Scottish Salmon Watch, 25 August 2020

SCOTTISH SALMON WATCH

VIRUSES

Norwegian Salmon Eggs Slip Back Into Scotland (as Infectious Salmon Anaemia plagues salmon farms in Norway)

- Close the Borders to Deadly Diseases & Viruses Demand Campaigners!

- FOI reveals egg imports from Norway restarted in April 2020 after May 2019 ban
- Scottish Government official describes the lifting of Norway's ova import ban as "a good news story in light of all the COVID issues" in memo to Fergus Ewing
- Veterinarian warned last week that ISA "horror show" ravages Norway during 2020
- Import data reveals ISA-plagued AquaGen imported 'elite' ova from Norway to Scottish Sea Farms & Cooke Aquaculture to use as broodstock for 'Scottish' salmon
- Internal memo reveals that the Scottish Government agreed to "head off accusations of disease in Icelandic eggs" following a media inquiry by The Ferret in February 2020
- Landcatch warned Scottish Ministers (Fergus Ewing & Michael Russell) of the "massive risk" of ISA in imported salmon ova back in 2018
- Campaigners call for immediate testing of imports & quarantine of hatcheries

Shipments of salmon eggs (ova) imported from Norway have quietly resumed despite repeated warnings over the spread of deadly disease Infectious Salmon Anaemia (ISA) and a "horror show" ravaging Norwegian salmon farms. A Freedom of Information (FOI) reply from the Scottish Government reveals that in April 2020 two shipments of salmon ova were imported from AquaGen in Norway to hatcheries operated by Scottish Sea Farms on the Isle of Mull and Cooke Aquaculture on Orkney. The FOI disclosure on 7 August 2020 reveals that Scottish Government officials agreed to downplay disease risks in imported ova from Iceland and described the resumption of ova imports from Norway as "a good news story in light of all the COVID 19 issues" in a memo to the Cabinet Secretary for Rural Economy **[1]**.

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
08/04/2020	Rysa Incubation Unit	Rysa Salmon Farm	Cooke Aquaculture Scotland	SAL	OVA	100,000	Norway	AquaGen AS
08/04/2020	Knock	Scottish Sea Farms Ltd		SAL	OVA	120,000	Norway	AquaGen AS

AquaGen (owned by EW Group - a German-based company with interests in international poultry genetics) has been plagued by virus problems and was fingered by a scientific paper as introducing ISA into Chile via infected eggs from Norway. Faced with a ban on imported ova from ISA-infected Norway, AquaGen bought a hatchery near Dumfries from Norwegian-owned Scottish Sea Farms in 2018 "to offer Scotland's salmon farmers a reliable supply of eggs from locally farmed AquaGen broodstock".

Last week, a leading veterinarian warned that salmon farms in Norway were being ravaged by an ISA "horror show" with cases of ISA rising alarmingly during 2020 **[2]**.

> "We must be vigilant, or we will see a horror show with a large spread of ISA infection," Ole Bendik Dale, an aquatic biosafety section leader at the Norwegian Veterinary Institute, told **IntraFish**.
>
> "We come across new variants of the virus, variants we have not seen before. This indicates a turn for the worse."
>
> Dale fears that ISA is now present as a harmless variant of the virus in hatcheries, becoming pathogenic over time.
>
> "Hidden ISA infection can be difficult to detect. We are unsure how effective test methods are. If there are one million individuals in a facility and there are only a few who carry the virus, how can you be sure that you are testing the right individuals? Testing is helpful, but not something you can blindly trust. The biosafety measures must be in place," said Dale.

Scottish Salmon Watch today (25 August 2020) wrote to the Scottish and UK Government calling for an immediate ban on ova imports and the introduction of strict biosecurity measures including testing of hatcheries and farms for ISA and Piscine Reovirus (PRV).

"Whilst Norway continues to ban imports of Scottish salmon eggs due to disease and genetic risks, the Scottish Government is recklessly resuming imports from Norway where salmon farms are being plagued by Infectious Salmon Anaemia," said Don Staniford, Director of Scottish Salmon Watch. "Importing salmon eggs from countries such as Norway and Iceland ravaged by diseases, viruses and pathogens is a recipe for ecological ruin. Scottish Ministers are presiding over the extinction of the King of Fish - a true Scottish icon - which is already genetically polluted by Norwegian salmon. Using foreign salmon eggs to spawn Scottish salmon is devious, deceptive and a deadly menace to wild salmon. So-called 'Scottish' salmon is a sham, scam and a consumer con."

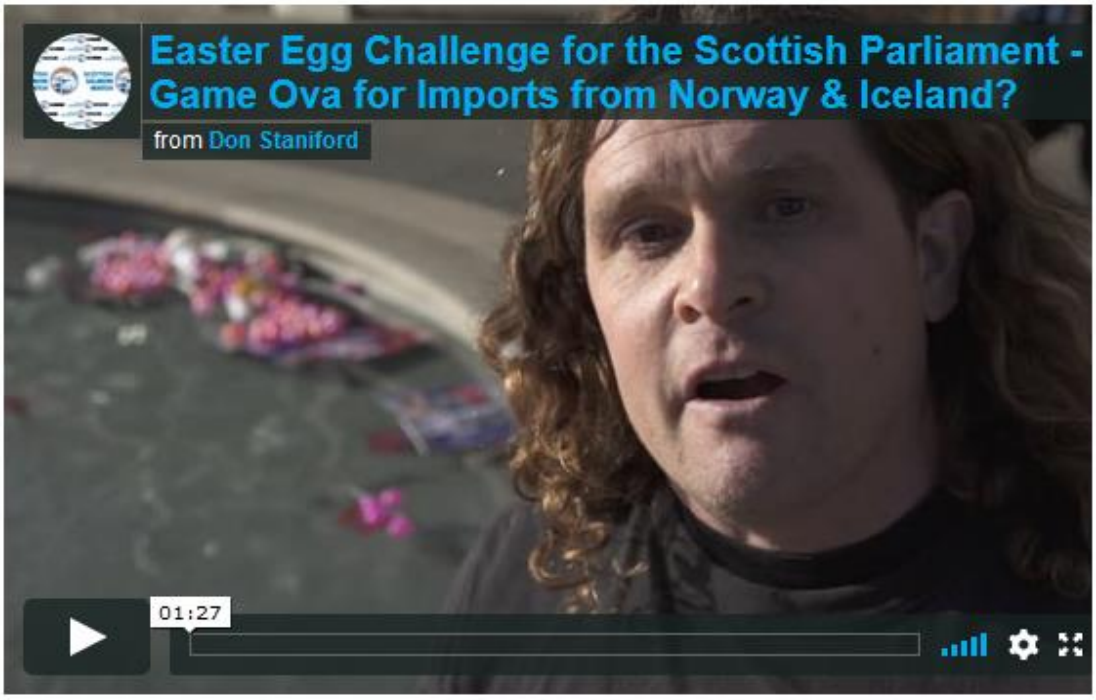
"The import of salmon eggs from Norway, Iceland and Ireland - which come into Scotland without any disease and virus testing - is bad news for wild salmon and bad news for the Scottish environment," continued Staniford, author of 'Scottish Scamon'. "It beggars belief that the Scottish Government is willing to sacrifice Scotland's iconic Atlantic salmon at the altar of the Norwegian-owned salmon farming industry. Scotland should immediately ban the import of all salmon eggs and test hatcheries and farms for Infectious Salmon Anaemia and Piscine Reovirus. If the COVID crisis has taught us anything it is that closing borders is vital in stemming the spread of infectious diseases, viruses and pathogens. Hatcheries using imported eggs should be quarantined until they can prove they're free of deadly viruses."

Don Staniford
@TheGAAIA

In April 2020 @GreenerScotland admitted that imported salmon eggs (ova) are not tested for Infectious Salmon Anaemia or Piscine Reovirus tinyurl.com/yxu64rve Is 'Scottish' salmon infected with deadly viruses? @DefraGovUK @marinescotland @FergusEwingMSP @strathearnrose @scotgp

> **Don Staniford** @TheGAAIA · Aug 20
> Is deadly Infectious Salmon Anaemia already lurking in Scottish salmon farms & hatcheries? @FergusEwingMSP @marinescotland @strathearnrose @KateForbesMSP @MowiScotlandLtd @WeAreBenchmark @EWNutritionGmbH @scotseafarms @GriegShetland @salmon_scottish @HGSalmonUK @SSPOsays #ISA twitter.com/TheGAAIA/statu...

9:38 AM · Aug 20, 2020 · Twitter Web App



FOI Disclosure by the Scottish Government:

The FOI data disclosed by the Scottish Government on 7 August 2020 reveals that since the ban on imports of salmon ova from Norway in late May 2019, Iceland's StofnFiskur (a subsidiary of Norwegian-owned Benchmark - the company behind the controversial use of the neonicotinoid insecticide Imidacloprid) has become the main supplier of so-called 'Scottish' salmon (99% of which is controlled/owned by foreign companies and ca. 90% of which is sourced from imported ova from Norway, Iceland and Ireland).

Date consignment due	Destination site name	Destination business name	Consignee Business name (if different from destination business)	Number in consignment	Source Country	Import consignor
15/05/2019	Inchmore	Mowi Scotland Ltd		1,300,000	Norway	Mowi Norway
17/05/2019	Inchmore	Mowi Scotland Ltd		1,300,000	Norway	Mowi Norway
22/05/2019	Lochailort Recirculation Hatchery	Mowi Scotland Ltd		3,200,000	Norway	Mowi Norway
28/05/2019	Roslin Institute Hatchery	The Roslin Institute		3,000	Iceland	Stofnfiskur Hf.
27/06/2019	Girlsta Hatchery	Grieg Seafood Shetland Ltd (Hatchery)		1,751,000	Iceland	Stofnfiskur Hf.
30/07/2019	Barcaldine Hatchery Incubation 2	Scottish Sea Farms Ltd		1,200,000	Iceland	Stofnfiskur Hf.
30/07/2019	Barcaldine Hatchery Incubation 3	Scottish Sea Farms Ltd		1,200,000	Iceland	Stofnfiskur Hf.
13/08/2019	Inchmore	Mowi Scotland Ltd		1,450,000	Iceland	Stofnfiskur Hf.
20/08/2019	Roslin Institute Hatchery	The Roslin Institute		10,000	Iceland	Stofnfiskur Hf.
15/10/2019	Kinlochmoidart Hatchery	The Scottish Salmon Company		537,810	Iceland	Stofnfiskur Hf.
24/10/2019	Mingarry Hatchery	Hebridean Smolts Ltd		955,500	Iceland	Stofnfiskur Hf.
31/10/2019	Girlsta Hatchery	Grieg Seafood Shetland Ltd (Hatchery)		1,800,000	Iceland	Stofnfiskur Hf.
29/10/2019	Barcaldine Hatchery Incubation 3	Scottish Sea Farms Ltd		1,125,000	Iceland	Stofnfiskur Hf.
29/10/2019	Barcaldine Hatchery Incubation 2	Scottish Sea Farms Ltd		1,125,000	Iceland	Stofnfiskur Hf.
30/10/2019	Appleburn Incubation Unit	The Scottish Salmon Company		1,030,575	Iceland	Stofnfiskur Hf.
12/11/2019	Ormsary Hatchery	Landcatch Natural Selection Ltd	Loch Duart Ltd	450,000	Iceland	Stofnfiskur Hf.
12/11/2019	Barvas Hatchery	The Scottish Salmon Company		443,625	Iceland	Stofnfiskur Hf.
13/11/2019	Lochailort Recirculation Hatchery	Mowi Scotland Ltd		1,900,000	Iceland	Stofnfiskur Hf.
20/11/2019	Cairndow Hatchery	Lakeland (Cairndow) Ltd		1,000,000	Iceland	Stofnfiskur Hf.
19/11/2019	Applecross Hatchery	The Scottish Salmon Company		1,800,000	Iceland	Stofnfiskur Hf.
26/11/2019	Cairndow Hatchery	Lakeland (Cairndow) Ltd		1,500,000	Iceland	Stofnfiskur Hf.
27/11/2019	Ormsary Hatchery	Landcatch Natural Selection Ltd	Organic Sea Harvest Ltd	675,900	Iceland	Stofnfiskur Hf.
28/11/2019	Ormsary Hatchery	Landcatch Natural Selection Ltd	The Scottish Salmon Cor	2,320,500	Iceland	Stofnfiskur Hf.
11/12/2019	Ormsary Hatchery	Landcatch Natural Selection Ltd	Saumon de France	350,000	Iceland	Stofnfiskur Hf.
17/12/2019	Roslin Institute Hatchery	The Roslin Institute		9,000	Iceland	Stofnfiskur Hf.

The FOI data disclosed by the Scottish Government on 7 August 2020 reveals that Norwegian-owned Mowi Ireland stepped up ova imports during 2020 with 17.8 million compared to compared to StofnFiskur's 28.5 million (including to Norwegian/Canadian-owned Organic Sea Harvest via Dutch-owned Landcatch).

Date consignmen	Destination site name	Destination business name	Consignee Business name (if different from destination	Number in consignment	Source Country	Import consignor
16/01/2020	Barcaldine Hatchery Incubation 4	Scottish Sea Farms Ltd		1,018,520	Republic of Ireland	Mowi Ireland
16/01/2020	Barcaldine Hatchery Incubation 1	Scottish Sea Farms Ltd		1,481,480	Republic of Ireland	Mowi Ireland
14/01/2020	Kinlochmoidart Hatchery	The Scottish Salmon Company		517,440	Iceland	Stofnfiskur Hf.
21/01/2020	Ormsary Hatchery	Landcatch Natural Selection Ltd	Organic Sea Harvest Ltd	585,000	Iceland	Stofnfiskur Hf.
21/01/2020	Mill Burn (Old Mill)	Kintail Hatchery	Migdale Smolts Ltd	2,100,000	Iceland	Stofnfiskur Hf.
16/01/2020	Inverpolly	Finfish Ltd	Mowi Scotland	2,300,000	Republic of Ireland	Mowi Ireland
21/01/2020	Mill Burn (Old Mill)	Kintail Hatchery		2,100,000	Iceland	Stofnfiskur Hf.
23/01/2020	Inchmore	Mowi Scotland Ltd		2,000,000	Republic of Ireland	Mowi Ireland
28/01/2020	Lochailort Recirculation Hatchery	Mowi Scotland Ltd		146,000	Republic of Ireland	Mowi Ireland
04/02/2020	Appleburn Incubation Unit	The Scottish Salmon Company		876,330	Iceland	Stofnfiskur Hf.
18/02/2020	Wester Fearn	Highland Salmon Company Ltd		450,000	Republic of Ireland	Mowi Ireland
12/02/2020	Lochailort Recirculation Hatchery	Mowi Scotland Ltd		2,450,000	Republic of Ireland	Mowi Ireland
18/02/2020	Roslin Institute Hatchery	The Roslin Institute		6,000	Iceland	Stofnfiskur Hf.
20/02/2020	Girlsta Hatchery	Grieg Seafood Shetland Ltd (Hatchery)		1,800,000	Iceland	Stofnfiskur Hf.
18/02/2020	Applecross Hatchery	The Scottish Salmon Company		1,800,000	Iceland	Stofnfiskur Hf.
20/02/2020	Ormsary Hatchery	Landcatch Natural Selection Ltd	The Scottish Salmon Company	2,457,000	Iceland	Stofnfiskur Hf.
25/02/2020	Inchmore	Mowi Scotland Ltd		2,500,000	Iceland	Stofnfiskur Hf.
19/03/2020	Barcaldine Hatchery Incubation 3	Scottish Sea Farms Ltd		1,500,000	Republic of Ireland	Mowi Ireland
19/03/2020	Barcaldine Hatchery Incubation 2	Scottish Sea Farms Ltd		1,500,000	Republic of Ireland	Mowi Ireland

17/03/2020	Lochailort Recirculation Hatchery	Mowi Scotland Ltd		125,000	Iceland	Stofnfiskur Hf.
17/03/2020	Lochailort Recirculation Hatchery	Mowi Scotland Ltd		1,225,000	Iceland	Stofnfiskur Hf.
19/03/2020	Ormsary Hatchery	Landcatch Natural Selection Ltd	Organic Sea Harvest Ltd	670,000	Iceland	Stofnfiskur Hf.
26/03/2020	Cairndow Hatchery	Cooke Aquaculture (Freshwater) Ltd		1,500,000	Iceland	Stofnfiskur Hf.
31/03/2020	Inverpolly	Finfish Ltd	Scottish Sea Farms Ltd	2,450,000	Republic of Ireland	Mowi Ireland
31/03/2020	Inverpolly	Finfish Ltd	Mowi Scotland Ltd	2,450,000	Republic of Ireland	Mowi Ireland
22/04/2020	Inchmore	Mowi Scotland Ltd		2,500,000	Iceland	Stofnfiskur Hf.
13/05/2020	Lochailort Recirculation Hatchery	Mowi Scotland Ltd		3,250,000	Iceland	Stofnfiskur Hf.
13/05/2020	Furnace (FW)	Cooke Aquaculture (Freshwater) Ltd		1,500,000	Iceland	Stofnfiskur Hf.
03/06/2020	Girlsta Hatchery	Grieg Seafood Shetland Ltd (Hatchery)		1,800,000	Iceland	Stofnfiskur Hf.
02/07/2020	Barcaldine Hatchery Incubation 4	Scottish Sea Farms Ltd		1,200,000	Iceland	Stofnfiskur Hf.

The FOI data disclosed by the Scottish Government on 7 August 2020 reveals that during 2020 (up to 2 July), a staggering 46.5 million salmon ova were imported into Scotland including 18.9 million to Mowi; 9.3 million to Scottish Sea Farms; 5.7 million to The Scottish Salmon Company; 3.6 million to Grieg Seafood; 3.1 million to Cooke Aquaculture and 1.3 to Organic Sea Harvest. This compares with 58.5 million salmon ova imported during the whole of 2019. Since 2003, 'Scottish' salmon farmers have imported around 700 million ova mostly from Norway but also from Iceland and Ireland **[3]**.

StofnFiskur was named as the company supplying virus-laden ova to Cooke Aquaculture in the United States leading to the culling of infected fish in 2018. In June 2019, Scottish Salmon Watch revealed that over 50% of farmed salmon tested by Marine Scotland Science were infected with PRV but refused to name the companies affected.

The FOI disclosure from the Scottish Government (7 August 2020) reveals that Scottish Government officials agreed to "head off accusations of disease in Icelandic eggs" and described the resumption of ova imports from Norway as "a good news story" in a memo to the Cabinet Secretary for Rural Economy (Fergus Ewing).

"I agree we need to head off accusations of disease in Icelandic eggs though suggest we don't address the accusation directly but respond re rigorous trade process, disease-free status etc.," wrote an anonymous Scottish Government official in an internal email in February 2020 to colleagues following a media enquiry by The Ferret.

From: <REDACTED> <REDACTED>@gov.scot>
Sent: 24 February 2020 11:37
To: <REDACTED> <<REDACTED>@gov.scot>; <REDACTED> <<REDACTED>@gov.scot>; <REDACTED><<REDACTED>@gov.scot>
Cc: <REDACTED><<REDACTED>@gov.scot>; <REDACTED><<REDACTED>@gov.scot>; <REDACTED> <<REDACTED>@scotland.gsi.gov.uk>; <REDACTED> <<REDACTED>@gov.scot>; <REDACTED> <<REDACTED>@gov.scot>; MS Communications <MS.Communications@gov.scot>; <REDACTED> <<REDACTED>@gov.scot>; <REDACTED><<REDACTED>@gov.scot>; <REDACTED>(MARLAB) <<REDACTED>@gov.scot>; <REDACTED> <<REDACTED>@gov.scot>; <REDACTED>(MARLAB) <<REDACTED>@gov.scot>; <REDACTED> (MARLAB) <<REDACTED>@gov.scot>
Subject: RE: media inquiry - Salmon egg ban - the Ferret

<REDACTED>, thanks. I agree we need to head off the accusations of disease in Icelandic eggs though suggest we don't address the accusation directly but respond re rigorous trade process, disease-free status etc. So, copying to FHI colleagues for their comment/standard line.

Regards, <REDACTED>

From: <REDACTED> <<REDACTED>@scotland.gsi.gov.uk>
Sent: 01 April 2020 16:27
To: <REDACTED>(MARLAB) <REDACTED>@gov.scot>; <REDACTED>(MARLAB) <REDACTED>@gov.scot>; <REDACTED> (MARLAB) <REDACTED>@gov.scot>; <REDACTED>@gov.scot>
Cc: <REDACTED> (MARLAB) <REDACTED>@gov.scot>; <REDACTED>(MARLAB) <REDACTED>@gov.scot>; <REDACTED> (MARLAB) <REDACTED>@gov.scot>; <REDACTED>(MARLAB) <REDACTED>@gov.scot>
Subject: RE: Import of salmon ova from Norway

<REDACTED>

Thank you.

Can I let Ministers know as this is a good news story?

<REDACTED>

<REDACTED> | Marine Scotland | Scottish Government | 1B North | Victoria Quay | Edinburgh | EH6 6QQ
Tel: <REDACTED> | Mobile <REDACTED> | email: <REDACTED>@gov.scot
<REDACTED>@scotland.gsi.gov.uk <REDACTED>@scot.cg.gov.uk

SUPPORTING 2020 COASTS & WATERS

"I think it would be helpful to provide a good news story in light of all the COVID 19 issues that are dominating our work," wrote an anonymous Scottish Government official in an internal email dated 2 April 2020 (the week before AquaGen imported ova from Norway to Scottish Sea Farms and Cooke Aquaculture on 8 April 2020).

From: <REDACTED> <<REDACTED>@scotland.gsi.gov.uk>
Sent: 02 April 2020 12:50
To: <REDACTED> (MARLAB) <REDACTED>@gov.scot>; <REDACTED> <REDACTED>@gov.scot>; <REDACTED> (MARLAB) <REDACTED>@gov.scot>
Cc: <REDACTED> (MARLAB) <REDACTED>@gov.scot>
Subject: Official Sensitive - Commercial - Import of Ova from Norway

Colleagues

I should be grateful for comments on the short update below which I propose to send to Mr Ewing on ova imports. I think it would be helpful to provide a good news story in light of all the COVID 19 issues that ire dominating our work.

Further to my submission of 12 March noting that the Norwegian Food Safety Authority had lifted their self-imposed suspension on 3 zones and compartments of ova, I can now advise that a consignment of 100,000 salmon ova from the Rimstad site in Norway have been ordered by Aquagen and are due to arrive on 8th of April.

The ova will be delivered to Rysa Incubation Unit in Orkney for onward growing by Cooke Aquaculture. These represent elite ova that will be used for broodstock in the UK in the next 3-4 years.

Kind regards

<REDACTED>

The Scottish Government refused to disclose other emails arguing in a letter to Scottish Salmon Watch dated 7 August 2020 that internal communications were classified as confidential and "private space" to give "frank advice" to Ministers was needed.

> In addition, an exception under regulation 10(4)(e) of the EIRs (internal communications) applies to some of the information requested. This has been applied to internal communications, which have taken part within Scottish Government and Marine Scotland and which relate to the drafting and composing responses to media queries. The final versions of these drafts were issued and have been released as part of this response. This exception 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. Applying the exception in this case allows officials the private space, to discuss, review and exchange views over the drafting of responses relating to media queries. It is clearly in the public interest to allow this to occur, especially where the information is being provided to you through the final responses which were issued.

On 18 August 2020, Scottish Salmon Watch filed a request for a review of the Scottish Government's FOI refusal (a FOI request was also filed with DEFRA on 20 August 2020).

The FOI disclosure from the Scottish Government (7 August 2020) includes internal discussions between Marine Scotland officials who "welcomed" the lifting of the ova ban by Norway but warned that: "Depending upon how quickly other compartments are declared disease free, Scotland may still have to rely upon domestic production and supply from other international sources for the next ova season or two".

From: <REDACTED> (MARLAB) <<REDACTED>@gov.scot>
Sent: 13 March 2020 11:00
To: <REDACTED>) <<REDACTED>@scotland.gsi.gov.uk>; <REDACTED><<REDACTED>@gov.scot>
Cc: <REDACTED> (MARLAB) <<REDACTED>@gov.scot>; <REDACTED>) (MARLAB) <<REDACTED>@gov.scot>
Subject: RE: Export of Ova ban lifted by Norway- Submission - 12.3.20 (003)

<REDACTED>

Whilst the announcement is welcomed, it is unclear what volume of ova will be traded from the compartments declared free – the Sjolseng compartment is a new area, we have no knowledge of the volume of ova which may be available to be supplied. The Rimstad compartment has historically supplied variable volumes of ova to Scotland.

Bear in mind that the supply of ova to Scotland, as a percentage of ova required for domestic production in Norway, is relatively small, single digit percentages only.

Depending upon how quickly other compartments are declared disease free, Scotland may still have to rely upon domestic production and supply from other international sources for the next ova season or two.

Happy to discuss further if required.

<REDACTED>
<REDACTED>
Marine Scotland | Marine Laboratory | 375 Victoria Road | Aberdeen | AB11 9DB

The FOI disclosure from the Scottish Government (7 August 2020) also includes an email from an anonymous Scottish Government official saying the 'good news' can be passed onto Ministers but that "there wasn't an immediate demand from the industry to buy ova from Aquagen as we are at the end of the main ova season". "Aquagen were taking the opportunity to import ova to maintain their UK based broodstock population which will be beneficial in the future," continued the redacted email dated 2 April 2020.

From: <REDACTED> (MARLAB) <<REDACTED>@gov.scot>
Sent: 02 April 2020 09:32
To: <REDACTED> <<REDACTED>@scotland.gsi.gov.uk>
Subject: RE: Import of salmon ova from Norway

Hi <REDACTED>

I think you can pass this on to the Ministers, but please be aware that is possibly going to be the only consignment from a while. I spoke with <REDACTED>, the <REDACTED>, yesterday and he did say that there wasn't an immediate demand from the industry to buy ova from Aquagen as we are at the end of the main ova season. Aquagen were taking this opportunity to import ova to maintain their UK based broodstock population which will be beneficial in the future.

Thanks

<REDACTED>

"I have received notification from Aquagen that a consignment of 100,000 salmon ova from their Rimstad site in Norway are due to arrive on 8th April following approval of the site as ISA free by Mattilysnet [Norwegian Food Safety Authority], wrote an anonymous official from Marine Scotland Science in an email to Marine Scotland colleagues on 2 April 2020. "These are elite ova that will be used for broodstock in the UK in 3-4 years. The ova are going to be delivered to Rysa Incubation Unit in Orkney and ongrown with Cooke Aquaculture."

From: <REDACTED> (MARLAB) <<REDACTED>@gov.scot>
Sent: 01 April 2020 15:51
To: <REDACTED>(MARLAB) <<REDACTED>@gov.scot>; <REDACTED> (MARLAB) <REDACTED>@gov.scot>; <REDACTED> <REDACTED>@scotland.gsi.gov.uk>; <REDACTED> <REDACTED>@gov.scot>
Cc: <REDACTED> (MARLAB) <REDACTED>@gov.scot>; <REDACTED>(MARLAB) <REDACTED>@gov.scot>; <REDACTED>(MARLAB) <REDACTED>@gov.scot>; <REDACTED>(MARLAB) <REDACTED>@gov.scot>
Subject: Import of salmon ova from Norway

Hi all

I have received notification from Aquagen that a consignment of 100,000 salmon ova from their Rimstad site in Norway are due to arrive on 8th of April following approval of the site as ISA free by Mattilsynet. These are elite ova that will be used for broodstock in the UK in 3-4 years. The ova are going to be delivered to Rysa Incubation Unit in Orkney and ongrown with Cooke Aquaculture.

Aquagen are taking the opportunity to import elite ova to cover production in 3-4 years and while there are still flights available.

Thanks

<REDACTED>

<REDACTED>
<REDACTED>
Fish Health Inspectorate
Marine Scotland Science
Scottish Government | Marine Laboratory | 375 Victoria Road | Aberdeen AB11 9DB

Cooke Aquaculture was embroiled in controversy in the United States in 2018 when the Washington Department of Fish & Wildlife ordered the destruction of 800,000 PRV-infected salmon from Iceland. "Cooke hatched the fish from eggs the company imported from its supplier in Iceland," reported The Seattle Times in May 2018. "The Icelandic company StofnFiskur – a subsidiary of Benchmark Genetics – supplied the eggs to Cooke," reported Salmon Business in December 2018. "The PRV at Cooke may have originated from the ova delivered from Iceland," explained Benchmark. "We have, however, an optional service of screening against PRV that our customers may choose as an extra risk measure to avoid vertical transmission."

In April 2020, Scottish Salmon Watch revealed that Marine Scotland does not test imported salmon ova for ISA, PRV or other diseases, pathogens and viruses (although Marine Scotland Science conducts private testing of farmed salmon for companies which the Scottish Government deemed commercially confidential).

The FOI disclosure from the Scottish Government (7 August 2020) included an email marked 'Official Sensitive' detailing a second shipment of "elite ova" from AquaGen in Norway to the Knock hatchery operated by Scottish Sea Farms on the Isle of Mull "for use as future broodstock by Aquagen Scotland".

From: <REDACTED> (MARLAB) <REDACTED>@gov.scot>
Sent: 02 April 2020 13:48
To: <REDACTED> (MARLAB) <REDACTED>@gov.scot>; <REDACTED> <REDACTED>@scotland.gsi.gov.uk>; <REDACTED> (MARLAB) <REDACTED>@gov.scot>; <REDACTED> <REDACTED>@gov.scot>
Subject: RE: Official Sensitive - Commercial - Import of Ova from Norway

Aquagen have confirmed that the second batch of 120,000 ova are also elite ova for use as future broodstock by Aquagen Scotland

Thanks

<REDACTED>

From: <REDACTED> (MARLAB)
Sent: 02 April 2020 13:10
To: <REDACTED> (MARLAB) <<REDACTED>@gov.scot>; <REDACTED> <REDACTED>@scotland.gsi.gov.uk>; <REDACTED> (MARLAB) <REDACTED>@gov.scot>; <REDACTED> <<REDACTED>@gov.scot>
Subject: RE: Official Sensitive - Commercial - Import of Ova from Norway

Hi <REDACTED>

Just to let you know I have just received a second import notification from Aquagen for a further 120,000 ova for delivery to Knock Hatchery, operated by Scottish Sea Farms, arriving on 8th April. I think these are also elite ova for broodstock production, but waiting for confirmation. <REDACTED> did mention yesterday that they might import 200,000 ova.

I'll confirm with you as soon as I have the info

Cheers

<REDACTED>

In November 2019, Scottish Salmon Watch won a landmark ruling from the Scottish Information Commissioner forcing the disclosure of data on ova imports by Scottish Sea Farms who argued along with Scottish Ministers that publication of where they source ova "would cause substantial harm to commercial interests".

CONFIDENTIAL - DISCLOSURE COULD CAUSE COMMERCIAL HARM

Date	Site of destination	Operator	Consignee on certificate (if different from operator)	Species	Stage	Number	Source Country	Source Company
18/01/2017	Knock Hatchery	Scottish Sea Farms Ltd		Salmon	Ova	1,500,000	Rep of Ireland	Marine Harvest Ireland
09/02/2017	Couldoran Incubation Unit	Scottish Sea Farms Ltd		Salmon	Ova	1,500,000	Rep of Ireland	Marine Harvest Ireland
18/01/2018	Knock	Scottish Sea Farms Ltd		Salmon	Ova	1,550,000	Rep of Ireland	Marine Harvest Ireland
15/02/2018	Couldoran Incubation Unit	Scottish Sea Farms Ltd		Salmon	Ova	1,600,000	Rep of Ireland	Marine Harvest Ireland
23/02/2017	Ormsary Hatchery	Landcatch Natural Selection Ltd	Scottish Sea Farms Ltd	Salmon	Ova	2,200,000	Rep of Ireland	Marine Harvest Ireland
07/02/2018	Ormsary Hatchery	Landcatch Natural Selection Ltd	Scottish Sea Farms Ltd	Salmon	Ova	1,500,000	Rep of Ireland	Marine Harvest Ireland
01/03/2018	Ormsary Hatchery	Landcatch Natural Selection Ltd	Scottish Sea Farms Ltd	Salmon	Ova	800,000	Rep of Ireland	Marine Harvest Ireland
09/02/2017	Wester Fearn	Highland Salmon Company Ltd	Scottish Sea Farms Ltd	Salmon	Ova	400,000	Rep of Ireland	Marine Harvest Ireland
07/11/2017	Couldoran Incubation Unit	Scottish Sea Farms Ltd		Salmon	Ova	745,000	Iceland	Stofnfiskur
30/11/2017	Ormsary Hatchery	Landcatch Natural Selection Ltd	Scottish Sea Farms Ltd	Salmon	Ova	400,000	Iceland	Stofnfiskur
08/12/2017	Ormsary Hatchery	Landcatch Natural Selection Ltd	Scottish Sea Farms Ltd	Salmon	Ova	300,000	Iceland	Stofnfiskur

The ruling by the Scottish Information Commissioner included reference to a confidentiality agreement between Scottish Sea Farms, AquaGen and Landcatch.

Submissions from the Ministers

25. The Ministers submitted that there was "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." The Ministers explained that SSF had entered into a mutual confidentiality agreement with Aqua Gen AS, and Landcatch Natural Selection Limited, which showed that the information (which was covered by the agreement) was commercially confidential in nature.

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" **[4]**.

In February 2019, Scottish Salmon Watch and The Ferret revealed that imports of salmon ova from AquaGen in Norway to a hatchery operated by Scottish Sea Farms had been halted due to fears over the spread of ISA with a ban on Norwegian ova in May 2019 due to ISA risks.

The FOI disclosure from the Scottish Government (7 August 2020) includes correspondence from an anonymous official at AquaGen in Norway which was "initiated by SSPO [Scottish Salmon Producers Organisation] and following which with 2 of our customers here in Scotland" who "were looking for clarification on the background to 2 small shipments imported from Norway in early April".

From: <REDACTED>@aquagen.no
Sent: 08 May 2020 08:18
To: <REDACTED> <<REDACTED>@gov.scot>
Cc: <REDACTED> (MARLAB) <<REDACTED>@gov.scot>
Subject: Statement ref recent import

Hi <REDACTED>

I am getting in contact with you following some communications I had yesterday, initiated by SSPO and following which with 2 of our customers here in Scotland.

They were looking for clarification on the background to 2 small shipments imported from Norway in early April.

As we had communications on the subject a while ago I thought helpful to appraise you of the matter and copy to you a statement we prepared on the subject. I have also copied in Andrea as the matter is relevant to her responsibilities.

Best regards

<REDACTED>
AquaGen Scotland Ltd

Mob: <REDACTED>
Email: <REDACTED>@aquagen.no

AquaGen
seeds of vitality and profitability

PDF
Aquagen statement.Redacted.p

AquaGen's statement dated 8 May 2020 is detailed in full below:

AquaGen
seeds of vitality and profitability

Friday 8th May 2020

First ova imports from re-instated ISA free compartments

AquaGen is committed to long-term goals for local production in Scotland for the Scottish industry. An internationally competitive industry will be underpinned by improved genetic material selected for best performance and highest health and welfare specific to the Scottish marine environment. To that end, on Wednesday 8th April, the first AquaGen "Elite" ova were imported to Scotland following the re-instatement, on 30th March of our ISA free compartment known as Rimstad. Elite ova are selected from the breeding nucleus and will be the start-point for selection for commercial ova and further breeding work.

In June 2019 following an audit by the EFTA surveillance authority the Norwegian Food Safety Authority (NFSA) suspended ISA-free certification on all zones and compartments. Subsequently, a thorough and detailed review process with the highest levels of scrutiny was completed. Our Rimstad site was one of only three (All AquaGen owned or operated) that were re-instated by that process. It is important to note that these ova that were imported originated from broodfish that were entirely "landlocked" for their production cycle, and at no time in their lives were in the open marine environment.

Please do not hesitate to contact me directly should you have any questions related to this matter.

[redacted]

[redacted]@aquagen.no

[redacted]

Background:

Scottish Salmon Watch revealed in May 2019 that over 90% of 'Scottish' salmon was sourced from foreign ova with the vast majority imported from Norway. According to the latest Scottish Fish Farm Production Survey (published in September 2019), 87% of the ova laid down to hatch in 2018 (61.5 million out of 70.5 million) were foreign ova but even 'domestic' ova may have been imported originally from Norway. 'Scottish' salmon is a misnomer.

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

In May 2019, a damning inspection by the European Free Trade Association's Surveillance Authority resulted in a ban on exports of Norwegian salmon ova. In February 2020, Scottish Salmon Watch and The Ferret revealed that imports of ova from Norway had been banned due to fears over the spread of ISA leading to an influx of ova from Iceland (which has a history of Piscine Reovirus problems) and Ireland.

Landcatch (another egg breeding company owned by the Dutch company Hendrix Genetics) raised serious concerns about the spread of deadly ISA via imported ova from AquaGen in correspondence with the Scottish Government's Cabinet Secretary for Rural Economy & Connectivity (Fergus Ewing) in 2018 and with the Scottish Government in 2017 **[5]**.

In May 2018, Scottish Salmon Watch revealed that the Norwegian Government had banned imports of salmon ova from Scotland citing unacceptable disease and genetic 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:

From: <REDACTED> (MARLAB)
Sent: 11 July 2017 15:08
To: <REDACTED> (MARLAB) <REDACTED>@gov.scot>; <REDACTED> <REDACTED>@gov.scot>; <REDACTED> (MARLAB) <REDACTED>@gov.scot>; <REDACTED> (MARLAB) <REDACTED>@gov.scot>; <REDACTED>@gov.scot>; <REDACTED> (MARLAB) <REDACTED>@gov.scot>; <REDACTED> (MARLAB) <REDACTED>@gov.scot>; <REDACTED> (MARLAB) <REDACTED>@gov.scot>; <REDACTED> (MARLAB) <REDACTED>@gov.scot>; <REDACTED> <REDACTED>@gov.scot>; <REDACTED> (MARLAB) <REDACTED>@gov.scot>; <REDACTED> (MARLAB) <REDACTED>@gov.scot>; <REDACTED>@gov.scot>; <REDACTED> (MARLAB) <REDACTED>@gov.scot>; <REDACTED>@gov.scot>; <REDACTED> (MARLAB) <REDACTED>@gov.scot>
Cc: <REDACTED>@gov.scot>
Subject: ISA suspected at AquaGen Tingvoll

http://aquagen.no/en/2017/07/10/ila-mistanke-hos-aquagen-tingvoll/

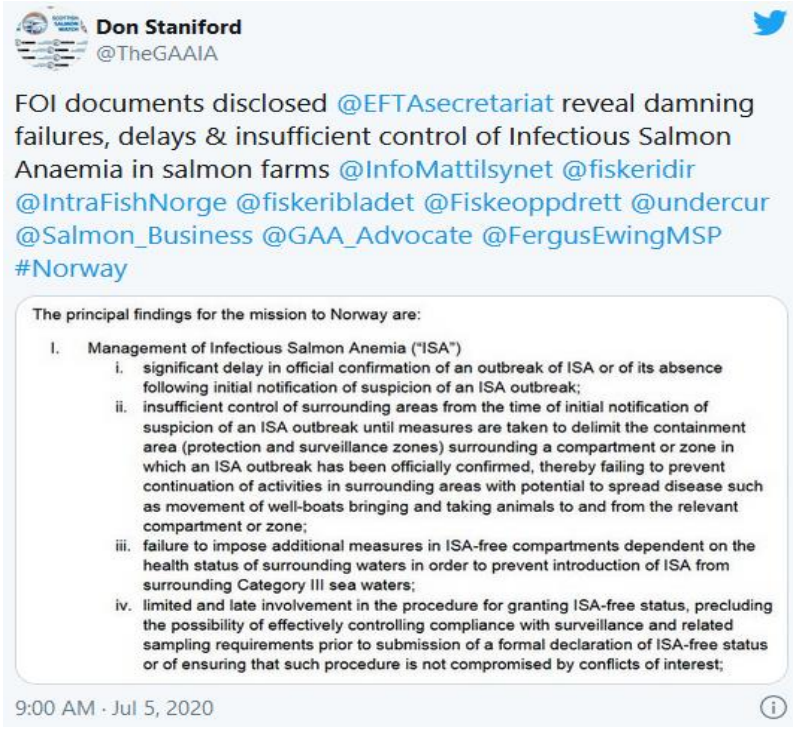
Please see report from AquaGen that ISA has been detected at one of their broodfish production sites at Tingvoll. I have spoken with <REDACTED>and there has been no associated mortality, this is from their routine surveillance testing. Results in April, May and June were negative. Fish are likely to be culled out, but the result has not been confirmed yet by the competent authority (PCR only).

Scottish producers have received salmon and rainbow trout ova during the 2016/2017 season which originated from broodstock held at Tingvoll. The 2017/2018 season ova will be sourced from their other broodstock population held at Hemne.

<REDACTED>

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" **[5]**.

In July 2020, the European Free Trade Association (EFTA) disclosed some documents via Freedom of Information but refused many more citing commercial confidentiality.



Read more via:

Norway's Infectious Salmon "Horror Show" Secretly Playing Now In Scotland?
EFTA disclose documents on disease-ridden Norwegian salmon farming but refuse more citing commercial confidentiality
'Scottish' salmon resumes imports of "ISA-free" eggs from Norway?
Irony of Virus-Laden Scottish Salmon Exploiting Coronavirus Crisis
FOI letter to Norwegian Food Safety Authority re. Infectious Salmon Anaemia
Undercurrent News: "Iceland replaces Norway as main source of Scottish salmon eggs following import ban"
Letter to Scottish Ministers: "Bio-security Protocols & Safety Precautions re. Ova Imports"
The Ferret: "Imports of Norwegian salmon eggs banned over deadly virus"
Norwegian Salmon Egg Exports Banned Due to Disease Risks
'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
Virus-Laden Farmed Salmon - FOI reveals over half of samples test positive for Piscine Reovirus
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
Fish farms are 'wiping out Scotland's wild salmon'
Escaped farmed salmon impacts
'Norwegian' genes found in wild salmon populations in Wester Ross

Contact:

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

Notes to Editors:

[1] FOI 202000058422 disclosed by the Scottish Government on 7 August 2020 (but as of 24 August 2020 still not posted online) included:

FOI reply SG 7 August 2020 letter 202000058422-1

FOI reply SG 7 August 2020 - Import data - information to release-1

FOI reply SG 7 Aug 2020 Word disclosure 26 pages

[2] During 2020, ISA has ravaged salmon farms across Norway with a veterinarian describing it as a "horror show".


IntraFish Aquaculture

Expert fears new ISA 'horror show' on Norway's salmon farms

Norway's Veterinary Institute fears the salmon disease may be a greater threat than first thought.

20 August 2020 2:58 GMT *UPDATED 20 August 2020 2:58 GMT*
By **Bent-Are Jensen** in **Bodø**

"We must be vigilant, or we will see a horror show with a large spread of ISA infection," Ole Bendik Dale, an aquatic biosafety section leader at the Norwegian Veterinary Institute, told **IntraFish**.

"We come across new variants of the virus, variants we have not seen before. This indicates a turn for the worse."

"We now see several outbreaks, some shortly after stocking," said Dale, speaking recently at the annual Lofoten fish health seminar in Norway.

We previously thought that the hatchery phase was free of ISA, that the smolt only came into contact with the disease in the sea and that outbreaks came at the end of the production period when the fish were ready for harvest. But now the financial losses are bigger," said Dale.

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

Another concern is that it may take time for infection to turn into disease.

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

"If this development continues, it will get ugly, but it is still too early to unsettle the status quo. We urge producers to be careful, vigilant." (Copyright)

Intrafish reported (27 July 2020) via "ISA cases surge past 2019 levels in Norway's salmon farms" that "Seven months in, cases have already almost doubled numbers for the whole of last year".

The bad news on ISA just keeps on coming:

undercurrentnews
seafood business news from beneath the surface

HOME › DATA › SPECIES › COMPANIES › DOWNSTREAM › UPSTREAM ›

PRICES EUROPE SUPPLY

Surge in Norway ISA part of reason for salmon price dive

By Neil Ramsden July 28, 2020 09:34 BST

Norway has already seen higher cases of infectious salmon anemia (ISA) this year than any year since the early 1990s, with several buyer sources suggesting to *Undercurrent News* this has played a part in low spot prices.

IntraFish Aquaculture Fisheries Processing Markets Feed Opinion Species

Infectious salmon anemia virus suspected at Cermaq sites

Another suspected case was reported by fellow salmon producer Norway Royal Salmon, a day prior.

RELATED NEWS

Chilean salmon farmer Camachanca loses 93,000 coho in attack by vandals
Salmon
7 July 2020 7:08 GMT

Land-based vs. conventional salmon farming: There's no need for competition
Salmon
6 July 2020 20:23 GMT

Scientists patent new method for preventing sea lice on farmed salmon
Technology
6 July 2020 6:10 GMT

8 July 2020 12:43 GMT *UPDATED 8 July 2020 12:43 GMT*
By Demi Korban and Ann Eileen D Nygård

Salmon farmer Grieg pushes Brazil soy suppliers to expedite deforestation cut-off for fear of 'gold rush'
Read more

Cermaq reported possible cases of infectious salmon anemia (ISA) at its Nordnes site, Norway on July 7 based on sampling results.

The Norwegian Food Safety Authority is planning an early inspection in the facility for further testing for the veterinary institute to come up with a judgement.

On July 6, Norway Royal Salmon (NRS) said it suspects an ISA outbreak in one of its key operating areas where 2.3 million fish are currently being farmed.

Norway hit by more ISA cases

By Vince McDonagh - 8th July 2020

ISA is suspected at a site run by Norway Royal Salmon

TWO more suspected outbreaks of Infectious Salmon Anaemia (ISA) have been reported at fish farms in northern Norway, bringing the total cases to at least five since May.

The first of the latest incidents is at Kleiva Fiskefarm and Gratanglaks AS in Troms and Finnmark county. The Norwegian Food Safety Authority said it plans an early inspection in the facility to carry out follow-up tests in order for the Veterinary Institute to be able to confirm that it is ISA. As with most cases involving ISA, the authority may order the cages to be emptied and the fish slaughtered if confirmed.

Don Staniford
@TheGAAIA

Millions of fish at risk as ISA 'suspected' at Norway Royal Salmon farms intrafish.com/salmon/million... @IntraFishNorge @EFTAsecretariat @InfoMattilsynet @fiskeridir @FergusEwingMSP @norwayseafood

Millions of fish at risk as ISA suspected at Norway Royal Salmon farms | I...
Three of the company's farm sites could be affected.
intrafish.com

7:58 AM · Jul 6, 2020

News

Disease attack at two major salmon companies

By Vince McDonagh - 1st July 2020

One of Cermaq's sites

THE disease infectious salmon anaemia (ISA) is presenting a costly headache for at least two big players in the fish farming sector, according to reports from Norway.

The country's Food Safety Authority says it has been notified by farming giant Cermaq that it discovered evidence last week compatible with ISA at its Marøya site in the Troms region. The company states the suspicion is based on the results of histopathological examinations carried out by the Veterinary Institute, along with other results.

Infectious Salmon Anaemia (ISA) is a deadly notifiable disease which must be reported to the World Organisation for Animal Health (OIE). ISA is currently ravaging salmon farms in Norway and plagued Scottish salmon farms in 1998-9 costing £100 million and again costing Shetland dearly in 2009.

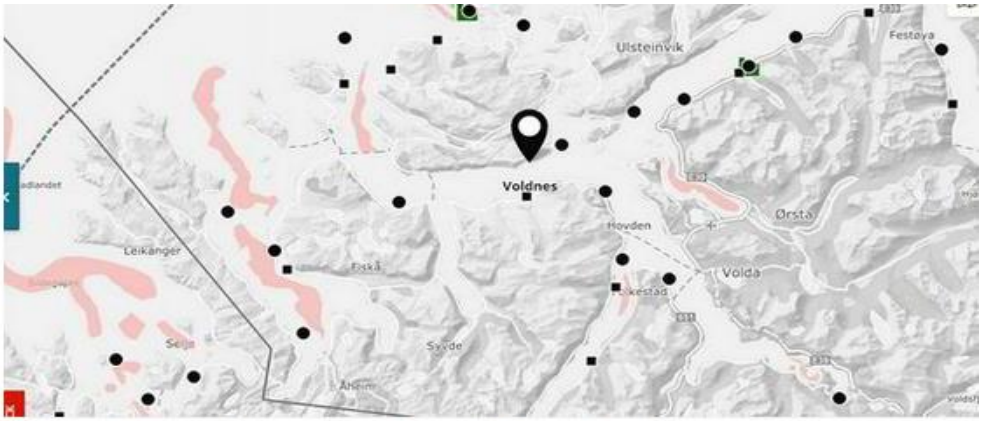
Read more via: FOI Dossier: Norwegian Salmon Egg Exports Banned Due to Disease Risks (February 2020) - including:

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 Isa virus (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].

Author information

1 Faroese Food and Veterinary Authority, National Reference Laboratory for Fish Diseases, Tórshavn, Faroe Islands.
2 Marine Scotland Science, Marine Laboratory, Aberdeen, Scotland.
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*

‣ Author information ‣ Article notes ‣ Copyright and License information Disclaimer

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"

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

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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 Group on 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.

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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

[3] Data on ova imports was summarized by Scottish Salmon Watch in February 2020 - including:

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.

- 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	Alt 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	1,662,809	Norway	MOWI Norway

- 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

[4] AquaGen (owned by EW Group - a German-based company with interests in international poultry genetics) has been plagued by disease problems and was fingered by a scientific paper as introducing ISA into Chile via infected eggs from Norway. Faced with a ban on imported ova from ISA-infected Norway, AquaGen bought a hatchery near Dumfries from Norwegian-owned Scottish Sea Farms in 2018 "to offer Scotland's salmon farmers a reliable supply of eggs from locally farmed AquaGen broodstock".

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:

Fergus Ewing, Cabinet Secretary for the Rural Economy, said: "AquaGen's investment speaks volumes of the confidence from the sector of doing business in Scotland and supports the aims of Scotland's 10-year Farmed Fish Health Framework, helping to improve the security of Scotland's ova supply."

AquaGen AS chief executive Officer Nina Santi said: "We are committed to providing our customers in Scotland with a secure supply of eggs and this latest investment opens up the possibility of us supplying these eggs from locally grown broodstock.

"We're planning a series of upgrades to the existing facilities at Holywood, using Scottish suppliers as much as possible, then we will go into full production later this year. Deliveries will be from November to June initially. Longer-term we hope to extend to year-round production of up to 50 million eggs annually."

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 February 2019, Scottish Salmon Watch and The Ferret revealed that imports of salmon ova from AquaGen in Norway to a hatchery operated by Scottish Sea Farms had been halted due to fears over the spread of ISA with a ban on Norwegian ova in May 2019 due to ISA risks.

[5] In February 2019, a FOI disclosure by the Scottish Government revealed concerns about the spread of Infectious Salmon Anaemia via ova imported from AquaGen in Norway (in chronological order):

From: <REDACTED> (MARLAB)
Sent: 09 August 2017 12:10
To: <REDACTED>@hendrix-genetics.com>
Subject: RE: Aquagen eggs

Hi <REDACTED>

Sorry for the delay in getting back to you, <REDACTED>

Below is a link to the Mattilsynet page about the areas declared free of ISA following two years of testing in 2013/14, but it doesn't provide specific details about the testing programme implemented. To be declared free of a disease countries need to follow the criteria detailed in Annex V of Directive 2006/88 which requires targeted surveillance (150 fish twice per year for two years). The details of the programme are then submitted to SCoFCAH (now SCoPAFF) and scrutinised by Member States. If no issues are raised, the area is declared disease free and will be listed in the appropriate legislation.

https://www.mattilsynet.no/language/english/fish_and_aquaculture/fish_health/areas_declared_free_from_infectious_salmon_anaemia_isa.19431

I don't have any specific information on the setup of the site at Vestseora and how it has been registered. It may be that the site is split up into separate halls like Ormsary Hatchery was split into three units for a few years. Aquagen would have to demonstrate that there was no contact via water between the halls and appropriate biosecurity measures in place such as footbaths and separate gear.

The EU health certificate used for imports into Scotland requires susceptible animals to originate from a country, zone or compartment declared free of ISA in accordance with directive 2006/88 or the relevant OIE standard in the case of consignments from third countries (certificate templates are detailed in Regulation 1251/2008). The wording of the certificate for movements within the EU is below;

I, the undersigned official inspector, hereby certify that the aquaculture animals referred to above originate from a Member State, zone or compartment declared free from (1)[VHS] (1)[IHN] (1)[ISA] (1)[KHV] (1) [Marteilia refringens] (1)[Bonamia ostreae] (1)[White spot disease] in accordance with Chapter VII of Directive 2006/88/EC.

We are unable to receive consignments of ISA susceptible species unless they originate from an ISA free area. As long as a country or compartment has been declared free of ISA (and any other relevant diseases) then no additional testing is required.

Scotland follows the testing requirements of the EU. The EU standards for surveillance and diagnostic testing are laid out in decision 2015/1554. The inspection and testing requirements to demonstrate freedom from ISA are laid out in table 3.A. Sites are subject to 6 inspections per year with sampling of 75 fish twice per year over the two year surveillance period.

If a whole country is declared free, such as Great Britain, continued testing (targeted surveillance) can be discontinued as long as conditions are conducive to clinical expression of the disease (article 52 of directive 2006/88). If targeted surveillance is required to maintain the ISA free zone (i.e. disease free compartments within non-disease free countries) then inspections and testing are conducted in accordance with table 3B in decision 2015/1554. The frequency and number of inspections and tests are determined by the risk level attributed to the site with high risk sites sampled twice per year, medium risk once per year and low risk sites once every two years. The sample size is 30 fish and the screening method is RT-qPCR.

From: <REDACTED> <REDACTED>@hendrix-genetics.com
Sent: 26 July 2017 11:16
To: <REDACTED> (MARLAB)
Subject: RE: Aquagen eggs

Hi <REDACTED>
I was just wondering how the Norwegians classify their disease free areas for ISA. From their website Aquagen mention fish going into different broodfish halls on what appears to be the same site and that if fish in the different halls are negative then the eggs can be exported? Or am I getting that wrong? Is it possible to get clarification on what they consider separate sites for ISA status.

Could you please also clarify what the exact wording is for the requirements of Scotland as a receiving country as far as ISA testing is concerned.

Thanks

Kind Regards

<REDACTED>

From: <REDACTED>@gov.scot
Sent: 20 July 2017 10:30
To: <REDACTED>
Subject: RE: Aquagen eggs

Hi <REDACTED>

From the information available, this shouldn't have an impact on the ova imported over the 2016/2017 season as the movement to the Hemne area only occurred in June this year after the ova had been exported. I don't know what impact this will have on the 2017/2018 season as I don't have information on how the affected site, Vestseora, links to the sea water sites or hatchery in the Hemne area, but no movements can occur from the site while it is under restrictions.

We cannot ask for additional testing of the broodfish. Customers could request this additional testing from Aquagen, but they would be under no legal obligation to carry this out if restrictions are lifted and the site is listed as free from ISA. The Norwegian authority can only issue health certificates for consignments that meet the requirements of the receiving country. If their investigations do not find ISA in the Hemne area, restrictions are lifted and their ISA free status is confirmed, exports can resume from this area.

We will hopefully have a clearer idea of the potential impact of these restrictions once Mattilsynet have completed their investigations and we will let the Scottish industry know if the outcome will have an impact on sources of ova for 2017/18 as soon as we have that information.

Cheers

<REDACTED>

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

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

From: <REDACTED> <REDACTED>@hendrix-genetics.com
Sent: 12 July 2017 10:59
To: <REDACTED> (MARLAB)
Subject: RE: ISA in Norway

Hi <REDACTED>
I was just wondering if you know of any website which would show where all the ISA outbreaks are in Norway. I just want to get a feel for where they are in relation to other Aquagen sites. I had a quick look on the map yesterday and the Hemne site didn't appear to be that far from Tingvoll.

Thanks

<REDACTED>

From: <REDACTED> <REDACTED>@aquagen.no
Sent: 12 July 2017 10:16
To: <REDACTED> (MARLAB)
Subject: Information update

Hi <REDACTED> :

Further to our conversation and your email yesterday here is some more information for you.

You will understand that the discussions with Mattilsynet are on-going and I expect that you will have points of contact with them. To avoid any confusion or misunderstandings on what is an important matter for all of us, and most importantly our customers in the Scottish industry, I should make sure that communication goes through correct channels whilst as always being as helpful as possible. I can however give you a general summary just now and some background information which I hope will suffice for your immediate requirements.

The site in question where we have a detection and suspicion of ISA is called Merraberget, which is located in the ISA compartment
associated with our Tingvoll broodstock holding and egg production site. The freshwater holding site on-shore at Tingvoll is called Rimstad.

At AquaGen we carry out a comprehensive internal disease screening programme on our brood-stock populations.
Some of this is additional to the most important public health programme conducted under the auspices of Mattilsynet.
Samples are taken for ISA screening throughout the time that a broodfish population is in production. This starts when smolts are transferred to sea, and is intensified when fish are finally selected for use to produce eggs. There have been sites in the Tingvoll area for 45 years and ISA has never before been detected.

Since the fish at Merraberget were graded and selected for broodstock earlier in the year, screening has been carried out for ISA and results from April, May and June were all negative. This recent detection (5th July) was reported following a visit and sampling carried out by our external fish health services provider – called "Akerbla". At the end of May part of the population was transferred on-shore to Rimstad. Samples have also been taken from this location, and here also the virus has been detected.

The detection is still in the process of being confirmed and my colleagues, <REDACTED> and <REDACTED> are in close communication with Mattilsynet. There are 14,500 fish in the population, and our expectation is that these will likely be culled later in the week.

Regarding season 16-17, the eggs that were produced from our Tingvoll location last year came from an entirely different seawater site, called Hegebergetroa. This population was under the same surveillance and screening protocol, and all results were negative for ISA. In addition all eggs are taken from clinically healthy individuals, based on internal examination of all broodstock at the time of stripping by a fish-health qualified person. It was stripped at Rimstad, but the residence of this population at Rimstad terminated at the end December 2016 / early Jan.

For your information I have attached a copy of our fish health protocol and some results for 2016 production, and as requested, a summary of last "egg-season" shipments, with reference to the health certificates.

<REDACTED>

Best regards

<REDACTED>

From: <REDACTED>@gov.scot
Sent: 11 July 2017 15:29
To: <REDACTED>
Subject: RE: ISA in Norway

Hi <REDACTED>

I've spoken with <REDACTED>and Aquagen have another other broodstock site at Hemne which would be able to continue supplying ova to Scotland as it is in an ISA free compartment. As long as the ova are sourced from this population there shouldn't be any issues as the competent authority will still be able to attest that the source is free from ISA so I don't think there will be an impact on their ova supply to Scotland this year.

Cheers

From: <REDACTED> (MARLAB)
Sent: 11 July 2017 15:08
To: <REDACTED> (MARLAB) <REDACTED>@gov.scot>; <REDACTED> <REDACTED>@gov.scot>; <REDACTED> (MARLAB) <REDACTED>@gov.scot>; <REDACTED> (MARLAB) <REDACTED>@gov.scot>; <REDACTED>@gov.scot>; <REDACTED> (MARLAB) <REDACTED>@gov.scot>; <REDACTED> (MARLAB) <REDACTED>@gov.scot>; <REDACTED> (MARLAB) <REDACTED>@gov.scot>; <REDACTED> (MARLAB) <REDACTED>@gov.scot>; <REDACTED> <REDACTED>@gov.scot>; <REDACTED> (MARLAB) <REDACTED>@gov.scot>; <REDACTED> (MARLAB) <REDACTED>@gov.scot>; <REDACTED> (MARLAB) <REDACTED>@gov.scot>; <REDACTED>@gov.scot>; <REDACTED> (MARLAB) <REDACTED>@gov.scot>
Cc: <REDACTED>@gov.scot>
Subject: ISA suspected at AquaGen Tingvoll

http://aquagen.no/en/2017/07/10/ila-mistanke-hos-aquagen-tingvoll/

Please see report from AquaGen that ISA has been detected at one of their broodfish production sites at Tingvoll. I have spoken with <REDACTED>and there has been no associated mortality, this is from their routine surveillance testing. Results in April, May and June were negative. Fish are likely to be culled out, but the result has not been confirmed yet by the competent authority (PCR only).

Scottish producers have received salmon and rainbow trout ova during the 2016/2017 season which originated from broodstock held at Tingvoll. The 2017/2018 season ova will be sourced from their other broodstock population held at Hemne.

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>

<REDACTED>
<REDACTED>
Atlantic Salmon

T <REDACTED>
M <REDACTED>
<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:
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

In May 2018, a FOI disclosure by the Scottish Government revealed that Scottish Ministers (Fergus Ewing and Michael Russell) were briefed by Landcatch (Hendrix Genetics) in February 2018 on the "massive risk" of ISA via imported eggs from Norway:

[redacted]
Sent: 18 February 2018 11:30
To: Cabinet Secretary for the Rural Economy and Connectivity
Cc: [redacted]
Subject: FW: Hendrix Genetics and Norway
Importance: High

[redacted]

From: Neil Manchester [redacted]
Date: Monday, 12 February 2018 at 22:15
To: "Ewing F (Fergus), MSP"
<Fergus.Ewing.msp@parliament.scot<mailto:Fergus.Ewing.msp@parliament.scot>>
Cc: "Russell MW (Michael), MSP"
<Michael.Russell.msp@parliament.scot<mailto:Michael.Russell.msp@parliament.scot>>
Subject: Hendrix Genetics and Norway

Dear Mr Ewing

In the press today it was reported that the Norwegian Environment Ministry has issued a communique saying it will not allow the import of farmed salmon from Scotland for aquaculture in Norway, citing fears that escapees could ?further weaken? the country?s wild salmon population.

This coincides with Hendrix Genetics being issued with a 22 page letter explaining why Scottish genetics are seen as a threat to the Norwegian wild stocks and why their decision to ban our import of eggs from Scotland into Norway is final and not open to appeal.

Thus, thanks in part to a spectacular lack of support from parties who should have shown an interest, our case is lost.

The Landcatch breeding programme, established in 1980 by Sir William Lithgow, heavily funded during the 1990?s through Scottish Enterprise, and the only independent Scottish salmon egg producer in existence, will now be terminated.

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?.

This also means that the extensive R&D projects conducted between Landcatch and the Universities of Glasgow, Stirling, and Edinburgh, once lauded as great examples of Smart Successful Scotland, will now require the involvement of Norwegian breeding companies operating in Norway. Phrases other than smart and successful come to mind.

I have one question to which I would like a written answer at your earliest convenience:

Do you, and the Scottish Government, believe that the ban on movement of genetic material from Scotland to Norway is fair and legal?

If the answer is no, then please advise what actions you intend to take to challenge this unlawful trade barrier.

If the answer is yes, then please advise what reciprocal actions you intend to take to offer similar protection to wild Scottish salmon.

I look forward to an early response from you on the above.

Yours

Neil Manchester

Neil Manchester
Managing Director
#HGsig
[redacted]
W www.hendrix-genetics.com<http://www.hendrix-genetics.com>

[cid:image001.jpg@01D3A8AB.D08557B0]<http://www.hendrix-genetics.com/>

Hendrix Genetics Aquaculture B.V.
Villa ?de K?rver?, Spoorstraat 69, 5831 CK Boxmeer

Read more via:
[The National: "Government 'failing to protect Scottish salmon'"]
[Imported eggs ruling 'makes a mockery of Scottish salmon']
[Complete Mockery of the Brand 'Scottish Salmon' - Scotland ignores 'massive risk' of disease]