

Scamon Scotland, 20 February 2024

[Infectious Salmon Anaemia Reported at RSPCA Assured Bakkafrost in Scotland](#)



- Strone salmon farm in Loch Striven tested positive for ISA in November 2023
 - Over 1 million fish on site including 964,544 salmon & 54,000 wrasse
 - 35,000 morts reported during the month before inspection in November 2023
- Furunculosis, Salmonid Rickettsial Septicemia & Amoebic Gill Disease reported
- Ormsary, Applecross, Clachan & Loch Langavat named as source of ISA positive fish (sourced from ova imported from Benchmark Genetics Iceland)
- Campaigners call for a ban on salmon ova imports from Iceland, Ireland & Norway

‘Case Information’ [slipped out by the Scottish Government on 2 February](#) reveals 7 positive tests for Infectious Salmon Anaemia were reported following visits by the Fish Health Inspectorate in November 2023 to Bakkafrost’s Strone salmon farm in Loch Striven, Argyll. A “positive PCR for ISA” reported by the Scottish Government during an inspection on 3 November 2023 ([Case 2023-0511](#)) triggered the sampling of 150 salmon (including 32 moribunds) with sequencing confirming ISA HPR0. [Case 2023-0542](#) (14 November 2023) details:



Case No:	2023-0524	Date of visit:	14/11/2023
Time spent on site:	13hrs	Main Inspector:	
Site No:	FS1056	Site Name:	Strone
Business No:	FB0169	Business Name:	Bakkafrost Scotland
Case Types:	1 STS	2	3
Water Temp (°C):	10.4	Thermometer No:	T305
Observations:	Region: ST	Water type: S	FHI 045 completed N/A
Dead/weak/abnormally behaving fish present?	<input checked="" type="checkbox"/>	If yes, see additional information/clinical score sheet.	
Clinical signs of disease observed?	<input checked="" type="checkbox"/>	If yes, see additional information/clinical score sheet.	
Gross pathology observed?	<input checked="" type="checkbox"/>	If yes, see additional information/clinical score sheet.	
Diagnostic samples taken?	<input checked="" type="checkbox"/>		

Additional Case Information:

Site was re-visited following a positive PCR for ISA (2023-0511). Sequencing to determine if positive for ISA HPR-0 or ISA HPR-deleted was unsuccessful due to small volume of sample. Case has not yet been closed and FHR has not yet been issued.

Statutory sample of 150 fish was taken from the site. Fish from every cage were sampled. Few moribunds were observed (generally 1-2 fish per cage) and these were prioritised for sampling. Where there were not enough moribunds to make up the sample, clinically healthy fish were sampled.

Site is sharing a shorebase with Sgian Dubh (FS1281). Sites have separate entrances to the shorebase office, with foot baths and disinfectant at the entrance for Strone staff. Site staffs are using site-specific PPE, changing rooms, equipment and boats (with Strone workboats being moored in a separate location from Sgian Dubh workboats).

No movements on or off the site had occurred since the last inspection.

Site is stocked with a mix of farmed and wildcaught wrasse. Wrasse mortality for Wk44 was zero.

sampled: F1-6, 11-16, 23-28, 33-38, 45-50, 55-60, 65-70, 75-80, 85-90, 95-100, 105-110, 115-120, 125-130, 137-142, 149-150.

sampled: F7-10, 17-22, 29-32, 39-44, 51-54, 59-64, 71-74, 81-84, 91-94, 101-104, 111-114, 121-124, 131-136, 143-148.

Moribund fish: 1-10, 19, 22, 47, 61, 78-79, 81-84, 92, 101, 112, 114, 118, 120, 122, 124, 132-133, 136 and 139.

[Case 2023-0511 - dated 3 November 2023 - is still “awaiting publication” [online here](#)]

This is not the first time that ISA has been reported in Scotland. In November 2021, the Scottish Government [reported ISA at Landcatch’s Ormsary Broodstock Unit in Argyll](#). Scottish Salmon Watch [reported in January 2022](#) how a [FOI disclosure from the Scottish Government](#) detailed

ISA cases at Mowi’s Loch Greshornish salmon farm in 2014 and [in 2021 at a salmon farm operated by Scottish Sea Farms in Loch Spelve](#). A [FOI disclosure by the Scottish Government in November 2021](#) revealed 396 positive cases of ISA in farmed salmon between 2002 and 2012. ISA disease outbreaks were [reported in Scotland in 2009 and 1998-1999](#).

“The Scottish Government must urgently close the net on salmon farming in Scotland,” said Don Staniford, Director of \$camon \$cotland. “In practical terms, that means closing down deadly salmon farms, stopping movements between farms and banning imports of virus-laden ova. Salmon farming is a biosecurity disaster that endangers the health of wild fish as well as farmed salmon. Bakkafrost is haemorrhaging Infectious Salmon Anaemia as well as [\\$almoney](#).”



[[Photo](#): Mark Ruskell MSP with Don Staniford outside the Scottish Parliament]

“With a general election looming, the Scottish National Party and the Scottish Greens ignore the welfare nightmare and environmental pariah that is salmon farming at their peril,” continued Staniford who is [subject to SLAPPs from Bakkafrost, Mowi and Scottish Sea Farms](#). “Deadly diseases and viruses, swarms of jellyfish, toxic algal blooms and gangs of seals are killing off millions of Scottish salmon each year. Shame on RSPCA Assured, the Soil Association and the Aquaculture Stewardship Council for greenwashing Scottish salmon.”

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

Media Backgrounder: ISA Back to Haunt Scottish Salmon

The Scottish Government's Fish Health Inspectorate [reported on Bakkafrost's Strone salmon farm in December 2023](#):



FISH HEALTH INSPECTORATE VISIT REPORT

SUMMARY FOR INFORMATION OF SITE OPERATOR

BUSINESS No FB0169 **DATE OF VISIT** 14/11/2023
SITE No FS1056 **SITE NAME** Strone
CASE No 20230524 **INSPECTOR** [REDACTED]

Statutory test summary

A statutory test was conducted to test for the presence of infectious salmon anaemia following a positive real-time PCR (QPCR) result from a previous inspection (see report for case 2023-0511). The site had experienced increased mortality levels and a number of moribund fish were observed across the site, therefore additional histology samples were collected from four fish.

Samples were screened for infectious salmon anaemia virus (ISAV) by QPCR. The samples tested positive for infectious salmon anaemia virus (ISAV) by QPCR and the sequence data confirmed the presence of ISAV HPR0, the non-pathogenic form of the virus. No further statutory action is required to be taken in this case, infection with ISAV HPR0 not being a disease listed in The Aquatic Animal Health (Scotland) Regulations 2009. The initial designation notice which was served has now been withdrawn.

Virology

Tissue samples were tested for the presence of segments of RNA indicative of the presence of ISAV using real-time PCR (QPCR).

The following 7 fish tested positive for ISAV:

Fish Number	Cp value	Cp value	Cp value	Reported result
F2	37.59	37.06	>40	POSITIVE
F19	37.45	37.25	36.76	POSITIVE
F58	35.48	34.85	35.24	POSITIVE
F60	37.12	37.38	37.00	POSITIVE
F114	38.83	37.61	37.82	POSITIVE
F131	>40	>40	>40	POSITIVE
F144	35.30	35.05	35.60	POSITIVE

Sequencing confirmed 100% identity of ISA HPR0.

Fish #2 was sourced from Loch Langavat, #19 and #114 from Applecross, #58 and #60 from Clachan and #131 and #144 from Landcatch's Ormsary hatchery (where ISA was [reported in November 2021](#)).

[Case 2023-0542](#) included photos:



Bakkafrost's Strone salmon farm - [located in Loch Striven](#) - was [granted an expansion of 6 additional cages by Argyll & Bute Council in 2013](#) and is [being audited in March 2024 by the Aquaculture Stewardship Council](#) with a view to certification as 'responsible'. Bakkafrost – [like every salmon farming company in Scotland](#) – is accredited as 'welfare friendly' via [RSPCA](#)

[Assured](#). Loch Striven was the [location for the testing of dam-busting ‘bouncing bombs’ by Barnes Wallis during World War Two](#).

Bakkafrost’s Strone salmon farm is responsible for the 5th highest mortality event ever reported in Scotland – with 570 tonnes of dead fish in August 2020 (Bakkafrost’s other salmon farm in Loch Striven – at Sgian Dubh – is the second highest according to data [published by the Scottish Environment Protection Agency](#)):

Date	Mortalities (Kg)	Submitted By	Site Name	Operator	Receiving Water
01-Oct-21	1109905.9	The Scottish Salmon Company	Druimyeon Bay	Bakkafrost Scotland Ltd	Sound of Gigha
01-Aug-20	682688.7	The Scottish Salmon Company	Sgian Dubh	Bakkafrost Scotland Ltd	Loch Striven
01-Oct-22	679515.2	Scottish Sea Farms Ltd	Stoull (Nevis B)	Scottish Sea Farms Ltd	Loch Nevis
01-Dec-15	640812	Grieg Seafood Shetland Ltd	Cole Deep	Grieg Seafood Shetland L	Gon Firth
01-Aug-20	569941.5	The Scottish Salmon Company	Strone Point	Bakkafrost Scotland Ltd	Loch Striven

[Note that The Scottish Salmon Company was [renamed Bakkafrost Scotland in June 2022](#)]

Scottish Salmon Watch [carried out secret filming inside Bakkafrost’s Strone salmon farm in July 2020](#) – video footage which features in [Paramount’s ‘The Changemakers’](#) which premiered in January 2024. Covert surveillance inside Bakkafrost’s Strone salmon farm [featured in Ecotricity’s ‘Salmon Farm Investigation’ in 2022](#).



Data [published by the Scottish Government’s Fish Health Inspectorate on 2 February 2024](#) details 462,906 dead fish via 27 ‘Mortality Event Reports’ at Stone (also called Strone Point) since March 2017 – including recent cases citing gill health:

Mortality Event No	Reporting Business Name	Site Name	Date reported	Mort %	Explained reasons	Mort #s
MRT04533	Bakkafrost Scotland	Strone	16/10/2023	1.44	Gill Health Related	14,612
MRT04511	Bakkafrost Scotland	Strone	09/10/2023	1.08	Gill Health Related	11061
MRT04479	Bakkafrost Scotland	Strone	02/10/2023	1.02	Gill Health Related	10,568
MRT03132	The Scottish Salmon Company	Strone	22/08/2022	2.61	Handling (Harvests)	2,138
MRT03108	The Scottish Salmon Company	Strone	15/08/2022	1.05	Gill-health related; Handling (Harvests)	1,999
MRT03089	The Scottish Salmon Company	Strone	08/08/2022	1.46	Gill Health Related; Handling	3,866
MRT03066	The Scottish Salmon Company	Strone	01/08/2022	2.04	Gill Health Related; Handling	5,510
MRT01846	The Scottish Salmon Company	Strone	17/09/2020	3.12	Previous planktonic challenge/gill health/handling	2,977
MRT01806	The Scottish Salmon Company	Strone	01/09/2020	18.97	Water quality/plankton	30,789
MRT01786	The Scottish Salmon Company	Strone	27/08/2020	32.84	Water Quality/Plankton/Gill Health	79,381
MRT01760	The Scottish Salmon Company	Strone Point	20/08/2020	3.06	Gill health/Water quality/Plankton	8,182



Here is video footage shot at Bakkafrost's Strone salmon farm in 2022:



Data published by Salmon Scotland [reported 4.2% mortality at Bakkafrost’s Strone salmon farm in October 2023](#) (it was stocked in April 2023) due to “Environment/Bacterial Disease”:

Company	Farm	Monthly mortality (%)	Notes	Cumulative mortality over full production cycle (%)
Bakkafrost Scotland	Strone	4.2	Environment, Bacterial Disease	In production

Previous harvest cycles at Bakkafrost’s Strone salmon farm [reported a cumulative mortality 41.5% in 2020 and 34.6% in 2018](#):

Bakkafrost: Scottish Salmon’s King of Death
 – 31 sites with cumulative mortality at 30% or higher since 2018!



- 82.1%: Druimyeon Bay (Bakkafrost Scotland/Scottish Salmon Company) – December 2021**
- 80.2%: East Tarbert Bay (Bakkafrost Scotland/Scottish Salmon Company) – January 2022**
- 66.2%: Vacasay (Bakkafrost Scotland/Scottish Salmon Company) – December 2021**
- 58.2%: Inch Kenneth (Bakkafrost Scotland/Scottish Salmon Company) – February 2018**
- 57.7%: Kyles Vuia (Bakkafrost Scotland/Scottish Salmon Company) – July 2022**
- 56.2%: Plocrapool (Bakkafrost Scotland/Scottish Salmon Company) – February 2021**
- 52.9%: Maaey (Bakkafrost Scotland/Scottish Salmon Company) – December 2019**
- 47.6%: Gravir Outer (Bakkafrost Scotland/Scottish Salmon Company) – March 2018**
- 45.4%: Reibinish (Bakkafrost Scotland/Scottish Salmon Company) – May 2021**
- 42.3%: Gravir Outer (Bakkafrost Scotland/Scottish Salmon Company) – April 2022**
- 41.5%: Strone (Bakkafrost Scotland/Scottish Salmon Company) – September 2020**
- 39.8%: Vacasay (Bakkafrost Scotland/Scottish Salmon Company) – October 2018**
- 39.4%: Taranaish (Bakkafrost Scotland/Scottish Salmon Company) – October 2018**
- 39.4%: Sgian Dubh (Bakkafrost Scotland/Scottish Salmon Company) – September 2020**
- 39.1%: West Strome (Bakkafrost Scotland/Scottish Salmon Company) – February 2022**
- 38.9%: Grimsay (Bakkafrost Scotland/Scottish Salmon Company) – March 2020**
- 36.8%: Eport Outer (Bakkafrost Scotland/Scottish Salmon Company) – December 2021**
- 36.3%: Kyles Vuia (Bakkafrost Scotland/Scottish Salmon Company) – July 2020**
- 34.6%: Strone (Bakkafrost Scotland/Scottish Salmon Company) – September 2018**

Read more via: [Foreign Egg Imports Flooding Scotland = Game Ova for ‘Scottish’ Salmon!](#) – including:

On 2 February 2024, the Scottish Government [slipped out ‘Case Information’ detailing an inspection of Bakkafrost’s Strone salmon farm in Loch Striven](#) – including a “positive PCR for ISA”:

Case No:	2023-0524	Date of visit:	14/11/2023
Time spent on site:	13hrs	Main Inspector:	
Site No:	FS1056	Site Name:	Strone
Business No:	FB0169	Business Name:	Bakkafrost Scotland
Case Types:	1 STS	2	3
Water Temp (°C):	10.4	Thermometer No:	T305
Observations:	Region: ST	FHI 045 completed	N/A
Water type:	S	CoGP MA	M-45
Dead/weak/abnormally behaving fish present?	<input checked="" type="checkbox"/>	If yes, see additional information/clinical score sheet.	
Clinical signs of disease observed?	<input checked="" type="checkbox"/>	If yes, see additional information/clinical score sheet.	
Gross pathology observed?	<input checked="" type="checkbox"/>	If yes, see additional information/clinical score sheet.	
Diagnostic samples taken?	<input checked="" type="checkbox"/>		

Additional Case Information:

Site was re-visited following a positive PCR for ISA (2023-0511). Sequencing to determine if positive for ISA HPR-0 or ISA HPR-deleted was unsuccessful due to small volume of sample. Case has not yet been closed and FHR has not yet been issued.

Statutory sample of 150 fish was taken from the site. Fish from every cage were sampled. Few moribunds were observed (generally 1-2 fish per cage) and these were prioritised for sampling. Where there were not enough moribunds to make up the sample, clinically healthy fish were sampled.

Site is sharing a shorebase with Sgian Dubh (FS1281). Sites have separate entrances to the shorebase office, with foot baths and disinfectant at the entrance for Strone staff. Site staffs are using site-specific PPE, changing rooms, equipment and boats (with Strone workboats being moored in a separate location from Sgian Dubh workboats).

No movements on or off the site had occurred since the last inspection.

Site is stocked with a mix of farmed and wildcaught wrasse. Wrasse mortality for Wk44 was zero.

sampled: F1-6, 11-16, 23-28, 33-38, 45-50, 55-60, 65-70, 75-80, 85-90, 95-100, 105-110, 115-120, 125-130, 137-142, 149-150.

sampled: F7-10, 17-22, 29-32, 39-44, 51-54, 59-64, 71-74, 81-84, 91-94, 101-104, 111-114, 121-124, 131-136, 143-148.

Moribund fish: 1-10, 19, 22, 47, 61, 78-79, 81-84, 92, 101, 112, 114, 118, 120, 122, 124, 132-133, 136 and 139.



F13	F14	F15	F16	F17	F18	F19	F20	F21	F22	F23	F24	F25	F26	F27	F28
13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
P7	P7	P8	P8	P9	P9	P10	P10	P11	P11	P12	P12	P13	P13	P14	P14
SAL	SAL	SAL	SAL	SAL	SAL										
1.5kg	1.5kg	1.5kg	1.5kg	1.5kg	1.5kg										
N/A	N/A	N/A	N/A	N/A	N/A										
SW	SW	SW	SW	SW	SW										
Applecross Smolt Unit FS0500	Loch Langavat FS0149														
1	1	1	1	1	1	1	1	1	1	1	3	3	3	3	3

The 'Case Information' ([2023-0524](#)) details ISA sequencing confirming HPR0:

Case No:	2023-0524	Date of visit:	14/11/2023					
Site No:	FS1056	Inspector:						
Results Summary	Freq.	Date of Notification						
		Database	Insp	Phone	Insp	Writing	Insp	2 nd Insp
MG ISA	7/150	16/11/2023		16/11/2023		20/12/2023		
ISA sequencing confirmed HPR0	7/7	22/11/2023		23/11/2023		20/12/2023		
HPAT	4/5	04/12/2023		06/12/2023		20/12/2023		
LPAT	5/5	04/12/2023		06/12/2023		20/12/2023		
ISAV	0/7	20/12/2023				20/12/2023		

A [Fish Health Inspectorate Visit Report dated 20 December 2023](#) included:



Scottish Government
Riaghaltas na h-Alba
gov.scot

FISH HEALTH INSPECTORATE VISIT REPORT

SUMMARY FOR INFORMATION OF SITE OPERATOR

BUSINESS NO FB0169
SITE NO FS1056
CASE NO 20230524

DATE OF VISIT 14/11/2023
SITE NAME Strone
INSPECTOR [REDACTED]

Statutory test summary

A statutory test was conducted to test for the presence of infectious salmon anaemia following a positive real-time PCR (QPCR) result from a previous inspection (see report for case 2023-0511). The site had experienced increased mortality levels and a number of moribund fish were observed across the site, therefore additional histology samples were collected from four fish.

Samples were screened for infectious salmon anaemia virus (ISAV) by QPCR. The samples tested positive for infectious salmon anaemia virus (ISAV) by QPCR and the sequence data confirmed the presence of ISAV HPR0, the non-pathogenic form of the virus. No further statutory action is required to be taken in this case, infection with ISAV HPR0 not being a disease listed in The Aquatic Animal Health (Scotland) Regulations 2009. The initial designation notice which was served has now been withdrawn.

Histopathological examination revealed features resembling *Aeromonas salmonicida* (Furunculosis). Hepatocellular necrosis and necrotising splenitis were also observed. One fish also displayed areas of light H&E stain in the compactum stratum of the heart.

Samples

One hundred and fifty Atlantic salmon were tested for the presence of infectious salmon anaemia virus (ISAV). Samples were collected according to the table below:

Fish number	Pool number	Facility number	Stage	Origin
F1-10	P1-5	4	2023 Q1 Atlantic salmon	Loch Langavat FS0149
F11-22	P6-11	1	2023 Q1 Atlantic salmon	Applecross Smolt Unit FS0500
F23-32	P12-16	3	2023 Q1 Atlantic salmon	Loch Langavat FS0149
F33-44	P17-22	2	2023 Q1 Atlantic salmon	Loch Langavat FS0149
F45-54	P23-27	5	2023 Q1 Atlantic salmon	Loch Langavat FS0149
F55-64	P28-32	7	2023 Q1 Atlantic salmon	Clachan Hatchery FS0398
F65-74	P33-37	6	2023 Q1 Atlantic salmon	Loch Langavat FS0149
F75-84	P38-42	10	2023 Q1 Atlantic salmon	Applecross Smolt Unit FS0500
F85-94	P43-47	8	2023 Q1 Atlantic salmon	Clachan Hatchery FS0398
F95-104	P48-52	9	2023 Q1 Atlantic salmon	Clachan Hatchery FS0398
F105-114	P53-57	11	2023 Q1 Atlantic salmon	Applecross Smolt Unit FS0500
F115-124	P58-62	14	2023 Q1 Atlantic salmon	Applecross Smolt Unit FS0500
F125-136	P63-68	12	2023 Q1 Atlantic salmon	Ormsary Smolt Unit FS0575
F137-148	P69-74	13	2023 Q1 Atlantic salmon	Ormsary Smolt Unit FS0575
F149-150	P75	Not recorded	2023 Q1 Atlantic salmon	Unknown

[The information above details Clachan Hatchery and Ormsary Smolt Unit as the origin of the ISA-infected salmon as well as Applecross Smolt Unit and Loch Langavat]

The [Fish Health Inspectorate Visit Report dated 20 December 2023](#) included photos of the 150 salmon sampled for ISA – including the 7 ISA positives (Fish #2 – Loch Langavat, #19 – Applecross, #58 - Clachan, #60 - Clachan, #114 - Applecross, #131 - Ormsary and #144 - Ormsary):

Observations

Externally, F79 had a distended abdomen with shortened opercula on F112. Haemorrhaging was observed on the ventrum of F79 and the gills of F79, 82 and 101 were pale, with zoning noted on F82, 101 and 112 also.

Internally, F79 and 82 had bloody ascites and the heart of F79 was pale/anaemic. Petechial haemorrhaging was observed on the livers and pyloric caeca of F79 and 112, and in the body wall of F82 and 101. The swim bladders of all fish (F79, 82, 101 and 112) also had haemorrhaging. The spleen was enlarged in F101 and the kidney was grey in F79 and granular in F79 and 101.

Results

Virology

Tissue samples were tested for the presence of segments of RNA indicative of the presence of ISAv using real-time PCR (QPCR).

The following 7 fish tested positive for ISAv:

Fish Number	Cp value	Cp value	Cp value	Reported result
F2	37.59	37.06	>40	POSITIVE
F19	37.45	37.25	36.76	POSITIVE
F58	35.48	34.85	35.24	POSITIVE
F60	37.12	37.38	37.00	POSITIVE
F114	38.83	37.61	37.82	POSITIVE
F131	>40	>40	>40	POSITIVE
F144	35.30	35.05	35.60	POSITIVE

Sequencing confirmed 100% identity of ISA HPR0.

Histopathological examination revealed the following:

Gill: Minor, multifocal lamellar hyperplasia (F79). Several aggregates of Gram-negative bacteria (F82). Free blood among gill filaments (F101). Lamellar telangiectasia (F112). Some post-mortem artefacts observed (F82, F112).

Skin & Muscle: Minor myositis (F82). F1: not present.

Heart: Mild epicarditis (F79, F101, F112). Gram-negative bacterial aggregates observed on the atrium chamber wall (F79, F82). Minor myocarditis (F101). Areas of light H&E stain observed in the compact layer (F79, F112).

Gut and pyloric caeca: Within normal range.

Pancreas: Within normal range.

Liver: Hepatocellular necrosis, mild, ranging from multifocal to coalescence (F1) with some haemorrhage (F79, F82) and F82 displayed Gram-negative rod-shaped bacterial aggregates. Mild, diffuse hepatocellular vacuolation (macrovesicles) (F82). Some sinusoidal congestion (F82, F101). Some capsulitis (F112).

Kidney: Occasional tubules with mineralisation (F79). Some interstitial cell (haemopoietic) necrosis (F82) with Gram-negative rod-shaped bacterial aggregates. Some foci of haemorrhage (F82).

Spleen: Necrotising splenitis (F82, F101, F112) with Gram-negative rod-shaped bacteria, multifocal, mild (F82). F112 also exhibited one giant cell.









In terms of tracing where the ISA-infected salmon were sourced from as ova, the following information may be useful:

‘Case Information’ for Clachan Hatchery (Hebridean Smolts) [published by the Scottish Government’s Fish Health Inspectorate in October 2021](#) includes: “The stock comes from October 2020 Stofnfiskur (Benchmark, Iceland) eggs, arrived in Mingarry hatchery (FS0145). 380,000 2021 S1 smolts were transferred to Tarbert South (The Scottish Salmon Company) in September 2021.” The [FOI salmon ova import data published in February 2024](#) details two shipments to The Scottish Salmon Company (since renamed Bakkafrost) to Mingarry Hatchery from Benchmark Genetics Iceland:

Date	Destination site name	Destination business name	# of ova	Source country	Import Consignor
26/09/2022	Mingarry Hatchery	The Scottish Salmon Company	742,500	Iceland	Benchmark Genetics Iceland
12/12/2022	Mingarry Hatchery	The Scottish Salmon Company	402,500	Iceland	Benchmark Genetics Iceland

‘Case Information’ for Loch Langavat (The Scottish Salmon Company/Bakkafrost) [published by the Scottish Government’s Fish Health Inspectorate in February 2022](#) shows the stock origin as Geocrab. The [FOI salmon ova import data published in February 2024](#) details three shipments to Geocrab from Benchmark Genetics Iceland:

Date	Destination site name	Destination business name	# of ova	Source country	Import Consignor
01/02/2022	Geocrab Hatchery	The Scottish Salmon Company	1,358,500	Iceland	Benchmark Genetics Iceland
26/09/2022	Geocrab Hatchery	The Scottish Salmon Company	1,100,000	Iceland	Benchmark Genetics Iceland
26/09/2023	Geocrab Incubation Hatchery	Bakkafrost Scotland	880,000	Iceland	Benchmark Genetics Iceland

‘Case Information’ for Ormsary Hatchery (Landcatch Natural Selection) [published by the Scottish Government’s Fish Health Inspectorate in November 2022](#) includes: “Site also holding eyed ova from Iceland (Benchmark Genetics - Vogavik), these arrived on site 05/10/22...Most production for Bakkafrost, however, do stock for Loch Duart”. The [FOI salmon ova import data published in February 2024](#) details 7.1 million imported from Benchmark Genetics Iceland:

Date	Destination site	Destination business name	Consignee business	# of ova	Source country	Import Consignor
02/02/2021	Ormsary Hatchery	Landcatch Natural Selection	The Scottish Salmon Co	780,000	Iceland	Benchmark Genetics Iceland
16/02/2021	Ormsary Hatchery	Landcatch Natural Selection	Organic Sea Harvest	800,000	Iceland	Benchmark Genetics Iceland
10/11/2021	Ormsary Hatchery	Landcatch Natural Selection	Loch Duart	650,000	Iceland	Benchmark Genetics Iceland
10/11/2021	Ormsary Hatchery	Landcatch Natural Selection	Migdale Smolts Ltd	900,000	Iceland	Benchmark Genetics Iceland
10/11/2021	Ormsary Hatchery	Landcatch Natural Selection	Organic Sea Harvest	252,000	Iceland	Benchmark Genetics Iceland
14/02/2023	Ormsary Hatchery	Landcatch Natural Selection Ltd		200,000	Iceland	Benchmark Genetics Iceland
21/02/2023	Ormsary Hatchery	Landcatch Natural Selection	Organic Sea Harvest	250,000	Iceland	Benchmark Genetics Iceland
22/02/2023	Ormsary Hatchery	Landcatch Natural Selection Ltd		250,000	Iceland	Benchmark Genetics Iceland
07/03/2023	Ormsary Hatchery	Landcatch Natural Selection Ltd		150,000	Iceland	Benchmark Genetics Iceland
22/11/2023	Ormsary Hatchery	Landcatch Natural Selection	Organic Sea Harvest	300,000	Iceland	Benchmark Genetics Iceland
04/10/2022	Ormsary Hatchery	Landcatch Natural Selection	Bakkafrost Scotland	1,540,000	Iceland	Benchmark Genetics Iceland
01/11/2022	Ormsary Hatchery	Landcatch Natural Selection	Bakkafrost Scotland	770,000	Iceland	Benchmark Genetics Iceland
29/11/2022	Ormsary Hatchery	Landcatch Natural Selection	Organic Sea Harvest	250,000	Iceland	Benchmark Genetics Iceland

‘Case Information’ for Applecross Smolt Unit (Bakkafrost) [published by the Scottish Government’s Fish Health Inspectorate in November 2022](#) details ‘Native Hebridean Stock – Ormsary’ as the stock origin:

Stock Details	Native Hebridean Stock - Ormsary	Native Hebridean Stock - Ormsary
Stock Origin	7	3
Facility No		

The [FOI salmon ova import data published in February 2024](#) details 9.4 million from Benchmark Genetics Iceland:

Date	Destination site name	Destination business name	# of ova	Source country	Import Consignor
09/02/2021	Applecross Hatchery	The Scottish Salmon Company	1,900,000	Iceland	Benchmark Genetics Iceland
20/07/2023	Applecross Hatchery	Bakkafrost Scotland	1,925,000	Iceland	Benchmark Genetics Iceland
25/07/2023	Applecross Hatchery	Bakkafrost Scotland	1,925,000	Iceland	Benchmark Genetics Iceland
14/11/2023	Applecross Hatchery	Bakkafrost Scotland	1,870,000	Iceland	Benchmark Genetics Iceland
02/08/2022	Applecross Incubation Unit	The Scottish Salmon Company	1,800,000	Iceland	Benchmark Genetics Iceland



Don Staniford
@TheGAAlA

EXPOSED: 'Scottish' Salmon's Import/Export Trade in Ova, Smolts & 'Cleaner Fish' @ScotlandSalmon
As the world closes borders to prevent the spread of #COVID19 why have millions of ova flooded into #Scotland from ISA-ridden #Iceland, #Ireland & #Norway? tinyurl.com/yb66hzvk

An [Excel datasheet disclosed via FOI](#) reveals that:

- 93 million salmon ova (eggs) were imported into salmon farms in Scotland in 2020 & 2021 via Iceland (55.8 million from Benchmark Genetics Iceland/Stofniskur), the Republic of Ireland (37 million from Mowi Ireland) and Norway (220,000 from AquaGen)
- 582,000 salmon smolts imported from Mowi Ireland for ongrowing at Soil Association certified 'organic' salmon farms at Loch Harport and Sconser on the Isle of Skye



- 275,678 wrasse imported from Northern Ireland via JJ O'Neill in Dunloy in 62 shipments to salmon farms operated by Mowi Scotland
- 7.2 million wrasse exported from Mowi Scotland's Larval Rearing Unit at Machrihanish in Argyll via 7 shipments to Tor Gunnar Otterlei in Averoy, Norway (Skjerneset fisk AS)
- 36 litres of lump sucker ova (no numbers were provided) imported from Skjerneset fisk AS in Norway to Otter Ferry Seafish's Evanachan Marine Hatchery in Loch Fyne in Argyll

Scot Gov Marine and 8 others

7:53 AM · Jan 15, 2022

\$camon \$cotland [reported in February 2022](#):

Infectious Salmon Anaemia (ISA) was [officially reported by the Scottish Government to the World Organization for Animal Health \(OIE\) via a 'Notification of OIE-Listed Aquatic Diseases and Infections' submitted by the Fish Health Inspectorate on 15 September 2021](#).

The [OIE report](#) detailed ISA in farmed Atlantic salmon with 'Infection/Infestation limited to one or more zones' and listed 369,195 'susceptible' farmed Atlantic salmon in May 2021 [Note the Scottish Government's Fish Health Inspectorate identified Loch Spelve salmon farm operated by Scottish Sea Farms as testing positive for ISA following an inspection on 14 May 2021 – the 'Case Information' which details 369,195 on site was not [published until August 2021](#)].

SIX-MONTHLY REPORT ON THE NOTIFICATION OF OIE-LISTED AQUATIC ANIMAL DISEASES AND INFECTIONS

1. Report date:	15/09/2021	2. Reporting period:	Year	2021	Semester	<input checked="" type="checkbox"/> January - June
3. Country:	SCOTLAND					
4. Name of the sender:	<REDACTED – PERSONAL INFORMATION>					
5. Position of the sender:	FISH HEALTH INSPECTORATE TECHNICAL MANAGER					
Infectious salmon anaemia virus (Inf. with) (HPR-deleted or HPRO genotypes)						
6. Occurrence code	Farmed fish		Wild fish			
<input type="checkbox"/> Disease present	<input type="checkbox"/> Disease present		<input type="checkbox"/> Disease present			
<input type="checkbox"/> Disease limited to one or more zones	<input type="checkbox"/> Disease limited to one or more zones		<input type="checkbox"/> Disease limited to one or more zones			
<input type="checkbox"/> Infection/infestation	<input type="checkbox"/> Infection/infestation		<input type="checkbox"/> Infection/infestation			
<input checked="" type="checkbox"/> Infection/infestation limited to one or more zones	<input type="checkbox"/> Infection/infestation limited to one or more zones		<input type="checkbox"/> Infection/infestation limited to one or more zones			
<input checked="" type="checkbox"/> Disease absent	Date of last occurrence:	08/05/2012	<input checked="" type="checkbox"/> Disease absent	Date of last occurrence:	08/05/2012	

Here's [an email from DEFRA to Marine Scotland Science dated 19 October 2021](#):

Thank you for your return on aquatic diseases for Scotland.

I am in the process of finalising the reports and I have a few queries regarding your return. I would be really grateful if you could clarify them for me please:

Infectious salmon anaemia virus: on the WAHIS system it says that the date of last occurrence in farmed fish was the 31/12/2009, but in your return it says it was the 8/05/2012. Was there an outbreak in May 2012 that was never reported to the OIE on the WAHIS system?

<REDACTED – OUT OF SCOPE>

“This is not an attempt to hide information: rather it states that the information given earlier in the response was also sent on to Defra as required,” [wrote the Scottish Government in a FOI review reply letter dated 2 February 2022](#). “This correspondence with Defra was not included in the original response as it was believed to include the same information, and was not directly relevant to the request”.

The [Freedom of Information reply from the Scottish Government dated 5 January 2022](#) detailed three cases of Infectious Salmon Anaemia (ISA) on Scottish salmon farms since 2013 – at Marine Harvest (Mowi) in Loch Greshornish on the Isle of Skye in 2014; at Scottish Sea Farms in Loch Spelve on the Isle of Mull in May 2021 and at Landcatch’s Ormsary Broodstock Unit in Argyll in November 2021.

The [FOI disclosure \(FOI-2021-00259475\) dated 5 January 2020](#) included:

In addition, a further positive result (ISA HPR0) has been obtained from the Ormsary Broodstock Unit operated by Landcatch Natural Selection Ltd - case number 20210470. Case information has not yet been published as this is still in the course of completion. This will be published in due course in line with the Scottish Government publication plan concerning aquatic animal health surveillance, as referenced above. Relevant information to your request is extracted from our records as follows – site visit date - 1 November 2021; one positive result - ISAv Real Time QPCR was obtained and was confirmed as ISAv (HPR0) which is not subject to statutory control measures. The test result related to a pooled sample of three fish.

In both the Loch Spelve and Ormsary Broodstock Unit cases initial movement restrictions were placed on first suspicion and then revoked following the confirmation of the presence of ISA (HPR0), as opposed to the presence of ISAv (HPR-deleted). We have previously explained in significant detail the differences between ISAv – HPR0 and HPR-deleted strains and I would urge that the information provided to you through Fol 202100234467 is carefully considered as context with respect to this Fol response.

Scamon Scotland [wrote to Scottish Ministers in February 2022](#):



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

9 February 2022

Dear Scottish Ministers,

Please Close the Border to Imports of Salmon Ova, Parr & Smolts!

Further to our [letter dated 2 December 2021](#), [Scamon Scotland](#) (formerly called Scottish Salmon Watch) reiterates the call to ban imports of ova (salmon eggs), parr and smolts from Iceland, Norway, Ireland and any other countries due to unacceptable disease and genetic risks.

The health and genetic integrity of ‘Scottish’ salmon is clearly being threatened by imports of ova, parr and smolts flooding into Scotland. The Scottish Government’s failure to screen imports is the antithesis of the precautionary principle.

Scamon Scotland [reported yesterday \(19 February 2024\)](#):



Don Staniford ✓
@TheGAAIA · Follow



“The Scottish Government should immediately ban imports of salmon ova to stop the spread of deadly diseases & infectious viruses” said Don Staniford, Director of Scamon Scotland @WeAreBenchmark @scotgov @MowiScotlandLtd @CookeScotland @BetterBreeding @ScotlandSalmon @TavishScott

Scamon Scotland, 19 February 2024

Foreign Egg Imports Flooding Scotland = Game Ova for ‘Scottish’ Salmon!

- FOI reveals that 117.5 million salmon ova (eggs) were imported between 2021 and 2023
- Iceland accounted for 55.9% with 43.9% from Ireland (and Norway less than 1%)

Imports of potentially virus-laden salmon ova are still flooding into Scotland from Iceland and Ireland with Norway now almost completely shut out of the Scottish market due to the risks of importing deadly Infectious Salmon Anaemia ([salmon ova imports from Norway were banned in 2019](#)). A Freedom of Information disclosure by the Scottish Government (1 February 2024) exclusively reveals data on imports of salmon ova (eggs) between 2021 and 2023 [1].



Benchmark[®]
Genetics



The [disclosed FOI data](#) details 106 shipments of salmon ova imports totaling 117.5 million with 32.9 million via 28 shipments in 2021*; 43.9 million via 38 shipments in 2022 and 40.6 million via 40 shipments in 2023. Iceland – which [first reported ISA in November 2021](#) - accounted for 55.9% of salmon ova imports (65.7 million via 75 shipments); Ireland accounted for 43.9% (51.6 million via 30 shipments) and Norway accounted for less than 0.2% (175,000 via 1 shipment to Cooke Aquaculture).

9:25 AM · Feb 19, 2024

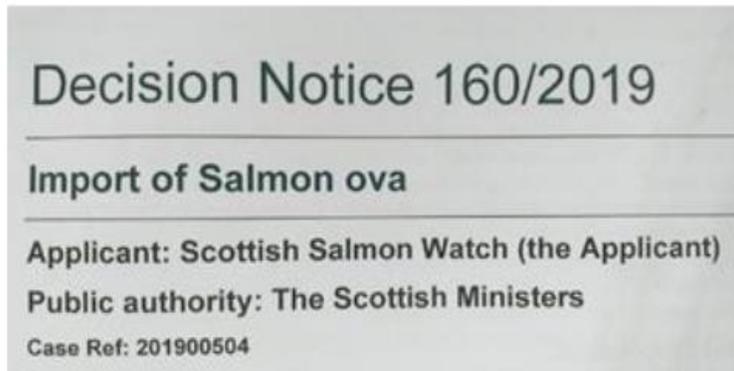


A [press release issued yesterday \(19 February 2024\)](#) included the following media backgrounder:

[Media Backgrounder: Scottish Salmon Has Foreign Egg On Its Face!](#)

In 2018, Norwegian-owned Scottish Sea Farms [refused to disclose information for ova imports claiming disclosure would “cause substantial harm to their commercial interests”](#). However, a [landmark ruling from the Scottish Information Commissioner in November 2019](#) forced disclosure.

"In all the circumstances, the Commissioner cannot accept that disclosure of the withheld information in this case would have the effect suggested by the Ministers i.e. that disclosure would, or would be likely to, prejudice substantially the confidentiality of commercial or industrial information where such confidentiality is provided for by law to protect a legitimate economic interest," [stated the Scottish Information Commissioner Decision Notice 160/2019](#) (another version with Scottish Salmon Watch named as the Applicant is [available online here](#)).



Scottish Salmon Watch [reported in December 2019](#):

'Confidential' information [published this week via Freedom of Information](#) reveals that Scottish Sea Farms imported over 11 million ova (salmon eggs) from Marine Harvest (re-named Mowi in 2019) in Ireland and 1.4 million ova from Stofnfiskur in Iceland (via Landcatch) in 2017 and 2018 (data up to March) [1]. Here's the information which Scottish Ministers claimed "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

Scottish Salmon Watch [reported in October 2020](#):



Don Staniford ✓
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"Norwegian interests risk bringing the whole rotten edifice of 'Scottish Salmon' crashing down" warns @HGSalmonUK to @Feorlean & @FergusEwingMSP tinyurl.com/yasthu4z @GAA_Advocate @salmonfarming1 @IntraFishNorge @thefishsite @Salmon_Business @GreenerScotland @fiskeridir



1:28 PM · Oct 1, 2020



[Massive Attack on 'Scottish' Salmon](#)
["Norwegian interests risk bringing the whole rotten edifice of 'Scottish Salmon' crashing down" warns Hendrix MD in email to Scottish Ministers](#)

**SCOTTISH
SALMON WATCH**



DISEASES

- Scottish Ministers warned by Hendrix in 2019 of "an absurdly flawed bio-security self certification policy that risks the import of further Norwegian disease, a threat capable of destroying Scotland's entire salmon industry"
- Hendrix rails against "this Scottish Government's abject failure to defend Landcatch from the dubious tactics of the Norwegian salmon farming industry and the blatantly unlawful actions of their government" in email to Scottish Ministers in 2019
- AquaGen is "one of the companies who had most to gain by destroying the Scottish competition from Landcatch, and were undoubtedly instrumental in the Norwegian ban on Landcatch salmon ova" writes Hendrix to Scottish Ministers in 2019
- "That Norwegian interests should risk bringing the whole rotten edifice of 'Scottish Salmon' crashing down, and with it the risk of collateral damage to the integrity and provenance of the wider Scottish Food and Drink brand, should be of an immediate concern," warned Hendrix in an email to Scottish Ministers in 2019

Imports of salmon ova from Norway were [banned in 2019 due to the risks of ISA](#).



Don Staniford ✓

@TheGAAIA

...

Norwegian Salmon Egg Exports Banned Due to Disease Risks

tinyurl.com/r383gqr @EFTAsecretariat @InfoMattilsynet

@marinescotland @fiskeridir @NFdep @WeAreBenchmark

@scotseafarms @MowiScotlandLtd @HGSalmonUK @FergusEwingMSP

@DefraGovUK @SSPOsays #ISA #Norway #ScottishScamon

SCOTTISH SALMON WATCH **DISEASES**

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

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

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

- In June 2019, exports of Norwegian salmon eggs (ova) were banned due to the risk of spreading Infectious Salmon Anaemia (ISA) following a critical inspection by the certified to ensure that no conflict of interest compromises the process."

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

Conclusion:

34. There is currently no reliable definitive list of ISA-free compartments and zones publicly available for Norway. The information currently available in Norwegian legislation and on the NFSA's website is inaccurate and contradictory. This

Norway 1906 20 to 29 May 2019
in order to evaluate animal health controls
in relation to aquaculture

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

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

"At the time of the mission there was no reliable system in place in Norway enabling

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

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

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

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

9:41 AM · Feb 24, 2020

Conclusion:

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

Conclusions

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

In 2024, Norway is still being ravaged by Infectious Salmon Anaemia. Fish Farmer [reported in January 2024](#):

ISA suspected in a fish at Benchmark breeding site

January 25, 2024 | Vince McDonagh | News, News Archive



Infectious salmon anaemia (ISA) is suspected at a key breeding centre in Norway where Benchmark Genetics has a facility.

The Norwegian Food Safety Authority is testing samples from the site 60 miles south of Narvik, which is one of the world's most advanced land based facilities for the production of salmon ova. Only a few weeks ago ova from Salten became large smolt in record time.

On Tuesday, Benchmark was informed by the laboratory Pharmaq Analytiq that samples from a single fish had been confirmed as positive for ISA.

The Food Safety Authority said that it plans an immediate inspection of the facility to take follow up samples so the Veterinary Institute can confirm whether the disease is present.

The Authority adds that in order to limit the spread of infection, restrictions have been imposed on the site, including a ban on moving fish, ova and sperm without special permission.

This means that almost normal operation in parts of the facility can continue to the extent that the Norwegian Food Safety Authority deems it safe in terms of contamination.

A restriction area usually consists of a protection zone and a monitoring zone and it will entail restrictions, among other things, on traffic in the area around the site.

If the suspicion is confirmed, the Authority can order the emptying of all part of the premises.

The Food Safety Authority confirmed 18 cases of ISA spread over five countries and seven production areas last year – three more than in 2022, but seven fewer than in 2021. However, there were also five suspected cases last year that were not confirmed.

Intrafish [reported in January 2024:](#)

Fish farm ISA disease outbreaks jump 20% in 2023; pancreatic disease cases drop to 17-year low

The confirmed outbreaks in 2023 were spread over seven production areas in Norway.

18 January 2024 18:18 GMT UPDATED 18 January 2024 20:28 GMT

By [Hanne Gezelius](#) 

A total of 18 infectious salmon anemia (ISA) outbreaks were confirmed during 2023 in Norway, excluding five yet unconfirmed ISA suspicions, according to figures from the Norwegian Veterinary Institute.

During 2022, there were 15 confirmed outbreaks, significantly down from 25 in 2021 and 23 outbreaks in 2020.

The confirmed outbreaks in 2023 were spread over seven production areas, with areas in the south and west of the country particularly hard hit, accounting for 11 outbreaks during the year.

"The situation, especially in western Norway, is serious now. It is quite a clear change from before," Ingunn Sommerset from Norway's Veterinary Institute told **IntraFish** last year.

RELATED NEWS

Salmon infected with ISA left in pens for months in groundbreaking research project

[Salmon](#)
15 November 2023 4:01 GMT

'The situation is quite serious': Unprecedented lice levels raise new questions about the viability of Iceland's salmon farming sector

[Salmon](#)
7 November 2023 4:23 GMT

'The situation is serious': Grieg and Leroy among salmon farmers hit by western Norway disease outbreak

[Salmon](#)
22 September 2023 4:01 GMT

Intrafish [reported in October 2023:](#)

ISA outbreak at SalMar's central Norway site confirmed

Norway's salmon industry has been hit by an increase in ISA cases with this year's number already exceeding that for the whole of 2022.

8 October 2023 12:40 GMT UPDATED 8 October 2023 12:41 GMT

By [Hanne Gezelius](#) 

An infectious salmon anemia (ISA) outbreak at a site in Flatanger municipality in Trondelag county in central Norway has been confirmed.

Salmon farming giant SalMar and the smaller Veterinaermedisinsk Oppdragscenter farm salmon at the site, according to the Norwegian Food Safety Authority.

The facility's fish health service notified the Norwegian Food Safety Authority on Sept. 26 of findings compatible with suspicion of ISA, and the suspicion was confirmed by the Norwegian Food Safety Authority on Oct. 4 based on an analysis from the Veterinary Institute.

The location was already in a monitoring zone for ISA.



'The situation is serious': Grieg and Leroy among salmon farmers hit by western Norway disease outbreak

[Read more](#)

A restricted zone will be established shortly to combat the outbreak.

The Norwegian salmon industry has been hit by an increase in ISA cases with this year's number already exceeding that for the whole of 2022.

So far there have been 71 reported cases compared with 15 last year. Whereas the infection was previously most widespread in northern Norway, western Norway is now the hardest hit with 14 of the 17 outbreaks in the region.

Seafood Source [reported in September 2023](#):

Norway hatching plan to counter wave of infectious salmon anemia outbreaks

By Cliff White
September 11, 2023

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A higher than normal number of infectious salmon anemia cases have been reported in Norway in the summer of 2023.

On 8 September, the Norwegian Food Safety Authority said it had confirmed an ISA outbreak in Åfjord municipality, Trøndelag county, affecting farms operated by Refsnes Laks that had previously been operated in a collaboration with SalMar until April 2023. The confirmation came after the government agency was first notified of a suspected case at the site on 25 August.

In late August, a suspected outbreak of infectious salmon anemia was discovered at a Mowi salmon farm in Volda municipality, in Møre og Romsdal county. And in July, a case of

ILA was confirmed at farms operated by SalMar and Norsk Sjømat Oppdrett in Heim municipality in Trøndelag county.

In all, there are six separate farming zones being monitored for or cleansed of ISA currently shown on the [Barents Watch tracking page](#) operated by the authority.

ISA is caused by a virus that is harmless to humans but which can cause mass mortalities at salmon farms as it spreads. Rainbow trout can become infected, but usually do not develop symptoms of the disease, according to the authority.

ISA outbreaks can be costly to Norwegian aquaculture companies, as they are forced to purge and fallow any impacted site and set up a protection and monitoring zone to ensure marine traffic is forbidden from entering the area. Much of the cost of government analysis and sampling also falls on the companies operating the impacted farms.

The high number of recent ISA cases in Norway comes on the heels of seven separate reported cases in both May and June 2023. That compares to 25 cases in all of 2021, and just 15 in 2022. In a report issued June 2023, the Norwegian Food Safety Authority acknowledged ISA cases were on the rise in the country's aquaculture industry, calling it "a major challenge."

"Outbreaks of ILA have serious consequences, and Norway aims to keep the disease at a low level," it said.

Seafood Source [reported in August 2023](#):

Suspected ISA contagion found at Mowi salmon farm in central Norway

By Cliff White
August 29, 2023

Share [f](#) [X](#) [in](#) [✉](#)



A suspected outbreak of infectious salmon anemia has been discovered at a Mowi salmon farm in central Norway.

The Norwegian Food Safety Authority issued a notice on 23 August regarding a potential ISA outbreak at Mowi's 13243 Sandvika salmon farm in Norway's Volda municipality, in Møre og Romsdal county.

Patogen AS notified the Norwegian Food Safety Authority on 22 August of suspected ILA at location 13243 Sandvika. The suspicion is based on the results of PCR analyzes carried out by Patogen AS after sampling fish at the site.

Intrafish [reported in November 2022:](#)

Salmon egg supplier AquaGen confirms ISA at Norwegian site

No increased mortality or clinical symptoms have been registered.

24 November 2022 7:31 GMT UPDATED 24 November 2022 7:31 GMT

By [Merthe Njåstad](#) and [Henna Gezelius](#)

Salmon egg supplier AquaGen has detected infectious salmon anemia (ISA) during a routine sampling procedure at a site in Northern Norway.

The sample was taken from breeding fish at AquaGen's land-based plant in Bogen in Northern Norway, the company confirmed.

No increased mortality or clinical symptoms have been registered.

Since the start of this year, AquaGen has taken samples of more than 5,000 breeding fish in Bogen, one of which had a positive result.

RELATED NEWS

Norwegian salmon farmer suspects deadly ISA virus at site with more than 500,000 fish

Salmon
22 August 2022 14:05 GMT

ISA detected at Mowi Newfoundland site

Aquaculture
2 August 2022 7:29 GMT

'It's been hell': Scramble is on to capture escaped farmed salmon in Norway

Salmon
15 November 2022 7:00 GMT

Norway's ISA losses were Iceland and Ireland's gain in terms of salmon ova imports. Scottish Salmon Watch [reported in July 2021:](#)



Don Staniford
@TheGAAIA

...

Replacing imports of salmon eggs from Norway (where Infectious Salmon Anaemia is ravaging farms) with imports from Iceland (fingered in the spread of Piscine reovirus to USA) is like leaping out of the frying pan into the fire! tinyurl.com/49np4zu2 @WeAreBenchmark @scotgov



Mairi Gougeon and 7 others

6:28 AM · Jul 7, 2021

A Freedom of Information (FOI) disclosure by the Scottish Government [published online in April 2021](#) reveals that 'Scottish' salmon is now sourced predominantly from imported ova (eggs) from Iceland and Ireland substituting Norway (due to [ongoing risks of the spread of Infectious Salmon Anaemia](#)). The last [reported consignments of ova imported from Norway were in April 2020](#) into hatcheries operated by [Scottish Sea Farms \(Norskott Havbruk\)](#) at Knock on the Isle of Mull and [Cooke Aquaculture](#) at Rysa on Orkney - and another shipment from [AquaGen in Norway](#) to Cooke's Rysa hatchery on Orkney in January 2021.

However, Iceland has also been hit by ISA with [IntraFish reporting in September 2022](#):



Latest News Salmon Whitefish Shrimp Aquaculture Fisheries Markets IntraFish.no

ISA costs Icelandic salmon farmer \$10 million as disease takes root in the country

The disease arrived in Iceland for the first time in November.

RELATED NEWS

Icelandic salmon farmer Ice Fish Farm confirms ISA, says virus hit second site with 1.1 million fish

Salmon
2 June 2022 17:04 GMT

ISA detected at another Iceland salmon farm

Salmon
27 May 2022 8:58 GMT

Arnarlax takes full control of Iceland smolt facility

Aquaculture
25 May 2022 17:53 GMT

30 September 2022 8:31 GMT UPDATED 30 September 2022 13:28 GMT

By Dominio Welling

Icelandic salmon farmer Ice Fish Farm saw its second quarter earnings plagued by a biomass write-down of NOK 104 million (€9.9 million/\$9.7 million), after falling victim to infectious salmon anemia (ISA) during the period.

In June, the company confirmed ISA hit two of its farming sites containing a total of almost two million fish.

For the second quarter, Ice Fish Farm posted an operating loss (EBIT) of NOK 142 million (€13.5 million/\$13.2 million) because of the biomass write-down, it said.

Operating EBIT adjusted for the biomass write-down plummeted 74 percent to NOK 18.1 million (€1.7 million/\$1.7 million), with a 16.5 percent increase in EBIT per kilogram of NOK 16.20 (€1.50/\$1.50).

Nevertheless, the group managed a 27 percent increase in revenue in the quarter to NOK 87 million (€8.3 million/\$8.1 million), as it mainly used the spot market, which was giving "good prices for relatively small size fish".

Ice Fish Farm harvested a total of 1,117 metric tons during the period, up slightly from the same period a year ago.

During the quarter, Ice Fish Farm acquired all of the shares in Laxar Fiskeldi, increasing its maximum allowable biomass (MAB) to 43,800 metric tons, with 15 sites across four fjords.

Total harvest for the combined company in 2022 is expected to be 11,300 metric tons.

Just days prior to Ice Fish Farm's Hamraborg and Svarthamar outbreaks, Laxar also reported ISA was detected at its Vattarnes farming operation in Iceland.

A month before, Laxar also detected the virus at its Sigmundarhus site.

The Sigmundarhus site is within close proximity of another Laxar site that had ISA earlier in the winter - the first case of ISA detected in Iceland - and had been under close monitoring.

Intrafish [reported in May 2022](#):

ISA detected at another Iceland salmon farm

First detected in December 2021, the virus has since been found at three separate sites.

27 May 2022 8:58 GMT UPDATED 27 May 2022 13:03 GMT

By Raahel Mutter 

NTS subsidiary Icelandic salmon farmer Ice Fish Farm suspects infectious salmon anemia (ISA) at its Hamraborg farming site, it announced Friday.

The site consists of approximately 890,000 fish weighing and average 2.137 kilograms.

The consequences of the suspected disease are difficult to estimate at the moment, according to a release by the company to the Oslo Stock Exchange, but the presence of the disease will likely reduce Ice Fish Farm's expected harvest volume for 2022 and 2023, the company said.

The event comes just days after ISA was detected at Laxar's Vattarnes farming operations in Iceland.

That site consist of approximately 1.1 million fish weighing an average 2.748 kilograms. Again, the impact of the disease is difficult to estimate at this time, but harvest volumes are expected to be lower as a result this year and next.



Iceland will never be the biggest salmon farmer. Can it be the best?

[Read more](#)

It is not the first finding of ISA at a Laxar farm. A month ago the company also detected the virus at its Sigmundarhus site. That site consisted of approximately 1 million fish weighing an average 0.476 kilograms. The smaller size of the fish means the impact will to be felt in 2023 only, according to the company.

The Sigmundarhus site is within close proximity of another Laxar site that had ISA earlier in the winter - the first case of ISA detected in Iceland - and had been under

close monitoring.

RELATED NEWS

Arnarlax takes full control of Iceland smolt facility

Aquaculture
25 May 2022 17:53 GMT

Iceland's first suspected ISA outbreak on salmon farm confirmed

Salmon
14 December 2021 19:24 GMT

CEO of Icelandic salmon farmer Laxar sees good growth prospects for newly merged group

Aquaculture
31 December 2021 8:50 GMT

Intrafish [reported in December 2021](#):

Iceland's first suspected ISA outbreak on salmon farm confirmed

The company is awaiting results from samples taken from two other neighboring sites.

14 December 2021 19:24 GMT UPDATED 14 December 2021 21:50 GMT

By Robert Nedrejord

Icelandic authorities confirmed a suspected case of Infectious Salmon Anemia (ISA) at a salmon farm belonging to Laxar Fiskeldi in Reydarfirdi, on the east coast of Iceland.

The Icelandic Food and Veterinary Institute (MAST) announced that the suspected finding, the first in the Icelandic salmon farming industry, was indeed the deadly virus.

The location and all associated operations have been isolated, and the affected fish have been harvested, the company said.

RELATED NEWS

Competition authorities greenlight Scottish Sea Farms' Grieg Shetland acquisition

Salmon
8 December 2021 8:07 GMT

Competition for aquaculture deals heats up as new suitors come calling

Finance
30 September 2021 8:31 GMT

The Iceland Review [reported in November 2021](#):

First Ever Cases of Infectious Salmon Anaemia in Iceland

○ Jelena Ćirić 📅 November 29, 2021 🗂️ Economy, News

The Icelandic Food and Veterinary Authority (MAST) has found [evidence](#) of infectious salmon anaemia (ISA) in an open-net salmon farm in Reyðarfjörður fjord, East Iceland. ISA is a highly infectious viral disease that has no treatment and causes high mortality in farmed Atlantic salmon. This is the first time the virus has been diagnosed in Icelandic waters.

The virus has been diagnosed in a salmon farm owned by Laxar fiskeldi ehf. Follow-up tests are now being conducted to confirm the diagnosis. A decision has been made to slaughter all of the fish in the pen where the virus was detected. Fish in the farm's other pens appear to be healthy, according to the notice from MAST. It will, however, be closely monitored in the near future.

The ISA virus is harmless to humans and is not transmitted through fish products. It is also known as "salmon flu," and belongs to the Orthomyxoviridae family of influenza viruses and has most of the characteristics of influenza viruses known in mammals and birds. A benign variant of the virus is widespread and "probably found everywhere in salmon's environment," according to the notice from MAST. The pathogenic ISA virus, like the one that has now been detected in Iceland for the first time, is created by mutation of the benign variant.

The first case of ISA was detected in Norway in 1984. Since then it has been detected in many other salmon farming nations, including Canada (1996), Scotland (1998), the Faroe Islands (2000), the USA (2001), Chile (2001), and Ireland (2002).

"The diagnosis of the virus emphasises the importance of monitoring and infection control in order to maintain good disease status in Iceland and prevent diseases such as ISA emerge and get a foothold in salmon farms," the MAST statement concludes.

Scottish Salmon Watch [reported in January 2022 how ISA had been detected at Landcatch's Ormsary hatchery in Argyll](#):

Scottish Salmon Watch, 10 January 2022

[FOI Reveals Infectious Salmon Anaemia at Landcatch's Ormsary Hatchery in November last year – was ISA imported via infected salmon eggs \(ova\) from Iceland?](#)



- FOIs reveal Landcatch (Hendrix) supplied farmed salmon to Organic Sea Harvest, Loch Duart, The Scottish Salmon Company & Scottish Sea Farms sourced from ova imported from Benchmark/Stofniskur in Iceland
 - Scottish Sea Farms tested positive for ISA in Loch Spelve on Mull in May 2021
- FOI disclosure by Scottish Government reveals Marine Harvest (Mowi) tested positive for ISA in Loch Greshornish on Skye in November 2014
 - FOI disclosure by the Scottish Government in October 2021 revealed ISA in 7% of Scottish farmed salmon sampled between 2002 & 2012

Scottish Salmon Watch [reported in January 2022](#) how a [FOI disclosure from the Scottish Government](#) detailed ISA cases at Mowi's Loch Greshornish salmon farm in 2014 and [in 2021 at a salmon farm operated by Scottish Sea Farms in Loch Spelve](#):

To facilitate you with searching published information I can advise you that two published cases have returned positive results for ISAv throughout the time period of your request. Further details are provided as follows:

1. Case number 20140560 relating to the site Loch Greshornish operated by Marine Harvest at the time of the inspection in 2014. A positive result for ISAv was obtained through diagnostic and statutory sampling. On both occasions insufficient product was present to allow sequencing and confirm any virus strain associated with this result. Consequently the presence of ISAv was ruled out as the results of sampling did not meet the official criteria to confirm the presence of the pathogen. Movement restrictions placed on suspicion at Loch Greshornish and three further sites (Ardintoul, Loch Duich and Torridon) which had epidemiological connections were revoked. Although the result was considered negative, in this situation the company undertook a commercial decision to depopulate the site at that time.

2. Case number 20210132 relating to Loch Spelve (B) operated by Scottish Sea Farms Ltd. Details concerning this case, including the confirmation of ISA HPR0 have been explained previously through Fol 202100234467.

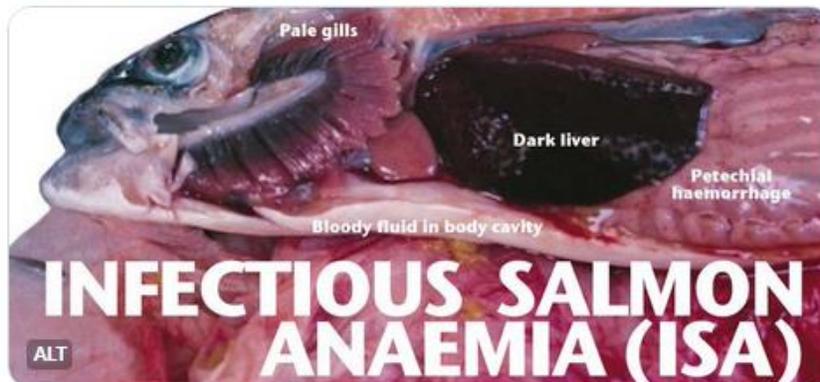
In addition, a further positive result (ISA HPR0) has been obtained from the Ormsary Broodstock Unit operated by Landcatch Natural Selection Ltd - case number 20210470. Case information has not yet been published as this is still in the course of completion. This will be published in due course in line with the Scottish Government publication plan concerning aquatic animal health surveillance, as referenced above. Relevant information to your request is extracted from our records as follows – site visit date - 1 November 2021; one positive result - ISAv Real Time QPCR was obtained and was confirmed as ISAv (HPR0) which is not subject to statutory control measures. The test result related to a pooled sample of three fish.



Don Staniford ✓
@TheGAAlA

...

Infectious Salmon Anaemia Reported at Landcatch's Ormsary Hatchery in November – was ISA imported via infected salmon eggs (ova) from Iceland? @WeAreBenchmark @HGSalmonUK @BetterBreeding @marinescotland @ScotlandSalmon @obantimes @argyllshiread @salmon_scottish @LochDuartSalmon



Mairi Gougeon and 8 others

10:53 AM · Jan 10, 2022

Scottish Salmon [reported in January 2022](#):

A [FOI disclosure from the Scottish Government in March 2021](#) detailed millions of ova imported from Stofnfiskur ([rebranded as Benchmark Genetics Iceland in January 2021](#)) in Iceland to Landcatch's Ormsary Hatchery for on-growing by Organic Sea Harvest Loch Duart and The Scottish Salmon Company:

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
02/02/2021	Ormsary Hatchery	Landcatch Natural Selection Ltd		SAL	OVA	780000	Iceland	Benchmark_Genetics_Iceland_Hf.
16/02/2021	Ormsary Hatchery	Landcatch Natural Selection Ltd	Organic Sea Harvest	SAL	OVA	800000	Iceland	Benchmark_Genetics_Iceland_Hf.

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
03/11/2020	Ormsary Hatchery	Landcatch Natural Selection Ltd	The Scottish Salmon Company	SAL	OVA	1750000	Iceland	Stofnfiskur_Hf.
10/11/2020	Ormsary Hatchery	Landcatch Natural Selection Ltd	Organic Sea Harvest Ltd	SAL	OVA	850000	Iceland	Stofnfiskur_Hf.
10/11/2020	Ormsary Hatchery	Landcatch Natural Selection Ltd	Loch Duart	SAL	OVA	490000	Iceland	Stofnfiskur_Hf.
08/12/2020	Ormsary Hatchery	Landcatch Natural Selection Ltd		SAL	OVA	690000	Iceland	Stofnfiskur_Hf.

A [FOI disclosure by the Scottish Government in September 2020](#) detailed millions of ova imported from Stofnfiskur ([rebranded as Benchmark Genetics Iceland in January 2021](#)) in Iceland to Landcatch's Ormsary Hatchery for on-growing by Organic Sea Harvest, The Scottish Salmon Company, Loch Duart and Saumon de France:

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
21/01/2020	Ormsary Hatchery	Landcatch Natural Selection Ltd	Organic Sea Harvest Ltd	SAL	OVA	585000	Iceland	Stofnfiskur_Hf.
20/02/2020	Ormsary Hatchery	Landcatch Natural Selection Ltd	The Scottish Salmon Company	SAL	OVA	2457000	Iceland	Stofnfiskur_Hf.
19/03/2020	Ormsary Hatchery	Landcatch Natural Selection Ltd	Organic Sea Harvest Ltd	SAL	OVA	670000	Iceland	Stofnfiskur_Hf.

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
12/11/2019	Ormsary Hatchery	Landcatch Natural Selection Ltd	Loch Duart Ltd	SAL	OVA	450000	Iceland	Stofnfiskur_Hf.
27/11/2019	Ormsary Hatchery	Landcatch Natural Selection Ltd	Organic Sea Harvest Ltd	SAL	OVA	675900	Iceland	Stofnfiskur_Hf.
28/11/2019	Ormsary Hatchery	Landcatch Natural Selection Ltd	The Scottish Salmon Company	SAL	OVA	2320500	Iceland	Stofnfiskur_Hf.
11/12/2019	Ormsary Hatchery	Landcatch Natural Selection Ltd	Saumon de France	SAL	OVA	350000	Iceland	Stofnfiskur_Hf.

The Scottish Government [published photos from Landcatch's ISA-infected Ormsary Hatchery later in 2022](#):



Photos of Landcatch's disease-ridden salmon farm at Ormsary - post mortem inspection reported proliferative branchitis, Amoebic Gill Disease, epitheliocystis, Infectious Pancreatic Necrosis virus & Infectious Salmon Anaemia virus @HGSalmonUK @BetterBreeding @ScotlandSalmon #ISA

Tissue samples were tested for segments of nucleic acid indicative of the viruses specified below using real-time PCR (qPCR).

Infectious pancreatic necrosis virus (IPNV)				
Endogenous control Cp value	Cp Values			Reported Result
19.69	34.72	35.59	36.26	POSITIVE

Infectious salmon anaemia virus (ISAV)				
Endogenous control Cp value	Cp Values			Reported Result
38.89	38.3	38.55	39.47	POSITIVE

Confirmed 100% identity of ISA HPR0.

Scot Gov Marine and 8 others

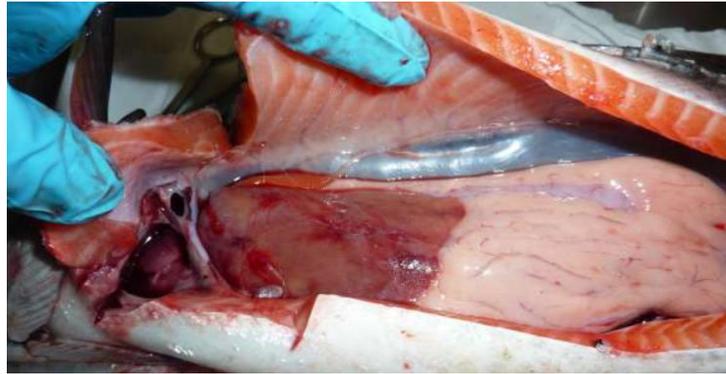
11:43 AM · Sep 28, 2022

‘Case Information’ [published by the Scottish Government’s Fish Health Inspectorate in 2022](#) provides details of an inspection of Landcatch’s Ormsary Hatchery in November 2021:

Case No:	2021-0470	Date of visit:	01/11/2021			
Time spent on site:	3hrs	Main Inspector:	[REDACTED]			
Site No:	FS0090	Site Name:	Ormsary Broodstock Unit			
Business No:	FB0061	Business Name:	Landcatch Natural Selection Ltd			
Case Types:	1 ECI	2 CNI	3 SLI	4 VMD	5 DIA	6 [REDACTED]
Water Temp (°C):	11.9	Thermometer No:	Site	FHI 045 completed	[REDACTED]	
Observations:	Region:	ST	Water type:	B	CoGP MA	M-44
Dead/weak/abnormally behaving fish present?	<input checked="" type="checkbox"/>	If yes, see additional information/clinical score sheet.				
Clinical signs of disease observed?	<input checked="" type="checkbox"/>	If yes, see additional information/clinical score sheet.				
Gross pathology observed?	<input checked="" type="checkbox"/>	If yes, see additional information/clinical score sheet.				
Diagnostic samples taken?	<input checked="" type="checkbox"/>					

Lethargic fish were observed in tank F1 and removed for diagnostic sampling. Site manager informed me that the mortality reporting threshold had been breached the previous week. 2021 yearclass had been experiencing mortality and samples had been collected by the biologist to determine the cause, which was still unknown at the time of visit. All other year classes on site appeared to be unaffected with low mortality.

Following on from a positive QPCR result for ISA, the HPR region was sequenced. The ISA HPR type has been determined to be HPR0 (non-deleted type).



A Fish Health Inspectorate Visit Report dated December 2021 – [published by the Scottish Government in 2022](#) – included:

marinescotland
science

 Scottish Government
Riaghaltas na h-Alba
gov.scot

FISH HEALTH INSPECTORATE VISIT REPORT

SUMMARY FOR INFORMATION OF SITE OPERATOR

BUSINESS No	FB0061	DATE OF VISIT	01/11/2021
SITE No	FS0090	SITE NAME	Ormsary Broodstock Unit
CASE No	20210470	INSPECTOR	██████████

Section 1: Summary

During a routine inspection lethargic fish were observed on site and removed for diagnostic sampling. Increased unexplained mortality in one year class (2021) was being investigated at the time of the visit.

Histopathological examination revealed marked vascular disturbance potentially associated with water bourn insult. Mild, multifactorial, non-specific proliferative branchitis was also noted. Pathology was also consistent presence of epitheliocystis (likely *Candidatus Branchiomonas cysticola*) and amoebic gill disease (AGD). Mild multifocal hepatic necrosis (F1 & F3) and haemorrhage were observed in F3.

Samples were screened for infectious salmon anaemia virus (ISAV) by QPCR as part of the surveillance program for the control of listed diseases. The samples tested positive for infectious salmon anaemia virus (ISAV) by QPCR and the sequence data confirmed the presence of ISAV HPR0, the non-pathogenic form of the virus. Additionally, an ISAV immunochemistry (IHC) assay which targets the pathogenic form of the virus (ISA-deleted nucleoprotein) was performed and was found to be negative. In relation to the ISAV HPR0 result obtained, along with the observations made on site, no further statutory action is required to be taken in this case, ISAV HPR0 not being a disease listed in The Aquatic Animal Health (Scotland) Regulations 2009.



Observations

During a routine inspection lethargic fish were observed on site and removed for diagnostic sampling. The site was stocked with 3 year classes of Atlantic salmon broodstock at the time of the visit. Increased mortality had been observed in the population that went to sea in 2021, the previous week. Mortality of 195 fish or 1.93% was observed on site in the week beginning 22 October 2021. The following week, week beginning 29 October 2021, 513 fish or 5.93% were reported to the Fish Health Inspectorate.

F1 was displaying moribund and lethargic behaviour prior to being removed from the tank, while F2 and F3 were lethargic. Externally, F1 showed pale discolouration with brown patches visible while the fish was in the water at the anterior and posterior dorsal surface. F3, appeared to be slightly anorexic. Internally, all three fish showed signs of maturation, with some petechial haemorrhaging evident on the liver and some liver breakdown observed in F1 & F2. Bloody ascites was observed in the body cavity of F2 and F3, and the spleen appeared somewhat enlarged in both individuals. Yellow pseudo-faeces were observed in F1 & F2 and the kidney appeared to have a slightly grey sheen in both individuals.

Samples

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

Fish number	Pool number	Facility number	Species	Stage	Origin
F1-F3	P1	F1	Atlantic salmon (<i>Salmo salar</i>)	1.7kg, 2021	Langass Hatchery

Virology: Tissue samples were tested for segments of nucleic acid indicative of the presence of the pathogens specified below using real-time PCR (qPCR).

Infectious pancreatic necrosis virus (IPNV)

Pool Number	Endogenous control Cp value	Cp Values			Reported Result (PCR)
P1	19.69	34.72	35.59	36.26	POSITIVE

Infectious salmon anaemia virus (ISAV)

Pool Number	Endogenous control Cp value	Cp Values			Reported Result (PCR)
P1	19.69	38.3	38.55	39.47	POSITIVE

Sequencing confirmed 100% identity of ISA HPR0.

An ISAV immunochemistry (IHC) assay which targets the pathogenic form of the virus (ISA-deleted nucleoprotein) was performed and was found to be negative.

[Note that Bakkafrost's Langass Hatchery also [supplied over 685,000 ova to the River Carron](#); is the "[site used to produce company's Hebridean strain of fish](#)" and [uses the cancer-causing chemical Formaldehyde](#)]

The Argyllshire Advertiser [reported in January 2022](#):



Front page splash on Infectious Salmon Anaemia at Landcatch's Ormsary Hatchery @HGSalmonUK @BetterBreeding in this week's Argyllshire Advertiser @argyllshiread "Salmon farming is a cancer on the coast" @ScotlandSalmon @marinescotland @MairiGougeon @tavishscott @HamishMacdonell



8:35 AM · Jan 16, 2022

Scottish Salmon Watch [reported in January 2022](#):



Imported salmon ova (eggs) "are all tested for a plethora of diseases" claims @HGSalmonUK in this week's @argyllshiread Meanwhile, @scotgov admit that "Marine Scotland Science does not undertake routine testing on ova to screen for the presence of aquatic animal pathogens"

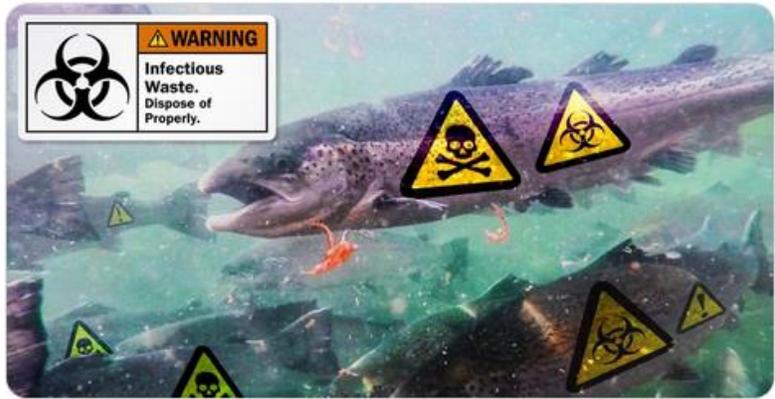


8:07 PM · Jan 16, 2022

Scottish Salmon Watch [asked in January 2022:](#)

 **Don Staniford** ✓
@TheGAAIA

Escape at ISA-Hit Laxar - why is 'Scottish' Salmon Still Importing Millions of Ova from Iceland? [@RUVohf tinyurl.com/3jpk5uj7](#) [@MFAIceland](#)
[@MairiGougeon](#) [@marinescotland](#) [@ScotlandSalmon](#)
[@MowiScotlandLtd](#) [@WeAreBenchmark](#) [@scotseafarms](#) [@HGSalmonUK](#)
[@GriegShetland](#) [@salmon_scottish](#)



1:33 PM · Jan 21, 2022

In February 2022, \$camon \$cotland [wrote to Scottish Ministers calling for an ova import ban:](#)

 **Don Staniford** ✓
@TheGAAIA

Please Close the Border to Imports of Salmon Ova, Parr & Smolts!
[tinyurl.com/4x7k9cpr](#)
The health & genetic integrity of 'Scottish' salmon is being threatened by imports flooding into Scotland. Failure [@scotgov](#) to screen imports is the antithesis of the precautionary principle



 Mairi Gougeon and 9 others

1:09 PM · Feb 9, 2022

Scamon Scotland's [letter to Scottish Ministers dated 9 February 2022](#) included:



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

9 February 2022

Dear Scottish Ministers,

Please Close the Border to Imports of Salmon Ova, Parr & Smolts!

Further to our [letter dated 2 December 2021](#), [Scamon Scotland](#) (formerly called Scottish Salmon Watch) reiterates the call to ban imports of ova (salmon eggs), parr and smolts from Iceland, Norway, Ireland and any other countries due to unacceptable disease and genetic risks.

The health and genetic integrity of 'Scottish' salmon is clearly being threatened by imports of ova, parr and smolts flooding into Scotland. The Scottish Government's failure to screen imports is the antithesis of the precautionary principle.

Scamon Scotland [reported today](#) (9 February 2022) how millions of ova were still being imported from Iceland ([where ISA was reported in November 2021 and farmed salmon slaughtered in December 2021](#)) for on-growing in Scotland – including via Landcatch's Ormsary Hatchery ([where ISA was also reported in November 2021](#)):



Model health certificate for the import of aquaculture animals for farming, relaying, put and take fisheries and open ornamental facilities
 GBHC059E



COUNTRY: Countries subject to transitional import arrangements (*)

Health certificate to Great Britain, Channel Islands and Isle of Man

I: Details of dispatched consignment	I.1. Consignor				I.2. Certificate reference number		I.2.a.UNN																	
	Name: Benchmark Genetics Iceland hf.				ICE GJ 33/21																			
	Address: Bæjarhraun 14 220 Hafnarfjörður Iceland				I.3. Central Competent Authority Ministry of Industries and Innovation																			
	Tel.: [Redacted]				I.4. Local Competent Authority Icelandic Food & Veterinary Authority (MAST)																			
	I.5. Consignee				I.6.																			
	Name: Loch Duart Ltd. Badcall Salmon House, Scourie				<table border="1"> <tr> <td>I.7. Country of origin</td> <td>ISO code</td> <td>I.8. Region of origin</td> <td>Code</td> <td>I.9. Country of destination</td> <td>ISO code</td> <td>I.10. Region of destination</td> <td>Code</td> </tr> <tr> <td>Iceland</td> <td>IS</td> <td></td> <td></td> <td>United Kingdom</td> <td>GB</td> <td></td> <td></td> </tr> </table>				I.7. Country of origin	ISO code	I.8. Region of origin	Code	I.9. Country of destination	ISO code	I.10. Region of destination	Code	Iceland	IS			United Kingdom	GB		
	I.7. Country of origin	ISO code	I.8. Region of origin	Code					I.9. Country of destination	ISO code	I.10. Region of destination	Code												
	Iceland	IS							United Kingdom	GB														
	Address: 1V27 4TH – Sutherland Scotland - UK																							
	I.11. Place of origin				I.12. Place of destination																			
Name: Benchmark Genetics Iceland hf.				Name: Ormsary Hatchery																				
Address: Vogavik, 190 Vogar				Address: Landcatch Natural Selection, Ormsary																				
Approval number: FE-1075				Postal Code: PA31 8PE Lochgilphead, Argyll,																				
I.13. Place of loading				I.14. Date of departure		Time of departure																		
Address: Vogavik Approval number: <input type="checkbox"/> FE-1075				10 November 2021		17:10 local time																		

Scottish Salmon Watch [reported last month](#) (14 January 2022) that millions of ova (as well as 582,000 smolts) were being imported into Scotland without disease screening.



Don Staniford
@TheGAAlA

“Marine Scotland Science does not undertake routine testing on ova to screen for the presence of aquatic animal pathogens” admitted @scotgov in a FOI disclosure this week. 93 million salmon ova were imported into salmon farms in Scotland in 2020 & 2021!

tinyurl.com/yb66hzvk



Note that a Freedom of Information [reply from the Scottish Government in April 2020](#) revealed an abject lack of testing of viruses, pathogens and infectious diseases:

1. How many salmon eggs imported into Scotland were tested for PRV and other viruses, pathogens and infectious diseases such as ISA?

No testing of salmon eggs, imported into Scotland, has been undertaken by Marine Scotland Science in relation to the pathogens and diseases you specify.

2. Has Marine Scotland Science conducted screenings of ova for PRV as an extra risk measure to avoid vertical transmission?

No screening of ova for PRV has been undertaken by Marine Scotland Science.

3. What % of ova used by 'Scottish' salmon farms are infected with PRV, ISA and other diseases, pathogens and viruses?

We hold no information on the percentage of ova, used by 'Scottish' salmon farms, which are infected with PRV, ISA and other diseases, pathogens and viruses.

4. What % of imported ova were screened prior to entry into Scotland for infectious diseases, pathogens and viruses?

Marine Scotland holds no information on the screening of ova (testing for the presence of pathogens) in relation to ova imported into Scotland.

Scottish Salmon Watch's [letter to the Scottish Government dated 2 December 2021](#) included:

In conclusion, Scottish Salmon Watch urges the Scottish Government to take immediate action to stop the spread of ISA, PRV and other diseases, viruses and pathogens via imported ova. In practical terms, that means closing down the border to ova imports and screening domestically produced ova, smolts and farmed salmon for (which are predominantly sourced from imported ova from Norway, Iceland and Ireland) for ISA, PRV and other diseases, viruses and pathogens.



Don Staniford

@TheGAAIA

...

"We need to head off the accusations of disease in Icelandic eggs though suggest we don't address the accusation directly" said @scotgov @marinescotland @ScotGovNetZero employee in February 2020. Now that ISA is reported in Iceland will you be banning ova imports?
@MairiGougeon

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 comment/standard line.

Benchmark and 4 others

2:53 PM · Nov 29, 2021

Scottish Salmon Watch [wrote to Scottish Ministers in August 2020](#) calling for a ban on imported ova and testing of hatcheries and farms for infectious diseases, viruses and pathogens.



[Cabinet Secretary for Environment, Climate Change and Land Reform](#)
[Cabinet Secretary for Rural Economy & Connectivity](#)

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

26 August 2020

Dear Cabinet Secretaries,

**Bio-security Risks for 'Scottish' Salmon:
Lack of Testing of Imported Ova for Infectious Salmon Anaemia & Piscine Reovirus**

Further to Scottish Salmon Watch's [letter dated 24 February 2020](#) and [letter dated 31 May 2018](#) (re-enclosed below for easy reference), what bio-security measures is the Scottish Government taking to ensure that infectious diseases, viruses and pathogens are not imported into Scotland via infected salmon ova? In view of the tightened security over COVID-19 to reduce the spread of Coronavirus why are Scottish Ministers allowing virus-laden ova and disease-ridden salmon farms and hatcheries to slip through the testing net? Scottish Salmon Watch urges the Scottish Government to close the borders and ban the import of ova as is already the case in Norway.



Don Staniford
@TheGAAlA



#COVID19 has taught us that closing borders is vital in stemming the spread of infectious diseases, viruses & pathogens tinyurl.com/yyrzsa6m Salmon farms using imported eggs should be quarantined until they can prove they're free of deadly viruses! @GreenerScotland #ISA #PRV



11:09 AM · Aug 26, 2020



Scottish Salmon Watch [wrote to Scottish Ministers in February 2020:](#)

 Don Staniford
@TheGAAIA

What bio-security protocols & safety precautions are Scottish Ministers taking re. imports of ova for use on 'Scottish' salmon farms? tinyurl.com/tbmols7
@FergusEwingMSP @strathearnrose @KateForbesMSP
@MairiGougeon @GreenerScotland @marinescotland
@WeAreBenchmark @HGSalmonUK



7:59 AM · Feb 26, 2020 · Twitter Web App

"The ban on ova imports from Norway is a slap in the face for Norwegian companies exploiting Scotland's wild image," [stated today's press release from Scottish Salmon Watch](#). "It beggars belief that Norway bans imports of Scottish ova yet the Scottish Government recklessly allows imports of ova from countries with a history of disease problems. Scottish Ministers should stop playing their high risk game of Norwegian, Icelandic and Irish roulette. Is deadly ISA already lurking on Scottish salmon farms?"



A [FOI disclosure by the Scottish Government in March 2022](#) included:



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Publication - FOI/EIR release

Imports, disease and biosecurity in relation to Atlantic salmon and salmon farming: EIR release

Published: **14 March 2023**

Directorate: [Marine Directorate](#)

Part of: [Marine and fisheries, Public sector](#)

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Date responded: **22 March 2022**

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

1) Notifications by importers or consignees of ova, parr, smolts and any other salmon products to the Fish Health Inspectorate under the Trade in Animals and Related Products (Scotland) regulations 2012.

The response releases copies of all notifications held with respect to the time scale of the request. Regulation 11(2) of the EIRs (personal information) has been applied to this part of the request. Please be aware that the Scottish Government may not hold a comprehensive record of import notifications in relation to your request. There is legal requirement for stakeholders to report such information directly through the computer information management system (IPAFFS) (administered outwith Scottish Government) or directly to the Border Control Post, as opposed to informing the Scottish Government.

2) Refusals and any other correspondence in relation to cases where “the consignment fails to meet the health standards”.

Regulation 10(4)(a) of the EIRs (information not held) is applied to this part of the request. There have been no refusals of consignments and no consignments which have ‘failed to meet the health standards’ in relation to this request. Responses to previous requests, for example Fol/18/01553 and Fol/18/03773, have provided detailed context of the measures in place which help to ensure the safe trade in live aquatic animal products and these principles still apply. Responses to requests for information are published on the Scottish Government’s website:

<https://www.gov.scot/publications/>

3) Authorizations to farm (under the 2009 Regulations, Aquaculture Production Businesses) “where it is considered that the operation of the business will not lead to an unacceptable risk of spreading disease” including the “specific conditions of operation” and “the requirement for the business to follow good bio-security practice”.

The details of all authorised Aquaculture Production Businesses (APB) are published in the internetbased register: <https://www.gov.scot/publications/registers-of-authorized-aquaculture-productionbusinesses-and-authorized-processing-establishments/>

With respect to your request, ova and packaging disinfection are common conditions across all APB authorisations relating to finfish farming operations and extracted text from such documents, found at sections 9 and 10 of the authorisation certificate, reads as follows:

Section 9 of the authorisation conditions states that: The operator of the APB must ensure that any consignment of aquaculture animal ova introduced from outwith Scotland is disinfected on arrival at the site of destination(6) before being laid down. All salmonid ova introduced from outwith Scotland must be disinfected in accordance with Chapter 4.4 of the Aquatic Animal Health Code published by the World Organisation for Animal Health. A reference to this document is provided below:

http://www.oie.int/index.php?id=171&L=0&htmfile=chapitre_disinfection_eggs.htm

For other species, preliminary tests should be conducted, seeking veterinary advice where necessary, to determine at what ova stage and disinfectant concentration, disinfection can be carried out safely for the required contact time.

6 "Site of destination" means the first site where the ova will be laid down in Scottish waters.

Section 10 of the authorisation conditions states that: Having had regard to the Fisheries Research Services Internal Report 13/06: 'Disinfection guide version IV: practical steps to prevent the introduction and minimise transmission of diseases of fish'(7) the operator of the APB must ensure that all packaging materials used in relation to the introduction of aquaculture animal ova consignments from outwith Scotland are effectively disinfected before disposal to prevent the introduction of, and to minimise the transmission of, diseases of fish.'

7 Please refer to the Fisheries Research Services Internal Report 13/06: 'Disinfection guide version IV: practical steps to prevent the introduction and minimise transmission of diseases of fish' which can be obtained at <https://www.gov.scot/publications/fish-diseases-disinfection-guide-iv/> or by contacting the Fish Health Inspectorate.

4) Biosecurity Measures Plans for salmon farms and hatcheries which may detail "disinfection of ova to reduce the risks from horizontal transmission of pathogens and disease" and "the initial isolation of new stocks brought on site as a precautionary disease control measure".

The Scottish Government does not routinely hold copies of Biosecurity Measures Plans (BMP). These documents are inspected as part of the aquatic animal disease surveillance programme to ensure that they are fit for purpose and are being implemented on site. Comments made, in this regard, are detailed within the results of any given inspection where these documents and practices have been assessed. We may also look at these documents as part of the business authorisation process, but as detailed above copies are not routinely maintained.

The Scottish Government does hold one copy of a BMP relating to Organic Sea Harvest (FB0579), which details the quarantine of livestock by following sections 3.28, 3.29, and 3.30 of Chapter 4 of the industry's Code of Good Practice. This extracted information represents all the information held by the Scottish Government in relation to this part of the request. The BMP itself, relating to Organic Sea Harvest, may have subsequently been updated, and the information provided may not now be indicative of the current, operational BMP for the authorised business.

The minimum requirements for a BMP are detailed on the Scottish Government website:

<https://www.gov.scot/publications/biosecurity-measures-plan-2/>

5) 'Information since 1 January 2020 on "internal discussions" concerning disease risks in Iceland, Norway, Ireland and any other countries in relation to salmon farming. To include:

- **emails, letters and any other correspondence with officials in Iceland, Norway, Ireland and any other countries in relation to information and assurances "over any risk posed to Scotland from this trade".**
- **any information confirming the location of the outbreak in Iceland, the actions taken in Iceland, the epidemiological separation of the positive site to those sites exporting aquatic animals, as well as confirmation of the disease free status of exporting sites.**
- **correspondence with Icelandic officials, EFTA and any other parties that "resulted in the conclusion that trade with appropriate certification could continue as it would not pose a significant risk to the introduction of ISAv into Scotland".**
- **any Cabinet Briefings on ISA in Iceland and any disease risks posed to Scotland.**

We have provided relevant communications relating to this part of your request. These are mainly focused on discussions relating to Norway and Iceland. With respect to Norway, email communications relate to the temporary suspension of trade from Norway, and the subsequent reinstatement of specific areas considered safe to resume trading. With respect to Iceland, communications relate to a recent discovery of ISAv at a seawater farm site and the confirmation that the proposed trade in Atlantic salmon ova was able to resume due to the epidemiological separation between the infected site and sites trading in ova. Information on these subject areas, which has already been the subject of an information request, and has been released, can be located through appropriate searching on the Scottish Government webpage - <https://www.gov.scot/publications/>.

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[Mail On Sunday: "90% of Scottish salmon 'ISN'T' from Scotland' - 66m eggs from abroad"](#)

[Salmon Eggsclusive: Scotland's 'King of Fish' is Now Viking Not Scottish!](#)

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[Game Ova for Scottish Salmon - Deadly disease delays egg imports from AquaGen in Norway](#)

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['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"](#)

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