesterday] reveals that over half of all farmed salmon from Scotland (and other unnamed countries) tested positive for Piscine Reovirus (PRV) during 2018 and 2019.

Data disclosed via [FOI/19/00882] reveals that during 2018 and 2019 there were 399 positive samples out of 774 samples tested (i.e. 52% of farmed salmon samples tested positive for PRV) **[1]** - including 63 tests out of 113 with 100% positive results:

Date of Testing	Pathogen	Test	Result (Positive)
27/02/2018	PRV	QPCR	10 of 10
18/09/2018	PRV	QPCR	10 of 10
19/12/2018	PRV	QPCR	10 of 10
29/11/2018	PRV	QPCR	13 of 13
29/11/2018	PRV	QPCR	19 of 19
08/01/2019	PRV	QPCR	6 of 6
22/01/2019	PRV	QPCR	6 of 6
05/02/2019	PRV	QPCR	5 of 5
12/02/2019	PRV	QPCR	5 of 6
12/02/2019	PRV	QPCR	6 of 6
19/02/2019	PRV	QPCR	10 of 10
16/04/2019	PRV	QPCR	5 of 9
25/04/2019	PRV	QPCR	5 of 5
25/04/2019	PRV	QPCR	6 of 7
21/05/2019	PRV	QPCR	6 of 6
21/05/2019	PRV	QPCR	9 of 9

PRV is highly contagious, causes fatal heart and skeletal muscle inflammation in salmon and a scientific study published in 2018 linked it to an equally deadly type of anemia in at least one species of wild salmon.

Shamefully, Scotland's Aquatic Animal Health surveillance programme does not routinely test for Piscine Reovirus (also called Piscine orthoreovirus) and Heart & Skeletal Muscle Inflammation (HSMI). "Sampling for PRV is restricted to those inspections involving diagnostic investigations and only in such cases where histopathological analysis is indicative of pathology associated with PRV infection," explained the Scottish Government in a letter dated 3 June 2019.

An analysis of the 'Case Information' published by the Scottish Government (data is available from 2013 through to March 2019) details numerous positive tests for PRV and HSMI (the causative agent of PRV). In April 2019, Scottish Salmon Watch detailed the following case in a letter to Scottish Ministers:

SCOTTISH SALMON WATCH DISEASES

Scottish Ministers
St. Andrew's House
Regent Road
Edinburgh
EH1 3DG
scottish.ministers@gov.scot

5 April 2019

Dear Scottish Ministers,

Surveillance of Salmon Farms, Hatcheries & Ova to Minimise Disease Risks

Will Scottish Ministers commit to a program of increased testing and sampling of farmed salmon (including smolts and ova in hatcheries as well as in sea cages and processing plants) for infectious diseases, pathogens, bacteria, parasites and viruses?

In order to safeguard the health of wild fish (as well as farmed salmon), Scottish Salmon Watch challenges the Scottish Government to establish a strict surveillance regime which would test and report publicly on infectious diseases, pathogens, bacteria, parasites and viruses in the following:

a) Ova imports
b) Smolts in the hatchery prior to transfer to sea-cages
c) Harvest-ready farmed salmon immediately prior to slaughter
d) Market-ready farmed salmon in the processing plant

Scottish Salmon Watch is seriously concerned at the lack of monitoring and sampling of salmon farms, hatcheries and ova imports. The surveillance of emerging viruses and emerging diseases such as Piscine Orthoreovirus (Heart & Skeletal Muscle Inflammation), Amoebic Gill Disease and Pasteurella skyensis appears woefully inadequate and even the surveillance of more established 'Notifiable Diseases' is seriously lacking.

For example, Case # 2018-0078 (The Scottish Salmon Company's Tarbert South site in Loch Fyne) tested five samples for PRV in addition to other diseases and viruses:

Case No:	2018-0078			Date of visit:	21/03/2018		
Site No:	FS0767			Inspector:	JET		

Results Summary	Freq.	Date of Notification						
		Database	Insp	Phone	Insp	Writing	Insp	2nd Insp
MG_IHN	0/1	28/03/2018	JET	28/03/2018	JET	11/04/2018	JET	ALW
MG_IPN	0/1	28/03/2018	JET	28/03/2018	JET	11/04/2018	JET	ALW
MG_ISA	0/1	28/03/2018	JET	28/03/2018	JET	11/04/2018	JET	ALW
MG_SAV	0/1	28/03/2018	JET	28/03/2018	JET	11/04/2018	JET	ALW
MG_VHS	0/1	28/03/2018	JET	28/03/2018	JET	11/04/2018	JET	ALW
MG_PMV	0/1	06/04/2018	JET	06/04/2018	JET	11/04/2018	JET	ALW
MG_PRV	1/1	06/04/2018	JET	06/04/2018	JET	11/04/2018	JET	ALW
HIST_PRV	1/5	06/04/2018	JET	06/04/2018	JET	11/04/2018	JET	ALW
HIST_SULC	4/5	06/04/2018	JET	06/04/2018	JET	11/04/2018	JET	ALW
HIST_SKIN	4/5	06/04/2018	JET	06/04/2018	JET	11/04/2018	JET	ALW
HIST_HPAT	1/5	06/04/2018	JET	06/04/2018	JET	11/04/2018	JET	ALW
HIST_ADHE	5/5	06/04/2018	JET	06/04/2018	JET	11/04/2018	JET	ALW
HIST_PMCH	5/5	06/04/2018	JET	06/04/2018	JET	11/04/2018	JET	ALW
HIST_LPAT	4/5	06/04/2018	JET	06/04/2018	JET	11/04/2018	JET	ALW
BACT_VVIS	5/5	06/04/2018	JET	06/04/2018	JET	11/04/2018	JET	ALW
BACT_VSPE	4/5	06/04/2018	JET	06/04/2018	JET	11/04/2018	JET	ALW

The March 2019 report cited:

- "Haemorrhagic necrosis of skeletal muscle", "marked red skeletal muscle degeneration" and lesions on the flank including "a lesion on the ventral surface through which the heart was exposed" reported at The Scottish Salmon Company's Tarbert South site in Loch Fyne in March 2018 (positive tests reported for PRV, Moritella vicosa/Winter Ulcer disease and Vibrio).

Further information on the 'Risks of Piscine Reovirus' were detailed in Scottish Salmon Watch's letter to Scottish Ministers in April 2019 **[2]**.

Other PRV cases were cited in Scottish Salmon Watch's FOI request dated 24 March 2019 including Scottish Sea Farms (Nevis C in Loch Nevis) in October 2018 and The Scottish Salmon Company (Ardcastle Bay in Loch Fyne) in May 2018 **[3]**.
Cases of HSMI reported via the Scottish Government's Fisheries Health Inspectorate include Cooke Aquaculture's Lyrawa Bay farm in Scapa Flaw, Orkney, in 2019:

Case No:	2019-0121						Date of visit:	19/03/2019	
Time spent on site:	4 hours					Main Inspector:			
Site No:	FS0054	Site Name:	Lyrawa Bay						
Business No:	FB0095	Business Name:	Cooke Aquaculture Scotland Ltd						
Case Types:	1 ECI	2 CNI	3 SLI	4 VMD	5 DIA	6			
Water Temp (°C):	7.3	Thermometer No:	T147			FHI 045 completed			
Observations:		Region:	OR	Water type:	S	CoGP MA	O-3		
Dead/weak/abnormally behaving fish present?				Y	If yes, see additional information/clinical score sheet.				
Clinical signs of disease observed?				Y	If yes, see additional information/clinical score sheet.				
Gross pathology observed?				Y	If yes, see additional information/clinical score sheet.				
Diagnostic samples taken?				Y					

Additional Case Information:

Lesions observed on fish during December - January, attributed to winter sores, predominantly affecting undersized fish/failed smolts. Lesions no longer observed on fish, but grumbling mortality attributed to PD/HSMI has been ongoing since start of year.

Results of Surveillance		
1. Has any animal health surveillance been carried out by, or on behalf of, the business?		Y
2. If yes, are results available for inspection?		Y
3. Any significant results?		Y
If yes, detail (if not detailed under recent disease problems).	HSMI and PD detected	
Records checked between:	31/05/2017 - 19/03/2019	

Cooke Aquaculture has experienced serious problems with PRV at their salmon farms in Washington (linked to infected eggs imported from Icelandic company StofnFiskur – a subsidiary of Benchmark Genetics) in the United States, leading to 800,000 infected fish being slaughtered in December 2018 and a ban on re-stocking PRV-infected farmed salmon.

Salmon Business reported in December 2018:

> *"What about PRV in eggs?"*
>
> "That's a good question and we have been arguing about true vertical transfer we think when it's inside the egg – not necessarily in the genome but at least inside the egg and more like the contamination problem carrying the virus with a shipment – not necessarily within the fish at all but the materials in the packaging might get contaminated – this is maybe a very prevalent virus. And we need to state that it has been infected before shipping that's also very difficult," Dale says and adds:
>
> "We should be careful – you need a real good sequence data on that whole genome and need to have enough to compare with – and probably they don't have either. To unravel where a virus comes from is a major job to do."

This followed a news report in The Seattle Times:

The Seattle Times Environment

Fish farmer destroys 800,000 juvenile Atlantic salmon due to disease; second purge in past year

Originally published December 18, 2018 at 7:11 pm | *Updated December 18, 2018 at 7:38 pm*

The Washington Department of Fish and Wildlife considers the exotic strain of PRV to be an unacceptable risk to native stocks of Pacific salmon. Under the conditions of its permit, Cooke Aquaculture Pacific was required to destroy the fish.

By Lynda V. Mapes

Seattle Times environment reporter

For the second time, Cooke Aquaculture Pacific has destroyed 800,000 juvenile Atlantic salmon after testing required by the Washington Department of Fish and Wildlife (WDFW) determined the fish were infected with an exotic strain of Piscine Orthoreovirus (PRV.)

The strain is essentially the same strain of virus found at the Iceland hatchery from which Cooke receives Atlantic salmon eggs.

Cooke had a similar problem last May. Tests on the most current batch recently came back, said Amy Windrope, Region 4 director for WDFW. Two of Cooke's last three batches of Atlantic salmon in the past year have tested positive for PRV, Windrope said. The third was clean.

Salmon Business reported on 20 December 2018:

Egg supplier responds to Washington PRV salmon cull

News by **Owen Evans** - 20 December 2018

Benchmark Genetics, which supplies eggs to Cooke Aquaculture Pacific, has responded to reports a US salmon cull was due to an 'exotic' strain of Piscine Orthoreovirus (PRV).

As reported on SalmonBusiness yesterday, the salmon farmer Cooke Aquaculture Pacific had to cull 800,000 fish.

The Icelandic company StofnFiskur – a subsidiary of Benchmark Genetics – supplied the eggs to Cooke.

Divisional marketing director Birgitte Sørheim wrote in an email to SalmonBusiness that: "PRV is not a classified disease but a virus commonly found in Atlantic salmon. Fish that carry the virus are not sick but can, under certain circumstances (weak health status/gill status and other factors) develop heart and skeletal muscle inflammation and will then be diagnosed as sick. This was not the case with the juveniles that had to be destroyed in the US. These fish were healthy but were required to be destroyed by the WDFW."

Cooke's hatchery near Rochester tested positive for a form of the fish PRV *piscine orthoreovirus* virus that the WDFW (The Washington Department of Fish and Wildlife) classifies it as "exotic."

Sørheim added that "the total number of fish destroyed was 800,000. PRV was detected by routine sampling in April, and the entire batch of fish was required to be culled."

"The PRV at Cooke may have originated from the ova delivered from Iceland. We have, however, an optional service of screening against PRV that our customers may choose as an extra risk measure to avoid vertical transmission."

"PRV is found in both farmed and wild salmon and is not described as exotic in Europe. The virus is also not listed by OIE or European authorities," she wrote.

The Seattle Times reported in May 2018:

Washington state finds virus in Cooke Atlantic salmon, plans expanded testing

Originally published May 19, 2018 at 6:00 am | *Updated May 19, 2018 at 12:22 pm*

Washington state tested smolt in a Cooke Aquaculture incubator and found the Atlantic salmon had a strain of Icelandic virus. The state denied permission for the company to move the 800,000 fish to an open-water net pen.

By Lynda V. Mapes

Seattle Times environment reporter

After identifying an exotic virus in fish raised by Cooke Aquaculture, Washington state is planning to test at other sites where the pathogen from Atlantic salmon may have been spread.

The virus detected in Cooke's fish is a strain of piscine orthoreovirus (PRV) from the northern Atlantic. Cooke hatched the fish from eggs the company imported from its supplier in Iceland. Those eggs are presumed to be the source of the virus, Warheit said.

In 2018, Wild Fish Conservancy and a coalition of other members of the Our Sound, Our Salmon coalition wrote to the Washington Department of Fish and Wildlife regarding the testing of salmon smolts:

Dear WDFW Acting Director Joe Stohr,

We, as members and partnners of a coalition of businesses, organizations, commercial and recreational fishermen, and individuals under the name of Our Sound, Our Salmon, write to respectfully urge the Washington Department of Fish and Wildlife (WDFW) to reconsider the means by which farmed Atlantic salmon and ready-to-transport Atlantic salmon smolts in Washington state hatcheries are to be tested for Piscine Reovirus (PRV).

In the aftermath of the Cypress Island escape last August, PRV was found in every fish that was tested for the virus. Even more shocking were the results of the genetic sequencing, which revealed the origin of the virus to be sub-genotype 1a, or of Norwegian origin, and clustered tightly with a PRV-isolate from Iceland.

This is the first time the Icelandic PRV-isolate has been found in Pacific waters, but it raises a critical question— if the eggs used in Cooke Aquaculture's Atlantic salmon hatchery in Rochester, WA come from Norwegian-born fish raised in Iceland, has the industry been allowed to import PRV-infected eggs and consequently plant infected fish into Washington's public waters?

According to data disclosed via FOI by the Scottish Government in September 2018, Scottish salmon farmers imported at least 16.5 million salmon eggs from Stofnfiskur in Iceland between January 2017 and July 2018 (information relating to Scottish Sea Farms was redacted leading to an appeal to the Scottish Information Commissioner in March 2019).

Date	Site of destination	Operator	Consignee on certificate (if different from operator)	Species	Stage	Number	Source Country	Source Company
11/01/2017	Tullich Hatchery	The Scottish Salmon Company		Salmon	Ova	1,176,000	Iceland	Stofnfiskur
15/02/2017	Geocrab Hatchery	The Scottish Salmon Company		Salmon	Ova	876,000	Iceland	Stofnfiskur
23/02/2017	Geocrab Hatchery	The Scottish Salmon Company		Salmon	Ova	55,000	Iceland	Stofnfiskur
04/04/2017	Furnace Hatchery	Cooke Aquaculture (Freshwater) Ltd		Salmon	Ova	1,000,000	Iceland	Stofnfiskur
23/08/2017	Inst of Medical Sciences	University of Aberdeen		Salmon	Ova	3,000	Iceland	Stofnfiskur
04/10/2017	Girlsta Hatchery	Grieg Seafood Shetland Ltd (Hatchery)		Salmon	Ova	1,500,000	Iceland	Stofnfiskur
08/11/2017	Cairndow Hatchery	Lakeland (Cairndow) Ltd	Cooke Aquaculture Freshwater Ltd	Salmon	Ova	2,500,000	Iceland	Stofnfiskur
09/11/2017	Tullich Hatchery	The Scottish Salmon Company		Salmon	Ova	2,714,250	Iceland	Stofnfiskur
22/11/2017	Kinlochmoidart Hatchery	The Scottish Salmon Company		Salmon	Ova	1,522,500	Iceland	Stofnfiskur
15/11/2017	Barvas Hatchery	The Scottish Salmon Company		Salmon	Ova	172,000	Iceland	Stofnfiskur
15/11/2017	Mingarry Hatchery	Hebridean Smolts Ltd	The Scottish Salmon Company	Salmon	Ova	918,750	Iceland	Stofnfiskur
01/02/2018	Tullich Hatchery	The Scottish Salmon Company		Salmon	Ova	1,360,000	Iceland	Stofnfiskur
01/03/2018	Kinlochmoidart Hatchery	The Scottish Salmon Company		Salmon	Ova	615,000	Iceland	Stofnfiskur
01/03/2018	Ormsary Hatchery	Landcatch Natural Selection Ltd	The Scottish Salmon Company	Salmon	Ova	575,000	Iceland	Stofnfiskur
12/04/2018	The Roslin Institute	the Roslin Institute		Salmon	Ova	3,200	Iceland	Stofnfiskur
08/06/2018	Girlsta Hatchery	Grieg Seafood Shetland Ltd (Hatchery)		Salmon	Ova	1,500,000	Iceland	Stofnfiskur

Between January 2017 and March 2018, The Scottish Salmon Company imported 10.3 million ova from Iceland and Norway (including ISA-infected AquaGen and PRV-infected Stofnfiskur):

Date	Site of destination	Operator	Consignee on certificate (if different from operator)	Number	Source Country	Source Company
01/03/2017	Geocrab Hatchery	The Scottish Salmon Company		396,000	Norway	AquaGen AS
23/02/2017	Geocrab Hatchery	The Scottish Salmon Company		55,000	Iceland	Stofnfiskur
09/11/2017	Tullich Hatchery	The Scottish Salmon Company		2,714,250	Iceland	Stofnfiskur
22/11/2017	Kinlochmoidart Hatchery	The Scottish Salmon Company		1,522,500	Iceland	Stofnfiskur
15/11/2017	Barvas Hatchery	The Scottish Salmon Company		172,000	Iceland	Stofnfiskur
15/11/2017	Mingarry Hatchery	Hebridean Smolts Ltd	The Scottish Salmon Company	918,750	Iceland	Stofnfiskur
01/02/2018	Tullich Hatchery	The Scottish Salmon Company		1,360,000	Iceland	Stofnfiskur
30/01/2018	Barvas Hatchery	The Scottish Salmon Company		1,047,500	Norway	Salmobreed
30/01/2018	Amhuinnsuidhe Hatchery	The Scottish Salmon Company		400,000	Norway	Salmobreed
01/03/2018	Kinlochmoidart Hatchery	The Scottish Salmon Company		615,000	Iceland	Stofnfiskur
01/03/2018	Ormsary Hatchery	Landcatch Natural Selection Ltd	The Scottish Salmon Company	575,000	Iceland	Stofnfiskur
27/02/2018	Geocrab Hatchery	The Scottish Salmon Company		508,000	Norway	Salmobreed

Between January 2017 and February 2018, Cooke Aquaculture imported 7.6 million ova from Iceland, Ireland and Norway (including ISA-infected AquaGen and PRV-infected Stofnfiskur):

Date	Site of destination	Operator	Consignee on certificate (if different from operator)	Number	Source Country	Source Company
16/02/2017	Ardtaraig Hatchery	Cooke Aquaculture (Freshwater) Ltd		400,000	Norway	AquaGen AS
16/02/2017	Cairndow Hatchery	Lakeland (Cairndow) Ltd	Cooke Aquaculture Freshwater	1,400,000	Rep of Ireland	Marine Harvest Ireland
09/03/2017	Rysa Incubation Unit	Rysa Salmon Farm	Cooke Aquaculture Freshwater	170,000	Norway	AquaGen AS
04/04/2017	Furnace Hatchery	Cooke Aquaculture (Freshwater) Ltd		1,000,000	Iceland	Stofnfiskur
08/11/2017	Cairndow Hatchery	Lakeland (Cairndow) Ltd	Cooke Aquaculture Freshwater	2,500,000	Iceland	Stofnfiskur
14/02/2018	Wester Fearn	Highland Salmon Company Ltd	Cooke Aquaculture Freshwater	700,000	Rep of Ireland	Marine Harvest Ireland
21/02/2018	Cairndow Hatchery	Lakeland (Cairndow) Ltd	Cooke Aquaculture Freshwater	1,100,000	Rep of Ireland	Marine Harvest Ireland
27/02/2018	Ardtaraig Hatchery	Cooke Aquaculture (Freshwater) Ltd		350,000	Norway	Marine Harvest Norway

In Scotland, there is still no statutory sampling of salmon farming wastes via either farms or processing plants for PRV or other diseases, pathogens and viruses (despite salmon farms increasing in size). "Sampling undertaken for aquatic animal disease analysis relates to fish and shellfish and does not presently include samples from seawater or sampling associated with processing plants," explained the Scottish Government in a letter dated 3 June 2019.

In Canada, however, testing has detected PRV in salmon farming effluents with the Canadian Government forced by a court order in February 2019 to test for PRV in farmed salmon before transfer to sea cages (although earlier this week a four-month extension was granted by a judge). PRV was detected in farmed salmon on sale in supermarkets in Canada back in 2012.

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Supermarket salmon test positive for virus found in Europe

MARK HUME
VANCOUVER
PUBLISHED APRIL 17, 2012
UPDATED MAY 8, 2018

Fish-farm critic and independent researcher Alexandra Morton has opened another debate about salmon diseases in British Columbia.

Ms. Morton says samples taken from salmon purchased in four Vancouver supermarkets have tested positive for a virus that is suspected of being the "causative agent" of a disease killing Atlantic salmon in European aquaculture operations.

The detection of the piscine reo virus (PRV), which researchers have associated with heart and skeletal muscle inflammation (HSMI) in fish, raises concerns that the disease could be in B.C waters, where it would be a threat to both farmed Atlantic salmon and wild Pacific salmon.

In May 2018, Scottish Salmon Watch wrote to Scottish Ministers calling on the Scottish Government to test salmon farming effluents for infectious diseases, pathogens and viruses (including PRV and HSMI).

SCOTTISH SALMON WATCH

DISEASES

Cabinet Secretary for Environment, Climate Change and Land Reform
Cabinet Secretary for Rural Economy & Connectivity
The Scottish Government
St. Andrew's House
Regent Road
Edinburgh
EH1 3DG

8 May 2018

Dear Cabinet Secretaries,

Slipping Through the Net: Infectious Diseases, Viruses, Pathogens & Bacteria in Salmon Farm & Processing Plant Effluents

Further to previous correspondence (see Appendix 1), could you please explain why the Scottish Government does not test salmon farm and processing plant effluents for infectious diseases, viruses, pathogens, bacteria and contaminants?

In view of the problems plaguing Scottish salmon farming and positive tests for viruses in processing plant effluents in Canada the lack of Scottish Government testing is a serious oversight which must be corrected as a matter of urgency.

Data obtained via Freedom of Information from the Scottish Government has revealed that Scottish salmon farms during 2017 were not only riddled with lice but also disease-ridden.

Scottish Salmon Watch revealed in May 2018 how Scottish salmon was being fast-tracked and harvested out early due to disease problems (including PRV and HSMI).

In February 2018, the Global Alliance Against Industrial Aquaculture (GAAIA) wrote to the Cabinet Secretary for the Environment, Climate Change and Land Reform calling for testing of processing plant effluents following positive PRV tests in Canada.

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British Columbia

Bloody effluent still spewing from B.C. fish processing plant, photographer finds

Samples reveal PRV virus is still in discharged waste, says Tavish Campbell, more than year after initial find

Megan Thomas · CBC News · Posted: Dec 20, 2018 11:17 AM PT | Last Updated: December 20, 2018

B.C. photographer Tavish Campbell initially performed dives off the B.C. coast in 2017 and found effluent contaminated with piscine reovirus released into the ocean. (Tavish Campbell)

GAAIA cited a report - "Piscine Reovirus (PRV): An Underestimated Pathogen in the Scottish Salmon Industry?" - published by The Fish Site in 2015:

Current Piscine Reovirus Status of Scottish Salmon

HSMI has been observed across all farming regions of Scotland, however published information regarding the occurrence of HSMI on Scottish farms is limited to a single report on a suspected outbreak in 2004 and a recent report on HSMI outbreaks in the Shetland Isles from 2005 - 2012.

In the Shetland Isles, the number of HSMI cases from 2005 - 2012 varied between zero and two annually, with resultant mortality reaching 35% during an outbreak on one site. Since testing for this virus became available, some producers have reported up to 95% of their sites consistently testing positive for PRV.

It is believed this virus is fairly ubiquitous across Scottish farms as is the case in Norway. The prevalence of PRV in wild fish populations in Scotland and Ireland remains to be elucidated.

"In the context of PRV being detected in salmon processing plant effluent in British Columbia, GAAIA also calls on the Scottish Government to test salmon processing plant effluent in Scotland (not just for PRV but other infectious diseases and viruses)," urged GAAIA to the Cabinet Secretary for the Environment, Climate Change and Land Reform in February 2018.

Read news on PRV via:

Fish-farm fight ends with mandated testing for highly contagious virus
Ottawa spent $2.26 million fighting B.C. biologist and First Nation in court over fish farm virus
DFO v Wild Salmon – Will a Second Court Win Make Any Difference?
Federal court rules not screening B.C. farmed salmon for virus is unlawful
Federal Court orders DFO to make new farmed salmon transfer policy - DFO policy was to skip testing for PRV virus when issuing licence for farmed fish transfers, releases
PRV testing to be included in Canadian DFO policy
Bloody effluent still spewing from B.C. fish processing plant, photographer finds - samples reveal PRV virus is still in discharged waste, says Tavish Campbell, more than year after initial find
Protecting wild salmon from piscine reovirus
Unmasking a salmon virus
Something in the water: New salmon virus study stresses need to get fish farms out of ocean
'Bloodwater' Released into B.C.'s Coastal Water Contains Deadly Fish Virus, Government Tests Confirm
Scottish waters flooded with salmon blood after food plant leaks
Bloody sewage from Canada fish plant 'threatens' wild salmon
New Viruses to British Columbia's Coast: Piscine Reovirus
Piscine Reovirus in Puget Sound
Piscine Reovirus (PRV): An Underestimated Pathogen in the Scottish Salmon Industry?

Read more on the science of PRV and HSMI via:

Studies shed light on impact of PRV virus on farmed Atlantic salmon in B.C.
Piscine orthoreovirus demonstrates high infectivity but low virulence in Atlantic salmon of Pacific Canada
High-Load Reovirus Infections Do Not Imply Physiological Impairment in Salmon
Detection of piscine orthoreoviruses (PRV-1 and PRV-3) in Atlantic salmon and rainbow trout farmed in Germany
The same strain of Piscine orthoreovirus (PRV-1) is involved in the development of different, but related, diseases in Atlantic and Pacific Salmon in British Columbia
PRV virus may cause disease in Chinook salmon
Infection with purified Piscine orthoreovirus demonstrates a causal relationship with heart and skeletal muscle inflammation in Atlantic salmon
The effect of exposure to farmed salmon on piscine orthoreovirus infection and fitness in wild Pacific salmon in British Columbia, Canada
Piscine orthoreovirus (PRV) infects Atlantic salmon erythrocytes

Stofnfiskur is a subsidiary of Norwegian-owned Benchmark. Benchmark's largest shareholder is Norwegian-owned Ferd Capital - controlled by Norwegian investor and Norway's fifth richest person Johan Henrik Andresen. Benchmark's second largest shareholder is Norwegian-owned Kverva who owns salmon farming giant SalMar (which itself co-owns Norskott Havbruk, owner of Scotland's second largest salmon farmer Scottish Sea Farms).

SIGNIFICANT SHAREHOLDERS	% OF ISSUED SHARE CAPITAL
FERD AS	25.98
Kverva Finans AS	14.14
Lansdowne Partners	9.23
JNE Partners LLP	6.91
The Royal Bank of Scotland Group plc	5.80
Harwood Capital	4.13

A Benchmark brochure dated August 2019 includes:

BENCHMARK GENETICS STRUCTURE

SalmoBreed

SalmoBreed is a provider of high-quality genetic material of Atlantic salmon to the global salmon market. The company has systematically developed genetic material over more than 40 years. The material is recognized for rapid growth, late sexual maturity, resistance to disease and parasites as well as outstanding flesh quality. The new land-based site in Salten, Norway is providing salmon ova all year round, produced at the highest levels of biosecurity.

StofnFiskur

StofnFiskur is operating two land-based broodstock facilities in Iceland and is in position to supply the global industry with salmon ova all year round, produced at the highest levels of biosecurity. The product quality is obtained through continuous research, selective breeding and excellent production conditions — where pathogen free water is pumped from deep drilled wells and rinsed through lava sands.

In the remote and harsh lava landscape of Iceland, our broodstock is raised in completely closed land-based systems — securing the best environment with entirely controlled settings.

Since 1991, StofnFiskur has run a family breeding program in land-based units based on imported Norwegian salmon strains. At our three production sites, sea and freshwater are pumped from deep drilled boreholes where it has been naturally filtrated by lava stones for thousands of years. The borehole water has never been in contact with wild fish, free of pathogens and a perfect starting point for a biosecure aquaculture farming system.

Holding the broodstock on land offers a set of opportunities that are not possible to the same extent in a sea-based production cycle:

- Everyday access to mature brood from our selective breeding programme
- Availability to the most relevant and up-to-date data technologies
- Opportunity to gather data and analyse performance during the entire lifespan of the broodstock. This information is also important when tailoring the nucleus for the next generation of broodstock.

Our production facilities:

- Vogar: Land-based broodstock production unit and incubation center
- Kalmanstjörn: Land-based broodstock production unit
- Kollafjördur: Family production center/nucleus

In November 2019, Fish Farmer reported:

Salmon diseases hit Iceland and Norway

By Vince McDonagh - 26th November 2019

Salmon production in Iceland has hit new records

FOOD safety and marine health organisations in Norway and Iceland are this week battling with suspected salmon related diseases on at least three fronts.

They involve ISA or infectious salmon anaemia at two sites in Norway and a confirmed case of IPA or the viral disease known as infectious pancreatic necrosis in Iceland.

This is thought to be the first time that IPA has been found at a salmon farm in Iceland, although it has affected halibut in the past.

The virus, which can be fatal to fish, was reported at a Laxa freshwater aquaculture site in Reydarfjordur.

It was discovered following a periodic sampling at the company, but the salmon in which the virus was detected is said to be healthy by MAST, the Icelandic Food and Veterinary Health Authority.

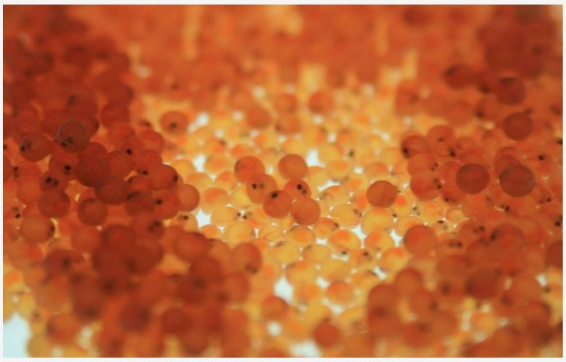
Meanwhile, ISA has been detected and confirmed by the Norwegian Food Safety Authority at a SalMar operated site in the Harstad municipality in Troms county.

In order to prevent the spread of infection, a number of restrictions have been imposed in the areas. The state broadcaster NRK said that up to 170,000 salmon may have to be slaughtered as a result of the incident, although this has not been confirmed.

Earlier, it was reported that ISA had been confirmed at a Mowi run site in Rogoland county's Finnøy municipality. Similar prevention measures have also been imposed by the authorities in the region.

In 2015, Chile suspended imports of ova from Iceland - later lifting the embargo in 2016.

Risk of Stofnfiskur eggs rated as "acceptable"



The agreement with Salmar includes sales of eggs from Benchmark's land-based sites in Iceland.

Sernapesca has now rated the risk of roe imports from Iceland as "acceptable", after the embargo enforced in late October 2015, for Stofnfiskur.

The Fish Site [reported in March 2017]():

Tackling ISA on 3 fronts

BREEDING & GENETICS

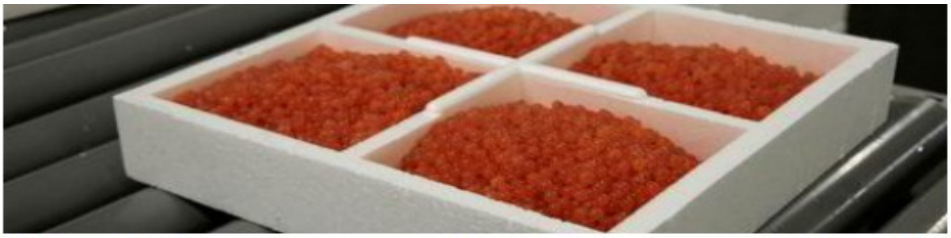
by 5m Editor
9 March 2017, at 12:00am

Stofnfiskur, the Icelandic salmon ova producer, is working to combat infectious salmon anaemia (ISA) on three fronts by capitalising on its unique natural biosecurity advantages, screening for HPR0, and producing stock with natural resistance to the disease.

A unique environment

It has been shown that the ISA virus can infect vertically (Marshall *et al.* 2014), so keeping the entire system free of ISAV is crucial both for the broodfish in production and for customers receiving ova. Benefiting from nature's ground heat and water, and expertise built through 25 years of salmon breeding, Stofnfiskur can safely claim to be a world leader when it comes to ISA-free ova. The firm keep their brood fish and produce eggs in closed, land-based units. Water, both sea and fresh, comes from underground sources that do not contain salmon pathogens. Strict quality control, with frequent sampling and analyses, ensures that the water is in accordance with regulatory requirements and the company's own standards.

Intrafish [reported in March 2018]():



Stofnfiskur can continue to export Atlantic salmon eggs to Chile

The company is currently the only one authorized to export salmon eggs to Chile

18 March 2018 12:05 GMT *UPDATED 18 March 2018 12:08 GMT*
By IntraFish Media

Iceland-based Stofnfiskur, owned by Benchmark Holdings, can continue to supply Chile with Atlantic salmon eggs, after Chile's National Fisheries and Aquaculture Service (Sernapesaca) approved a two-year renewal of the import permit.

StofnFiskur is currently the only authorized company to export salmon eggs to Chile. The decision ensures that the Chilean border remains open for egg imports from the company's product units in Iceland.

Sernapesca's decision is based on the report presented by the Chilean Animal Health Department and the information provided by the MAST (the Icelandic Food and Veterinary Authority) on the system that allows it to evaluate and declare disease-free compartments.

"We are very pleased that Sernapesca is acknowledging the high standards we have established for our compartments in Iceland, and has once more approved our production units for import of Atlantic salmon eggs to Chile," said Jónas Jónasson, CEO of StofnFiskur.