Scottish Salmon Watch, 6 January 2020

SCOTTISH SALMON WATCH DISEASES

The Case Against Scottish Salmon

- Newly published inspection reports make mockery of 'healthy' marketing claims
- Gruesome photos of welfare abuse, pathogens, bacteria & infectious diseases
- Anaemia, *Pasteurella skyensis*, Cardiomyopathy Syndrome & Gill Disease plague sites
- Lice loads of 50 reported at Scottish Sea Farms in Loch Kishorn
- Mowi's disease-ridden salmon farm in Loch Ainort revealed as origin of A86 roadspill
- Use of the antibiotic Oxytetracycline by Mowi in Loch Sunart
- Early harvesting to mask mortalities, diseases & welfare problems
- Call for unannounced & more rigorous inspections of farms
- 'Case Information' now published on a monthly basis by Scottish Government




'Case Information' (including photos) slipped out online just before Xmas by the Scottish Government's Fish Health Inspectorate (FHI) gives a shocking insight into the state of salmon farming in Scotland. Scottish salmon - 99.9% on sale in supermarkets is farmed not wild - is marketed as 'healthy', 'responsibly sourced' and 'welfare friendly' yet regularly published data clearly shows Scottish salmon are sourced from factory feedlots plagued by infectious diseases, viruses, pathogens, bacteria and welfare problems.

Campaigners are now calling on:
- Consumers to boycott Scottish salmon as a New Year's resolution
- The Scottish Government to conduct more rigorous and unannounced inspections of farms
- Supermarkets to stop sourcing from disease-ridden farms
- RSPCA Assured to stop certifying farmed salmon as 'welfare-friendly'
- Farmers to stop using 'cleaner fish' due to unacceptable mortalities and welfare problems

The FHI report published on 19 December 2019 reveals that the roadspill in September 2019 on the A86 originated from Mowi's virus-laden salmon farm in Loch Ainort on the Isle of Skye which had just been moved in late August 2019 from Mowi's lice-ridden Isle of Rum farm. An Fish Health Inspectorate inspection on 24 September 2019 stated that Mowi's salmon at Cairidh in Loch Ainort breached biosecurity procedures and the Scottish Salmon Producers Organisation's 'Code of Good Practice for Scottish Finfish Aquaculture' and were infected with Piscine Reovirus (Heart & Skeletal Muscle Inflammation), Piscine Myocarditis Virus (Cardiomyopathy Syndrome), Paranucleospora, Yersinia and Anaemia **[1]**.

Other data and photos published by the Fish Health Inspectorate on 19 December 2019 reveals lice loads of 50 parasites per fish; welfare abuse including white and red head damage and lesions; disease problems such as *Pasteurella skyensis*, Amoebic Gill Disease, Salmon Gill Poxvirus and Cardiomyopathy Syndrome; sites failing to report mortalities, lice loads and chemical use; and unreported mass mortalities of 'cleaner fish' (lumpfish).

"The case against so-called 'healthy' Scottish salmon is now so painfully obvious," said Don Staniford, Director of Scottish Salmon Watch. "The ugly truth is that Scottish salmon are sourced from feedlots plagued by infectious diseases, pathogens, bacteria, viruses and welfare problems. Yet unsuspecting consumers are still being duped by the RSPCA Assured welfare-friendly logo and 'responsibly sourced' deceptive marketing by supermarkets. Make it your New Year's resolution to boycott Scottish salmon and educate others about the horrors of factory fish farming. Friends don't let friends eat Scottish salmon! Please take the pledge not to eat farmed salmon."

The Scottish Government published new 'Case Information' on 19 December 2019 relating to inspections of salmon farms in October, September, August, May and February.

"Read and weep at the gruesome photos of unhealthy Scottish salmon," continued Staniford. "It's clear from Fish Health Inspectorate reports that farms are fast-tracking harvesting to hide mortality and welfare problems. Inspections by the Scottish Government are so woefully inadequate that some sites are not even visited let alone salmon samples and photos taken. In spite of the lax inspection regime, companies have been caught out failing to report mortalities, lice loads and chemical use. It beggars belief that Mowi has breached biosecurity by moving virus-laden salmon between sites. The Scottish Government must tighten the net and conduct immediate and unannounced inspections of all salmon farms - targeting sites in the second year of production when problems become more pronounced."

Contact:

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Summary: 'Case Information' published online on 19 December 2019

Mowi - Port na Cro: *Pasteurella skyensis*, Anaemia & lice loads of 20 causing head damage

Scottish Sea Farms - Knock: 127,810 mortalities due to fungus but not reported to FHI
FAI Aquaculture - Aultbea: 110,000 lumpfish morts out of 147,471 input (75% mortality)
The Scottish Salmon Company - Taranaish: 39,460 morts due to Peroxide treatment
Mowi - Poll na Gille: Lice loads of 15 with 80,000+ mortalities (*Pasteurella skyensis*)
Mowi - Bagh Dail na Ceann: 100,000+ lumpfish mortalities (crator disease cited as cause)
Mowi - Loch Ainort: PRV (HSMI), PMCV (CMS), Paranucleospora, Anaemia and Yersinia
Mowi - Camas Glas: 120,000+ mortalities (*Pasteurella skyensis*, CMS & AGD)

Scottish Sea Farms - Kishorn: Lice load of 50 with "red and white head lice damage"
Grieg - Bight of Foraness: Azamethiphos treatment caused 7,183 morts
Cooke - Flaeshins: 5,000+ morts due to a Thermolicer treatment not reported to FHI
Cooke - Cliff: 14,270 morts due to Bacterial Kidney Disease and fungal lesions
Kames - Loch Avich: 75,000+ morts (Furunculosis, Salmon Gill Poxvirus & Saprolegnia)
Kames - Loch nan Losghainn Mhor: Septicaemia, Furunculosis and use of Oxytetracycline
The Scottish Salmon Company - Loch na Keal: Failed to carry out lice counts
Grieg - Olna South: Salmon Gill Poxvirus, AGD and Paranucleospora theridion
Grieg - Cole Deep: 100,000+ morts, Piscine Reovirus, AGD, bleeding gills and lesions

Loch Duart - Calva Bay: 25,000+ morts, AGD, Salmon Gill Poxvirus and early harvesting
Mowi - Loch Erisort - High cleaner fish mortality (*Pasteurella skyensis*) & antibiotics used
Mowi - Poll na Gille: Anaemia, HSMI, bleeding gills, lesions and haemorrhaging

NIRI - Machrihanish: Complaints from neighbours about the smell
JS Salmon - Allt Mhor: Missing mortality data & chemical data not available for inspection

For more detailed information please read **[2]** and Appendix: Fish Health Inspectorate 'Case Information' published on 19 December 2019

Media Backgrounder:

In November 2019, Scottish Salmon Watch launched a smoking hot campaign calling on supermarkets to introduce plain packaging for farmed salmon like the new packaging for cigarettes. Photos obtained via FOI and from the Fish Health Inspectorate were used.

Read more via Health Warnings for Farmed Salmon - Supermarkets Challenged to Introduce Plain Packaging Like Tobacco!

In November 2019, Mowi threatened legal action against Scottish Salmon Watch for filming at their disease-ridden salmon farm at Ardintoul in Loch Alsh 'Special Area of Conservation'.

In October 2019, Scottish Salmon Watch published photos of disease-ridden salmon at The Scottish Salmon Company's salmon farm at Maaey in the Outer Hebrides.

And of The Scottish Salmon Company's salmon farm at Maragay Mor in the Outer Hebrides.

In October 2019, Scottish Salmon Watch & The Ferret revealed how Scottish Government officials and salmon farming companies (including their lawyers) desperately attempted to block publication of damning photos of diseased farmed salmon but were ultimately undone by FOI and EU laws which forced disclosure.

Photos: Scottish salmon from Mowi's Stulaigh Island farm in Loch Eynort

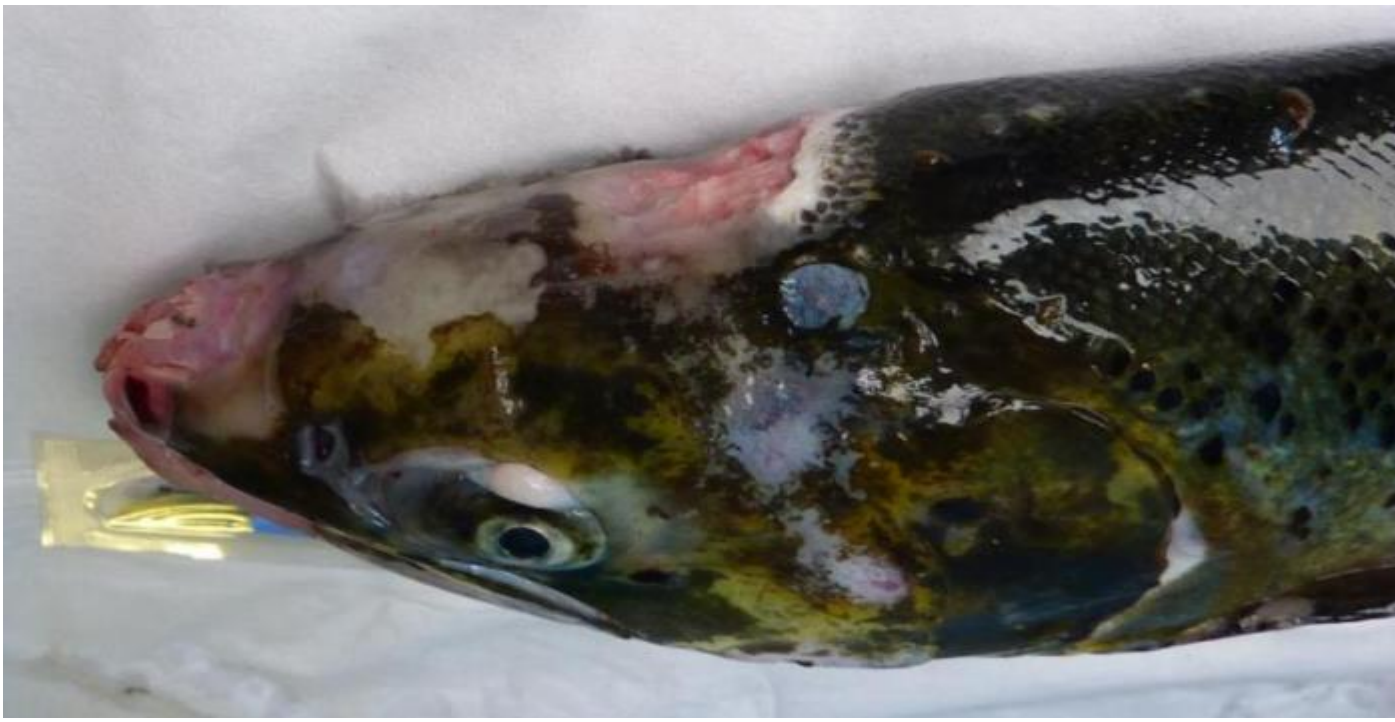
In September 2019, Mowi boats threatened Scottish Salmon Watch whilst filming and sampling at salmon farms at Port na Cro, South West Shuna and Poll na Gille in the Sound of Jura/Shuna Sound.

In September 2019, Scottish Salmon Watch published shocking photos and 'Case Information' from Mowi's salmon farm on the Isle of Rum.

And Grieg Seafood's salmon farm at North Papa in Shetland:

And [The Scottish Salmon Company's in Strondoir Bay in Loch Fyne.]

Additional comments:
F1 matured male in poor condition, fins very damaged. Damage to the head and snout. 18 lice of different stages observed. F2 with damage to the eyes and some damage to the snout. F3 damage to fins and head. Matured male. F4 dorsal fin reduced to cartilidge, caudal fins severely damaged. Damage to snout. F5 mature male in general good condition. Some fin damage but not significant. Damage to snout.



In July 2019, Scottish Salmon Watch uncovered diseased and deformed 'cleaner fish' floating dead and dying on the surface of Mowi's salmon farm at Bagh Dail nan Ceann (Bay of the Dead Heads) leading to an inspection by the Animal & Plant Health Agency and an admission by Mowi in October 2019 of welfare problems and mass mortalities.

In June 2019, shocking video footage of welfare abuse at The Scottish Salmon Company's Aird salmon farm in Loch Shieldaig was broadcast by STV News and prompted an inspection by Marine Scotland and the Animal & Plant Health Agency.

In March 2019, Scottish Salmon Watch published a report on 'The State of Scottish Salmon Farming in 2018'.

Read more via:
Press Release: "Cleaning Tox-Sick Scottish Salmon"
Mowi's Nightmare Before Xmas - The Unlucky 13
Sunday National: "Salmon company Mowi rapped over fish welfare after 700,000 deaths"
EXPOSED: Photo Disclosures Opens Floodgates to More Diseased & Deformed Salmon
Revealed: Mowi's Nightmare in Loch Linnhe - 55% Mortality & Infectious Diseases
Maaey Day for The Scottish Salmon Company
Video Nasty: Thermolicer - the Heated Torture Chamber for Scottish Salmon
Welfare Abuse at Scottish Salmon Farms - Why No Legal Enforcement Or Prosecutions?
Sick Scottish Salmon - Are Farms Spreading Infectious Diseases, Pathogens & Viruses to Wild Fish?
The Severely Damaged Scottish Salmon Company - For Sale Now!
Meet Pop-Eye the Scottish Salmon - Tortured by an Optilicer!
Cardiac Disease Arrests Mowi in Kingairloch
Mowi's Welfare Nightmare on Rum - "blind", "physical damage", "anorexic" & over 40,000 dead fish!
Mmmm Blind Scottish Salmon with Boils Anyone?
New Report - "The State of Scottish Salmon Farming in 2018"
REVEALED: Legal Threats to Prevent Publication of Damning Photographs
FOI Dossier: Photographs of Diseased & Deformed Scottish Salmon - Scottish Government
Hard Evidence: Photos of Diseased & Deformed Scottish Salmon (August 2018)
Legal Complaint Vs Breaches of Animal Health & Welfare (Scotland) Act
Horror photos of farmed salmon spark legal threat
EXPOSED: Gruesome Photos of Deformed & Diseased Scottish Salmon
EXPOSED: Early Harvesting at Scottish Salmon Farms Due to Disease & Mortalities

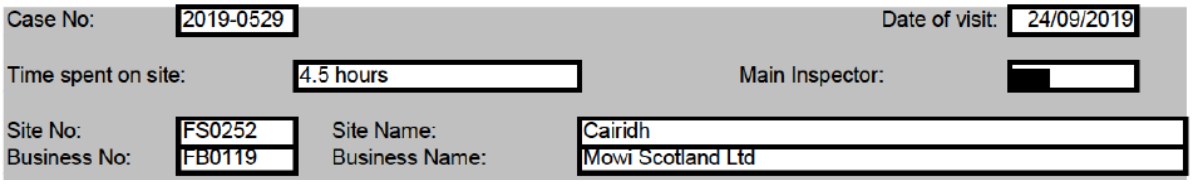
Notes to Editors:

[1] Read more via [Disease-Ridden Mowi Revealed as Source of A86 Roadspill in September](#)

[Mowi - Cairidh (Loch Ainort, Isle of Skye): 24 September 2019](#)

[Cases 20190508-20190530](#)

p103 via https://www2.gov.scot/Resource/0054/00549126.pdf



Additional Case Information:

Previous cycle fallow date - 18/08/19, site was then stocked with fish from Rum 21/08/19 - 31/08/19. As the site was not fallow for a minimum period of 4 weeks as recommended in the Scottish finfish Aquaculture Code of Good Practice (CoGP), the site has been listed as practices not in accordance with the CoGP in the surveillance frequency section of this case sheet.

Risk assessment (RA) in place for the movement of 206,000 salmon from Rum to Cairidh (between management areas, RA stated that lice levels were low and no signs of AGD. Confirmed presence of PRV (HSMI), PCMV (CMS), Paranucleospora and Yersinia, however these were not leading in clinical signs in fish prior to transfer. RA states previous stock at Cairidh was of a similar or lesser disease status. RA notes Cairidh is in a farm management area with 4 sites, two of which are stocked, no reference given to the health status of the fish stocked on those sites.

Prior to inspection of the site, FHI were made aware that mortality waste from Cairidh, had been spilled on the A86 (near Wolftrax) during transport of waste to Dundas Chemicals in a Gogar services vehicle. Mowi had requested a documented incident investigation to be carried out by Gogar Services, a documented report was sent to Mowi on 24/09/19 and was made available for inspection. Document stated the spill of fish was caused by the driver braking hard having attempted to overtake cyclists when oncoming traffic required the driver to brake sharply. Fish spilled from the trailer over the front of the vehicle. Gogar Services sent a clean-up team to the incident location. Spilled fish were cleared from the road and then loaded into a sealed skip. Road surface was cleaned with degreaser agent and water. BEAR Scotland then laid down approx 7 tonnes of salt over the spill area of the road. Some fish remained at the side of the road, due to poor light the clean-up resumed the following day using a liquid ring tanker to suck up the fish from the side of the road. All fish waste material was then taken to Dundas Chemicals for disposal. SEPA attended incident site and were satisfied no waste would have entered any watercourse. Following the incident Gogar has stated that all trailers used for transporting mortality waste will be fitted with splash plates at the front and back of trailers. Plates will be made from aluminium sheets which will extend four feet back over the top of the load area, the intention is that any wash from heavy braking will be directed back into the load area. APHA and Mowi have reviewed the actions as satisfactory.

Recent (last 4 wks) disease problems?	Y
If yes, detail:	CMS, anaemia

Mortality Records	
1. Mortality records available for inspection?	Y
2. How are mortalities disposed of?	Whole fish - Dundas Chemicals
If other detail:	
3. Mortality records complete and correctly entered?	Y
4. Recent mortality (last 4 wks):	11433 across site, 7818 attributed to anaemia, the remainder attributed to physical damage or unknown cause.
5. Evidence of recent increased/atypical mortalities?	Y
If yes, facility nos/no mortality per facility/no stock per facility/reason:	
w/b 02/09/2019 - 4654 (3.36%), 09/09/2019 - 5398 (4.03%), w/b 16/09/19 - 217 (1.18%)	
6. Any other peaks in mortality during period checked?	Y
If yes, detail:	w/b 29/07/19 1.55% , w/b 05/08/19 1.55% attributed to CMS.
7. Have increased (unexplained) mortalities been reported to vet or FHI?	Y
If yes, detail action:	Reported to FHI
8. Have 'mortality events' been reported to FHI? If no, add MRT case and enter on mortality events sheet.	Y

1. Recent treatments (last 4 wks)?	Y
If yes, detail:	T.M.S., Salmosan
If other, detail:	
2. Medicines records available for inspection?	Y
3. Are records complete and correctly entered?	Y
4. Are fish in a withdrawal period?	Y
5. If yes, what treatment(s)?	T.M.S.

8. Have the biosecurity procedures been adequately implemented on site?	N
If no, detail:	BMP states pens and equipment to be disinfected during fallow period prior to restocking, this did not take place in period between previous and current cycles.

[2] 'Case Information' published online on 19 December 2019 by the Fish Health Inspectorate includes (most recent inspections first - other inspections including November & December will be posted online here):

The Scottish Salmon Company - Taranaish (Loch Roag, Isle of Lewis): 30 October 2019

"Post treatment mortality, worst in [cages] 9,11,10, 14. Peroxide treatment, 39,460 (4.37%) fish lost".

"Amoebic Gill Disease present in low levels".

"Medium to heavy fouling on some of the nets. Net cleaner currently on site making its way around all the cages".

Mortalities disposed of at Whiteshore Cockles.

[Video footage of mort disposal at Whiteshore Cockles - as broadcast by the BBC One Show - is available online here via Corin Smith]

Mowi - Port na Cro (Shuna Sound): 23 October 2019

"Anaemia, suspected *Pasteurella skyensis*". "Bacteria present in stock on site, likely *Pasteurella skyensis*, however mortality most likely a result of anaemia".

14,173 mortalities (5.62%) during Week Beginning 14/10/19 and 6,062 mortalities (2.4%) Week Beginning 7/10/19. "Recent increase in mortality attributed to anaemia and suspected *Pasteurella skyensis* infection. Both remaining stocked cages affected".

Additional comments:

F1 and F3 - sea lice damage on head. F1 - heart had fluid filled sac attached. F4 - melanisation of swin bladder and gut.

"Hydrolicer treatments carried out 16-18 and 28-29 September".

Date of visit: 23/10/2019 Inspector(s): [redacted]

S for strong presence: M for medium presence: W for weak presence

Fish Number		F1	F2	F3	F4	F5
Time sampled after death (if > 45 minutes)		90 min	90 mins	90 mins	90 mins	90 mins
External Signs						
Behaviour	Moribund					
	Lethargic	S	S	S	S	S
Gills	Pale	M	M	M	M	M
Lice Load	Estimate numbers	~20	~20	~20	~20	~20
Internal Signs						
Ascites	Clear		M		M	
	Bloody					
Oedema	In tissues					
Heart	Pale/anaemic	M	M	M	M	M
	Granulomas					
	Deformed	W				
Liver	Petechial haem			W		W

"Site currently harvesting out, due to be fallow by end of October".

marinescotland science

Scottish Government
Riaghaltas na h-Alba
gov.scot

[redacted]
Mowi Scotland Ltd
Stob Ban House
Glen Nevis Business Park
Fort William
PH33 6RX
[redacted]

FISH HEALTH INSPECTORATE VISIT REPORT

SUMMARY FOR INFORMATION OF SITE OPERATOR

Business No	FB0119	**Date of Visit**	23/10/2019
Site No	FS0859	**Site Name**	Port Na Cro
Inspector	[redacted]	**Case No**	20190625

Section 1: Summary Section 1: Summary

The above site was inspected following a report of increased mortality by the business. During the inspection a number of lethargic fish were observed in all cages on site. Five fish were removed for further examination and subsequent sampling.

Histopathology examination revealed mild multifactorial gill pathology and multifocal hepatic necrosis. Nephrosis and splenitis were also noted. These lesions are likely associated with the isolation of Pasteurella skyensis. The presence of *Pasteurella skyensis* was confirmed by bacterial isolation and molecular genetic speciation, the level and purity suggest this bacterium would be implicated in fish morbidity. *Moritella viscosa* and *Vibrio* sp. were also identified.

Due to gill health issues observed on site, samples were screened for amoebic gill disease, salmon gill poxvirus and *Paranucleospora theridion* (syn, *Desmozoon lepeophtherii*). Samples tested positive for all three pathogens.

External examination showed pale gills in all five fish. Haemorrhaging of the ventrum was observed on fish 3 and 5, and fish 2 had a distended abdomen. All five fish had an approximate sea lice load of 20 (all stages).

Internal examination showed pale hearts in all five fish, the heart of fish 1 also appeared deformed with fluid present in the sinus venosus. Clear ascites was present in the body cavity of fish 2 and 4, the kidney of both fish also appeared granular. Petechial haemorrhaging of the liver, pyloric caeca and body wall was observed in fish 3 and 5, fish 5 also displayed petechial haemorrhaging of the swim bladder, in which fluid was also present. Fish 1 and 5 had enlarged spleens and granulomas were present in the spleen of fish 3.

Mowi - Poll na Gille (Sound of Jura): 23 October 2019

70,000+ mortalities in October 2019 (10.11%) and 11,000+ mortalities in September 2019 with "increased mortality attributed to a combination of complex gill disease, anaemia and suspected *Pasteurella skyensis*, all cages affected".

"External examination showed pale gills in all five fish, there was an estimated lice load of 15 (all stages) on all five fish".

Lice Load	Estimate numbers	~15	~15	~15	~15	~15

"Anaemia, complex gill disease, suspected *Pasteurella skyensis*, Cardiomyopathy Syndrome".

Positive tests for Amoebic Gill Disease, Salmon Gill Poxvirus and *Paranucleospora theridion* (syn, *Desmozoon lepeophtherii*) and *Vibrio sp*.

Salmon gillpox virus (SGPV)

Fish Number	Endogenous control Cp value	Cp Values			Reported Result (PCR)
F2	21.39	32.81	32.81	32.79	POSITIVE
F3	21.28	>40	38.29	>40	POSITIVE
F4	21.02	>40	38.55	>40	POSITIVE

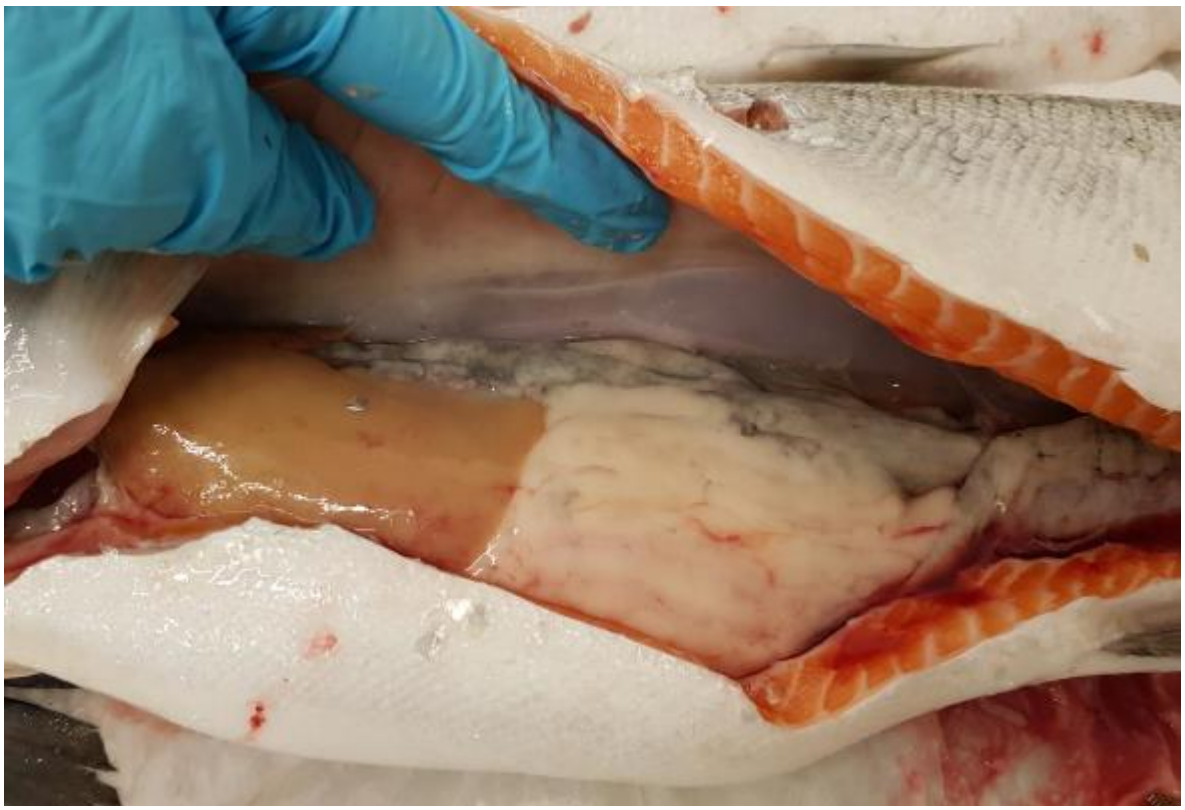
Neoparamoeba perurans (AGD)

Fish Number	Endogenous control Cp value	Cp Values			Reported Result (PCR)
F1	21.24	33.78	34.49	34.00	POSITIVE
F2	21.39	31.96	31.94	31.91	POSITIVE
F3	21.28	33.94	34.20	34.52	POSITIVE
F4	21.02	33.12	33.10	33.09	POSITIVE
F5	20.76	32.45	32.43	32.09	POSITIVE

Paranucleospora theridion

Fish Number	Endogenous control Cp value	Cp Values			Reported Result (PCR)
F1	21.24	36.17	35.80	35.93	POSITIVE
F2	21.39	32.47	32.21	31.99	POSITIVE
F3	21.28	33.18	32.85	33.34	POSITIVE
F4	21.02	30.16	30.42	30.06	POSITIVE
F5	20.76	30.91	30.55	30.83	POSITIVE

"Internal examination showed pale hearts, pale livers and the presence of clear ascites in all five fish. Granulomas were observed in the spleen of fish 2-5, and in the kidney of fish 3 and 5. Fluid was observed in the swim bladder of fish 4-5. Petechial haemorrhaging of the liver and pyloric caeca as well as presence of yellow pseudo-faeces in the gut was noted in fish 5".



"Site inspected following report of increased mortality by business. Site is being harvested out and it due to be fallow by the end of October".

"Several lethargic fish observed in all stocked cages on site, some with visible sea lice damage".

"Hydrolicer treatment 3-7 October. Salmosan [Azamethiphos] treatment carried out 15-20 October".

Kames Fish Farming - Loch nan Losghainn Mhor (Argyll): 23 October 2019

2,000+ mortalities (30%) in September 2019.

Veterinary visits conducted with "suggested bacterial septicaemia", "suggested Furunculosis". "skin haemorrhages and changes in internal organs associated with bacterial septicaemia".

The antibiotic Oxytetracycline (Aquatet) used from 22 September until 1 October 2019 in "all cages for Furunculosis".

Mowi - Camas Glas (Loch Sunart): 22 October 2019

Pasteurella skyensis, Cardiomyopathy Syndrome, Amoebic Gill Disease and *Vibrio sp.* reported. "Mortalities attributed to *Pasteurella skyensis*".

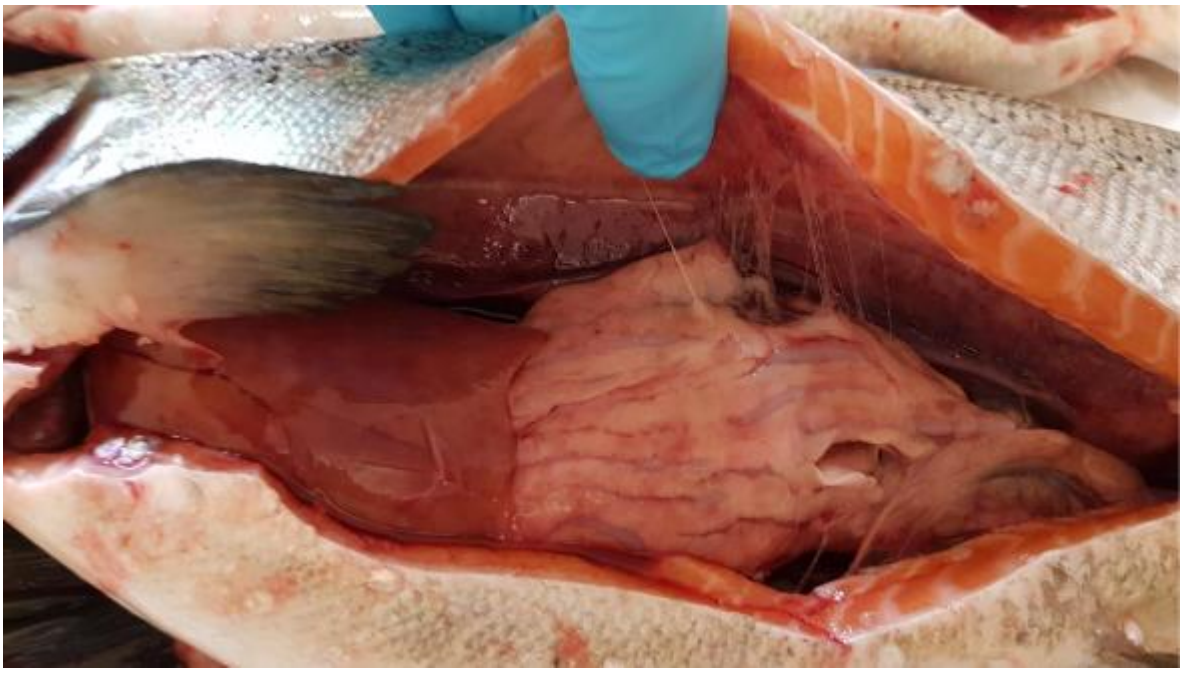
17,194 (2.58%) mortalities in Week Beginning 30/9/19; 75,827 (10.38%) mortalities in Week Beginning 7/10/19 and 35,340 (3.44%) in Week Beginning 14/10/19.

"Site inspected following report of increased mortality from business.....Worst affected cages have been harvested out".

"Cages 2,3,4,5,6,7 and 8 worst affected by mortality in recent weeks....All those cages have been harvested out and are now fallow as of 18/10/19".

"Remaining stocked cages on site are being treated with antibiotic (Aquatet).....Vets attended site, antibiotic prescribed [Oxytetracycline]".

"Several lethargic fish observed in Cage 1 removed for diagnostic sampling....Internal examination showed pale hearts, pale livers and yellow pseudo faeces present in the gut in all five fish. Enlarged spleen and haemorrhaging of the swim bladder was observed in fish 2-5."



Grieg Seafood - Bight of Foraness (Shetland): 17 October 2019

"Site is currently treating for sea lice. Using an Optilicer and a fresh water well boat. Some trouble has been encountered with the fresh water well boat. Strong tides make the site dangerous to work on when the barge is tied up to the cages.

"Sea lice levels went over the reporting threshold Week Beginning 9/10/19 - 2.28 average adult females and Week Beginning 16/10/19 - 2.90 average adult females".

"In Week Beginning 23/9/19 a Salmosan [Azamethiphos] treatment in pen 10 caused the site mortality to rise above the reporting threshold (7,183 - 1.36%)".

"Salmosan treatment - fish started to turn towards the end of the treatment. Treatment finished early".

"Sea lice numbers increasing. Treatment planned".

Cooke Aquaculture - Flaeshins (Shetland): 16 October 2019

"Mortality event in Week 18 2019 (1.06%) was not reported to FHI - event was due to post treatment mortality following a Thermolicer treatment".

"Mortality levels had exceeded the reporting criteria since the last inspection and had not been reported to the Fish Health Inspectorate. I would like to remind you of the industry agreement in relation to mortality reporting as detailed in A Code of Good Practice for Scottish Finfish Aquaculture."

5,414 mortalities due to Thermolicer treatment and 6,000+ mortalities in last 4 weeks ("company vet contacted" and "CMS pathology observed by company biologist").

"Fish on site showing pathology of Cardiomyopathy Syndrome. Grumbling mortality due to size of fish with CMS complication. Site is currently being harvested out."

Cooke Aquaculture - Cliff Site (Shetland): 15 October 2019

"Fish arrived on site [from Cairndow in Argyll)] 6/8/19 with Bacterial Gill Disease and fungus issues. The decision was made after enduring significant mortality in Week Beginning 16/09/19 to cull the remaining stock received from Cairndow".

14,270 mortalities reported in Week 38 (3.99%).

"Fungal lesions" reported.

"Unannounced inspection was conducted, this was carried out in response to an anonymous complaint made to the FHI that morts were being dumped on the shore of the loch in which Cliff Site is located".

Kames Fish Farming - Loch Avich (Argyll): 9 October 2019

18,477 mortalities in Week 38 (5.77%); 22,827 mortalities in Week 39 (7.13%) and 33,571 mortalities in Week 40 (12.6%).

Positive for Furunculosis (*Aeromonas spp*), Salmon Gill Poxvirus, a bacterium from the Enterobacteriaceae family and *Flavobacterium psychrophilum*.

Fish Veterinary Group "reported haemorrhaging in different organs, including the gills" with internal lesions.

Formalin treatment for Saprolegnia: "Fish showing clear signs of Saprolegnia. Some fish also noted to have haemorrhaging at the vents and on the throat".

Aquatet (Oxytetracycline) prescribed by Fish Veterinary Group.

The Scottish Salmon Company - Geasgill (Loch na Keal, Isle of Mull): 3 October 2019

"Site staff unable to carry out lice count week beginning 23/9 due to increased mortality".

25,000 mortalities in September 2019 (Amoebic Gill Disease confirmed).

"Reasons for not carrying out count not recorded. Site manager advised of requirement to record reasons for not carrying out a sea lice count".

"Average adult female lice counts above Code of Good Practice suggested criteria for treatment".

The Scottish Salmon Company - Inch Kenneth (Loch na Keal, Isle of Mull): 3 October 2019

"Site staff unable to carry out lice count week beginning 23/9 due to increased mortality".

"Reasons for not carrying out count not recorded. Site manager advised of requirement to record reasons for not carrying out a sea lice count".

"Average adult female lice counts above Code of Good Practice suggested criteria for treatment".

Amoebic Gill Disease confirmed.

Scottish Sea Farms - Knock Hatchery (Isle of Mull): 2 October 2019

127,810 mortalities due to fungus.

"Fish affected by fungus sent out to sea sites on veterinary advice".

Mortality levels not reported (in breach of the SSPO's Code of Good Practice).

Mowi - Bagh Dail nan Ceann (Sound of Jura): 30 September 2019

"Doesn't appear that morts have slowed down yet. Harvesting plan in place to empty site".

Recent (last 4 wks) disease problems?	Y
If yes, detail:	Confirmed P.skyensis on site. Mass mortality.

"Outside pens affected worse than inside pens".

"Morts are being transported to Denmark - to be used as biofuel".

BDNC had both Wrasse and Lumpsucker fish on site.

Cleanerfish mortality

2nd-8th September - Wrasse -1.29%/462 Lumpfish - 2.8%/440
9th-15th September - Wrasse - 196 - 0.49% - Lumpfish - 221 - 1.45%
16th - 22nd September - Wrasse - 286 - 0.72% Lumpfish - 208 - 1.38%
23rd - 29th September - Wrasse - 148 - 0.38% Lumpfish - 106 - 0.71%

All cleanerfish on site will be culled as the site is harvested out.

Mortality Records	
1. Mortality records available for inspection?	Y
2. How are mortalities disposed of?	Ensiled - on site
If other detail:	Norwegian equiped with on-board ensiler. Three other boats are removing morts are storing them on the Norwegian boat.
3. Mortality records complete and correctly entered?	Y
4. Recent mortality (last 4 wks):	2nd-8th (4240 0.56%) 9th-15th(10651 - 1.35%)16th-22nd(27866 - 3.68%) 23rd-29th - (74060 - 17.05%)
5. Evidence of recent increased/atypical mortalities?	Y
If yes, facility nos/no mortality per facility/no stock per facility/reason:	
pen 10 was first affected - followed by pen 6	
6. Any other peaks in mortality during period checked?	N
If yes, detail:	
7. Have increased (unexplained) mortalities been reported to vet or FHI?	Y
If yes, detail action:	Vet has been on site, reported to FHI, FHI visited
8. Have 'mortality events' been reported to FHI? If no, add MRT case and enter on mortality events sheet.	Y

Results of Surveillance	
1. Has any animal health surveillance been carried out by, or on behalf of, the business?	Y
2. If yes, are results available for inspection?	Y
3. Any significant results?	Y
If yes, detail (if not detailed under recent disease problems).	see notes
17/9/19 Patogen report PCR results Pasteurella skyensis 2/3, CMS 1/3, PRV 3/3; Clinical signs of bacterial infection observed and samples taken.	

Case no:	2019-0560		Site No:	FS0805			
Date of visit:	30/09/2019		Inspector(s):	[redacted]			
S for strong presence: **M** for medium presence: **W** for weak presence							
Fish Number		**1**	**2**	**3**	**4**	**5**	
Time sampled after death (if > 45 minutes)							
External Signs							
Behaviour	**Moribund**	**S**	**S**	**S**	**S**	**S**	
	Lethargic	**S**	**S**	**S**	**S**	**S**	

Additional comments:

F4 haemorrhaging on hind gut. Membrane between body cavity and kidney on all fish was very swollen and thick.

Section 2: Case Detail

Observations

Following mortality above the reporting threshold reported to the FHI on the 20/09/2019. The site confirmed that mortality had more than doubled from the previous week and that *Pasteurella skyensis* had been identified on site. When inspectors attended on the 30/09/2019 the site was being harvested out. The week previous had seen 74,060 (17.05%) mortality loss, attributed to environmental insult and *Pasteurella skyensis*.

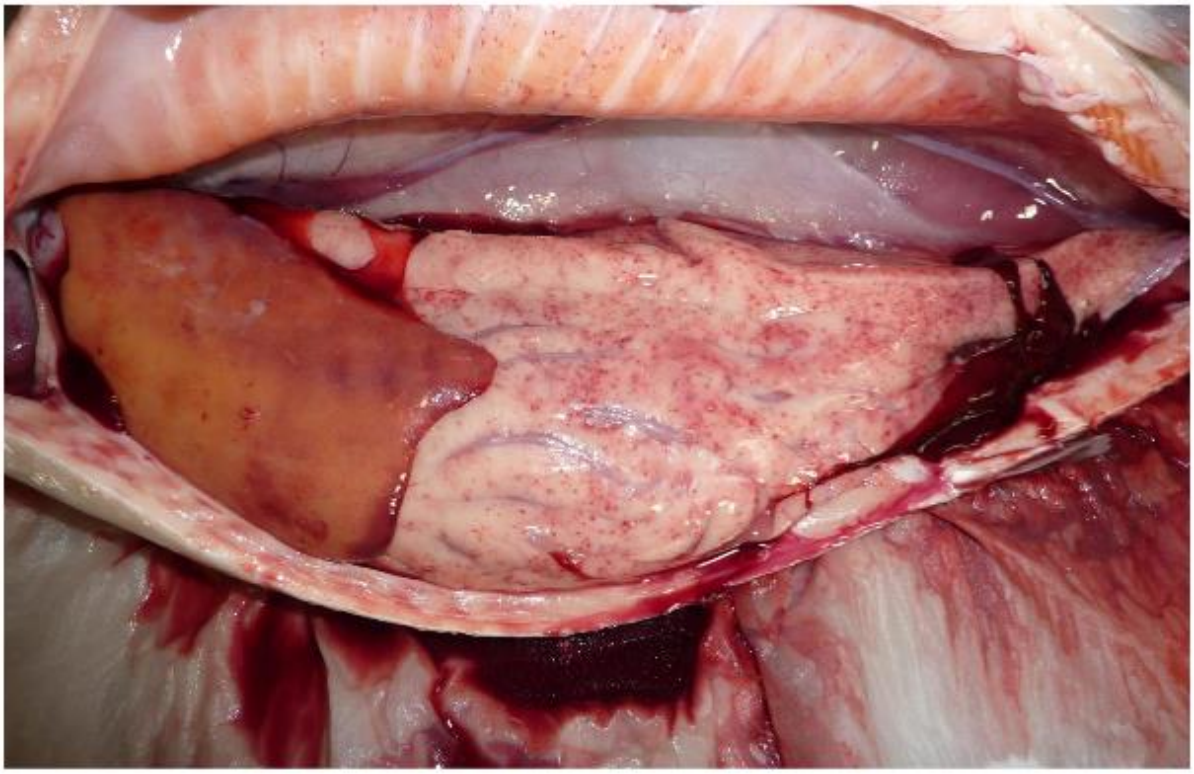
Severally moribund and lethargic fish were observed in most pens and five were removed for diagnostic sampling.

Externally the fish looked very healthy, with no visible lice burden and a good weight and size for the age of fish. Fish 4 and 5 had some haemorrhaging around the ventrum and all five fish showed zoning of the gills.

Internally F1 had a large amount of bloody ascites in the body cavity and F3 had strong petechial haemorrhaging of the liver and a medium amount of petechial haemorrhaging on the pyloric caeca. F3 and 4 had enlarged spleens. All five fish had yellow pseudo faeces present in the hind gut. F3 had external haemorrhaging on the gut wall. All five fish showed haemorrhaging of the body wall and the kidney in F3 appeared grey.

Grieg Seafood - Olna South (Shetland): 30 September 2019

20190568 – Olna South



Fish 1 – Haemorrhaging across pyloric caeca fat and bloody ascites

Additional Case Information:
Site inspected following notification from operator of increased mortality levels for previous week while at shorebase to inspect Cole Deep. Mortality level increased to 1.62% for the site.
Have just started harvesting site and should be complete by mid October. Cage with highest mortality level last week (cage 2) has been harvested.

Salmon gill poxvirus (SGPV)

Fish Number	Endogenous control Cp value	Cp Values			Reported Result (PCR)
F1	21.58	33.97	34.0	35.98	Positive

Neoparamoeba perurans (AGD)

Fish Number	Endogenous control Cp value	Cp Values			Reported Result (PCR)
F1	21.58	34.86	34.94	35.86	Positive

Paranucleospora theridion

Fish Number	Endogenous control Cp value	Cp Values			Reported Result (PCR)
F1	21.58	33.02	33.09	34.64	Positive

Grieg Seafood - Cole Deep (Shetland): 30 September 2019

2019-0558 Cole Deep

Fish 1 – lesions and abrasions on flank

Additional Case Information:

Site inspected following notification from operator of increased mortality levels. Mortality levels began to increase in cage 11 at the end of August. Cage 7 has been worst affected cage, losing 23,992 fish from 2-30/9/19 (46%). Total loss on site from 2-30/9/19 has been 100,423 (18%). Three cages (2, 5 and 12) seem to be unaffected with mortality levels low over September (only 0.43% in cage 12). Mortality levels decreased slightly last week.

Slice used on site for lice. Planning Salmosan/peroxide treatment in tarpaulins for site later this week.
Samples taken last week showed significant mixed gill pathology, probably post acute response to direct waterborne irritant (likely environmental, possibly harmful algae). There was also evidence of AGD, Branchiomonas colonies and suspicion of Desmozoon lepeophtherii . Have had positive PCR samples for PRV.
Due to start harvesting here once completed at Olna South, but company currently discussing whether to bring harvest forward and use the Norwegian Gannet which will allow them to harvest 5-6 cages in one load.

Recent (last 4 wks) disease problems?	Y
If yes, detail:	gill issues - AGD, bleeding gills

Mortality Records	
1. Mortality records available for inspection?	Y
2. How are mortalities disposed of?	Whole fish - TWMA (Shetland)
If other detail:	
3. Mortality records complete and correctly entered?	Y
4. Recent mortality (last 4 wks):	w/b 2/9/19 = 9,247 (1.72%), w/b 9/9/19 = 16,187 (3.06%), w/b 16/9/19 = 44,275 (8.64%), w/b 23/9/19 = 29,466 (6.3%)
5. Evidence of recent increased/atypical mortalities?	Y
If yes, facility nos/no mortality per facility/no stock per facility/reason:	
Cages 3, 4, 6, 7, 8, 9, 10 and 11. Range from 9.8% to 46.2% from 2/9/19 to 30/9/19.	
6. Any other peaks in mortality during period checked?	Y
If yes, detail:	Increased mortality in cage 2 in July 2019 following a freshwater treatment (11,667 for whole month).
7. Have increased (unexplained) mortalities been reported to vet or FHI?	Y
If yes, detail action:	Increased surveillance, aeration in cages and looking at harvesting
8. Have 'mortality events' been reported to FHI? If no, add MRT case and enter on mortality events sheet.	Y

Additional comments:

Fish 4 & 5 - melanisation on pyloric caeca fat
Fish 2 - redness on flank
Fish 1 - abrasions/lesions on both flanks
Fish 4 - a few white patches on gills
Fish 5 - a few white patches on gills and gill damage

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Riaghaltas na h-Alb
gov.scot

[redacted]
Grieg Seafood Shetland Ltd
Gremista
Lerwick
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[redacted]

FISH HEALTH INSPECTORATE VISIT REPORT

SUMMARY FOR INFORMATION OF SITE OPERATOR

BUSINESS NO	FB0440	**DATE OF VISIT**	30/09/2019
SITE NO	FS0489	**SITE NAME**	Cole Deep
INSPECTOR	[redacted]	**CASE NO**	20190558

Section 1: Summary

The above site was inspected following a report from the company of a recent increase in mortality. During the inspection several lethargic fish were observed across the site and six fish were removed for further examination and subsequent diagnostic sampling.

Histopathology examination revealed multifactorial gill pathology which included the presence of amoebic cells suggestive of amoebic gill disease. Samples tested positive by QPCR for *Neoparamoeba perurans*. Apoptotic cells consistent with the presence of salmon gill poxvirus were observed and samples tested positive by QPCR for salmon gill poxvirus. Epitheliocystis was observed and marked bacterial branchitis was displayed by fish 5. Mild hepatic necrosis was also noted by histology.

Due to the gill health issues reported on site, samples were screened for *Paranucleospora theridion* (syn, *Desmozoon lepeophtherii*) by QPCR. Samples tested positive for this pathogen.

A sample tested positive by QPCR for infectious pancreatic necrosis virus (IPNV), however histopathology results were not consistent with IPN disease.

Vibrio spp. and a *Carnobacterium* sp. were isolated. The level and purity of growth would not suggest these bacteria are implicated in current fish morbidity.

Section 2: Case Detail

Observations

The above site was inspected following a report from the company of a recent increase in mortality. The site was stocked with 437,123 2018 S0 Atlantic salmon at 2.76 kg average weight.

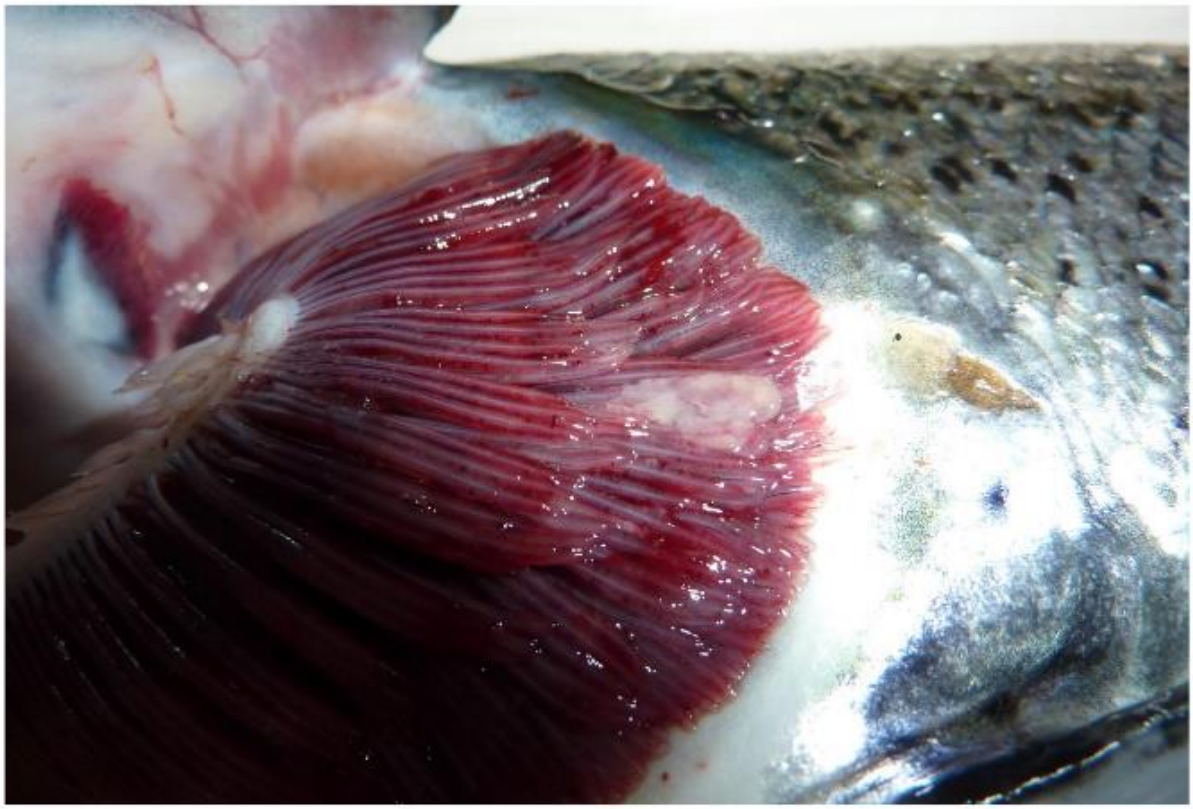
Mortality levels had increased and the site mortality levels for the previous four weeks were 1.72% in week 36, 3.06% in week 37, 8.64% in week 38 and 6.3% in week 39. Stock in some cages had experienced significantly higher mortality levels with the worst affected cage losing 46.2% of fish over the four week period.

There had been a plankton bloom in August which had affected all of the sites in the area. Fish samples taken at the end of September showed significant mixed gill pathology, with probably a post-acute response to a waterborne irritant (likely environmental, possibly harmful algae).

Several lethargic fish were observed across the site. Six fish (five lethargic and one active) were removed for further examination and subsequent diagnostic sampling.

Externally fish 1 had lesions and abrasions on both flanks and pale gills. Fish 4 had white patches on its gills and was anorexic with dark body colour. Fish 5 also had white patches on its gills along with further gross gill damage and dark body colour.

Internally fish 1, 2, 4 and 5 had yellow pseudo-faeces in their guts. Fish 4 had clear ascites in the body cavity. Fish 4 and 5 had displayed melanisation of the pyloric caeca fat.



Fish 4 - gills

Mowi - Sconser Quarry (Isle of Skye): 25 September 2019

Recent (last 4 wks) disease problems?	Y
If yes, detail:	AGD, PGD

Mortality Records	
1. Mortality records available for inspection?	Y
2. How are mortalities disposed of?	Whole fish - Dundas Chemicals
If other detail:	
3. Mortality records complete and correctly entered?	Y
4. Recent mortality (last 4 wks):	26/08/2019 - 1240 (0.82%), w/b 02/09/2019 - 2147 (1.51%), w/b 09/09/2019 - 903 (0.64%), w/b 16/09/2019 - 650 (0.65%)
5. Evidence of recent increased/atypical mortalities?	Y
If yes, facility nos/no mortality per facility/no stock per facility/reason:	
w/b 02/09/2019 -2147 (1.51%), 1593 attributed to post treatment losses from optilicer treatment.	
6. Any other peaks in mortality during period checked?	N
If yes, detail:	
7. Have increased (unexplained) mortalities been reported to vet or FHI?	Y
If yes, detail action:	Reported to FHI
8. Have 'mortality events' been reported to FHI? If no, add MRT case and enter on mortality events sheet.	Y

8. Have average adult female sea lice (*L. salmonis*) numbers per fish been at a level of 3 or above (prior to w/b 10/6/19) or 2 or above (from w/b 10/6/19) during the period that records are inspected?	Y
If yes, have these been reported to the Fish Health Inspectorate? If no, FHI see comment.	Y

Mowi - Cairidh (Loch Ainort, Isle of Skye): 24 September 2019

Additional Case Information:

Previous cycle fallow date - 18/08/19, site was then stocked with fish from Rum 21/08/19 - 31/08/19. As the site was not fallow for a minimum period of 4 weeks as recommended in the Scottish finfish Aquaculture Code of Good Practice (CoGP), the site has been listed as practices not in accordance with the CoGP in the surveillance frequency section of this case sheet.

Risk assessment (RA) in place for the movement of 206,000 salmon from Rum to Cairidh (between management areas, RA stated that lice levels were low and no signs of AGD. Confirmed presence of PRV (HSMI), PCMV (CMS), Paranucleospora and Yersinia, however these were not leading in clinical signs in fish prior to transfer. RA states previous stock at Cairidh was of a similar or lesser disease status. RA notes Cairidh is in a farm management area with 4 sites, two of which are stocked, no reference given to the health status of the fish stocked on those sites.

Prior to inspection of the site, FHI were made aware that mortality waste from Cairidh, had been spilled on the A86 (near Wolftrax) during transport of waste to Dundas Chemicals in a Gogar services vehicle. Mowi had requested a documented incident investigation to be carried out by Gogar Services, a documented report was sent to Mowi on 24/09/19 and was made available for inspection. Document stated the spill of fish was caused by the driver braking hard having attempted to overtake cyclists when oncoming traffic required the driver to brake sharply. Fish spilled from the trailer over the front of the vehicle. Gogar Services sent a clean-up team to the incident location. Spilled fish were cleared from the road and then loaded into a sealed skip. Road surface was cleaned with degreaser agent and water. BEAR Scotland then laid down approx 7 tonnes of salt over the spill area of the road. Some fish remained at the side of the road, due to poor light the clean-up resumed the following day using a liquid ring tanker to suck up the fish from the side of the road. All fish waste material was then taken to Dundas Chemicals for disposal. SEPA attended incident site and were satisfied no waste would have entered any watercourse. Following the incident Gogar has stated that all trailers used for transporting mortality waste will be fitted with splash plates at the front and back of trailers. Plates will be made from aluminium sheets which will extend four feet back over the top of the load area, the intention is that any wash from heavy braking will be directed back into the load area. APHA and Mowi have reviewed the actions as satisfactory.

Recent (last 4 wks) disease problems?	Y
If yes, detail:	CMS, anaemia

Mortality Records	
1. Mortality records available for inspection?	Y
2. How are mortalities disposed of?	Whole fish - Dundas Chemicals
If other detail:	
3. Mortality records complete and correctly entered?	Y
4. Recent mortality (last 4 wks):	11433 across site, 7818 attributed to anaemia, the remainder attributed to physical damage or unknown cause.
5. Evidence of recent increased/atypical mortalities?	Y
If yes, facility nos/no mortality per facility/no stock per facility/reason:	
w/b 02/09/2019 - 4654 (3.36%), 09/09/2019 - 5398 (4.03%), w/b 16/09/19 - 217 (1.18%)	
6. Any other peaks in mortality during period checked?	Y
If yes, detail:	w/b 29/07/19 1.55% , w/b 05/08/19 1.55% attributed to CMS.
7. Have increased (unexplained) mortalities been reported to vet or FHI?	Y
If yes, detail action:	Reported to FHI
8. Have 'mortality events' been reported to FHI? If no, add MRT case and enter on mortality events sheet.	Y

1. Recent treatments (last 4 wks)?	Y
If yes, detail:	T.M.S., Salmosan
If other, detail:	
2. Medicines records available for inspection?	Y
3. Are records complete and correctly entered?	Y
4. Are fish in a withdrawal period?	Y
5. If yes, what treatment(s)?	T.M.S.

The biosecurity measures plan for the site was inspected and found to be inadequately implemented.

The following points were raised with the site representative during the inspection:

The biosecurity measures plan stated that pens and equipment are to be disinfected during fallow period prior to restocking, this did not take place in period between previous and current cycles. Site manager advised that biosecurity protocols should be followed as described in BMP. No further action required.

Watch video footage of the road spill in September 2019 online here

Read more via Disease-Ridden Mowi Revealed as Source of A86 Roadspill in September

Mowi - Poll na Gille (Sound of Jura); 19 September 2019

Additional Case Information:

Lump fish were culled over week 36 (11,733 - 27.59%)and 37 (27733 - 89.69%) during hydrolicer treatments, this was due to lumpfish not doing well in the pens and suffering from bacteria infection and poor gill health. There are only 3189 lumpfish left on the site.

Sea lice was recorded at being 2.5 adult females per fish in week 38 of 2019, this was reported to the FHI and was brought back down the following week after treatments using an optilicer.

During the inspection moribund salmon were observed in pens 9, 13 and 16. Fish were removed for diagnostic sampling.

Recent (last 4 wks) disease problems?	Y
If yes, detail:	Anaemia, HSMI

Mortality records complete and correctly entered?	Y
Recent mortality (last 4 wks):	wk37(27665 - 4.21%)wk36(9362 1.30%)wk35(5563 0.73%)wk34(1089 - 0.14%)
Evidence of recent increased/atypical mortalities?	Y

1. Recent treatments (last 4 wks)?	Y
If yes, detail:	Hydrogen peroxide Hydrolicer TMS
If other, detail:	
2. Medicines records available for inspection?	Y
3. Are records complete and correctly entered?	Y
4. Are fish in a withdrawal period?	Y
5. If yes, what treatment(s)?	TMS

Results of Surveillance

1. Has any animal health surveillance been carried out by, or on behalf of, the business?	Y
2. If yes, are results available for inspection?	Y
3. Any significant results?	Y

If yes, detail (if not detailed under recent disease problems). Bleeding gills observed during treatment

Some grazing damage from lice observed. Fish anaemia found from blood analysis. No AGD, PGD gill scores of 2-4 HSMI was confirmed on site in May, CMS was not detected.

Case no: 2019-0513 Site No: FS0629

Date of visit: 19/09/2019 Inspector(s): [redacted]

S for strong presence: **M** for medium presence: **W** for weak presence

Fish Number		1	2	3	4	5
Time sampled after death (if > 45 minutes)						
External Signs						
Behaviour	Moribund	W	W	W	W	W
	Lethargic	S	S	S	S	S
Gills	Pale			S		S
	Zoned					
	Necrotic			S		
Lesions	Flank	S	M		M	
	Elsewhere		M			W
Vent	Inflamed					
	Trailing faeces					
Lice Load	Estimate numbers	0	6	0	0	2
Internal Signs						
Ascites	Clear					
	Bloody					
Oedema	In tissues					
Heart	Pale/anaemic			W	W	W
	Granulomas	M	W			W
	Deformed	W	W	M	W	M
Liver	Petechial haem		W		W	

Case No: 2019-0513 Date of visit: 19/09/2019

Site No: FS0629 Inspector: [redacted]

Results Summary	Freq.	Date of Notification						
		Database	Insp	Phone	Insp	Writing	Insp	2nd Insp
MG AGD	5/5	01/10/2019	[redacted]	02/10/2019	[redacted]	09/10/2019	[redacted]	[redacted]
MG SAL POX	5/5	01/10/2019	[redacted]	02/10/2019	[redacted]	09/10/2019	[redacted]	[redacted]
MG PARA THER	5/5	01/10/2019	[redacted]	02/10/2019	[redacted]	09/10/2019	[redacted]	[redacted]
MG IHNQ	0/1	01/10/2019	[redacted]	02/10/2019	[redacted]	09/10/2019	[redacted]	[redacted]
MG IPN	0/1	01/10/2019	[redacted]	02/10/2019	[redacted]	09/10/2019	[redacted]	[redacted]
MG ISA	0/1	01/10/2019	[redacted]	02/10/2019	[redacted]	09/10/2019	[redacted]	[redacted]
MG SAV	0/1	01/10/2019	[redacted]	02/10/2019	[redacted]	09/10/2019	[redacted]	[redacted]
MG VHS	0/1	01/10/2019	[redacted]	02/10/2019	[redacted]	09/10/2019	[redacted]	[redacted]
LPAT	2/5	01/10/2019	[redacted]	02/10/2019	[redacted]	09/10/2019	[redacted]	[redacted]
SPAT	3/5	01/10/2019	[redacted]	02/10/2019	[redacted]	09/10/2019	[redacted]	[redacted]
AMGD	5/5	01/10/2019	[redacted]	02/10/2019	[redacted]	09/10/2019	[redacted]	[redacted]
SPVH	5/5	01/10/2019	[redacted]	02/10/2019	[redacted]	09/10/2019	[redacted]	[redacted]
EPIT	2/5	01/10/2019	[redacted]	02/10/2019	[redacted]	09/10/2019	[redacted]	[redacted]
PMCH	5/5	01/10/2019	[redacted]	02/10/2019	[redacted]	09/10/2019	[redacted]	[redacted]
VSPE	5/5	08/10/2019	[redacted]	08/10/2019	[redacted]	09/10/2019	[redacted]	[redacted]
CGDH	5/5	01/10/2019	[redacted]	02/10/2019	[redacted]	09/10/2019	[redacted]	[redacted]

Externally: F1 and F2 showed haemorrhaging around the throat. F1, F2 and F3 all had lesions on the flank. F3 and F5 had pale gills and F5 had necrosis of the gills. F4 had a shortened operculum.

Internally: F1-5 hearts appeared deformed with F3-5 appearing slightly anaemic. F1, F2 and F5 had fatty deposits around the heart. F2 and F4 had some petechial haemorrhaging on the liver. All 5 fish showed enlarged spleens and F1 and F2 had fatty deposits on the spleen.

NIRI - Machrihanish Hangar (Argyll): 18 September 2019

Additional Case Information:

40 000 fish planned for input in 2020 (early)

3x Ten tonne containers of ensiled morts left from last cycle. However 2 of them have been emptied, since owner was away only one remains. Complaints from neighbours about the smell. Manager does not know where the waste has gone.

Site is currently fallow. No fish on site since 2016, but plans to restock.

There was a big issue with sludge build up at bottom of tank, which couldn't be removed this was problematic to fish health

Biosecurity measures plan needs to be submitted. Advice will be given to inspect before restocking.

Site is no longer operated by NIRI, business transfer paperwork is to be completed by operator.

JS Salmon - Allt Mhor (Clachan, Argyll): 17 September 2019

"Water was very murky so difficult to observe fish"

Some records were missing from the mortality data. Several weeks worth of mortality data were missing. Week 23/24 2019. In the movement records there were detailed as being a mortality event of 30000 fish due to water draining from tanks. The corresponding mortality records for this week were not available for inspection. The site manager is going to locate the records and send them on for FHI to inspect. This was not reported to FHI as it was below the 3% threshold required, to report for the size fish. This will be confirmed upon receipt of mortality records.

Treatment records for the use of TMS were not available for inspection.

Mortality records:

Mortality records were not maintained correctly, records from 3/6/2019 to 16/6/2019 were missing from the records. It was understood that they had been misplaced however, these records should be located and copies provided.

These must be addressed to ensure the conditions of authorisation for your Aquaculture Production Business (APB) are being met. Records or documentation demonstrating that these points have been addressed should be sent to the Fish Health Inspectorate (contact details below) within 30 days of the date this report was issued.

Inspection under the Animals and Animal Products (Examination for Residues and Maximum Residue Limits) (England and Scotland) Regulations 2015

Medicine records were not available for inspection.

The following points were raised with the site representative during the inspection:

Medicine records:

Medicine records were not available for inspection, medicine records must be maintained were Veterinary medicines have been administered to the aquaculture animals, this includes the use of Tricaine methane sulphonate (TMS).

Treatment records must be maintained in future and made available for inspection.

Loch Duart - Calva Bay (Eddrachillis Bay): 12 September 2019

Visit conducted following reported Mort events
WK 19/8/19-25/8/19 - morts for site; 2.02% (3793 fish) -environmental phytoplankton/ gill disease
WK 26/8/19- 1/9/19 - 5.83% (10710 fish) - phytoplankton/ gill disease
WK 36 - 8.28% - 14309 - phytoplankton/ gill disease
Wk 37 - current week 3.4% (Monday to Wed)

Fish vet group visit; 30/8/19- conclusion; compromised gill health primarily due to AGD.

Peak in morts; pen 10; 25.89% lost wk33 to wk36 - now harvested out. Pen 11 peak wk36 at 17.77% lost (12400 fish in pen).

Mort removal; DK waste remove skip of dead fish for composting - south of England

On site inspection very few "moribund" fish observed in the cages. Many dead being removed from the dead socks and population of fish swimming slowly in the cages.

Case no:	2019-0498	Site No:	FS0068
Date of visit:	12/09/2019	Inspector(s):	[redacted]

S for strong presence: **M** for medium presence: **W** for weak presence

Fish Number		1	2	3	4	5
Time sampled after death (if > 45 minutes)						
External Signs						
Behaviour	Moribund	S	S	S	S	S

Additional comments:

Fish 1 - adhesions. Fish 2 Orange liver and adhesions, gills patchy. Fish 3 Pale ragged gills and yellow mottled liver. F4 - rubbed flank F5- Yellow mottled liver. - All fish on starve.

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Riaghaltas na h-Alba
gov.scot

[redacted]
Loch Duart Ltd
Badcall Salmon House
Scourie, Lairg
Sutherland
IV27 4TH
[redacted]

FISH HEALTH INSPECTORATE VISIT REPORT

SUMMARY FOR INFORMATION OF SITE OPERATOR

Business No	FB0398	**Date of Visit**	12/09/2019
Site No	FS0068	**Site Name**	Calva Bay (Calbha Beag)
Inspector	[redacted]	**Case No**	20190498

Section 1: Summary

A report was received from the operator of increased mortality levels at the site due to complex gill issues. Five moribund fish were removed for diagnostic sampling.

Histopathology examination revealed multifactorial gill pathology which included the presence of amoebic cells suggestive of amoebic gill disease (AGD), epitheliocystis and apoptotic cells consistent with the presence of salmon gill poxvirus. Moderate lamellar circulatory disturbances potentially associated with water borne insult was also observed. F4 displayed multifocal bacterial branchitis. The presence of salmon gill poxvirus, *Neoparamoeba perurans* and *Candidatus* Branchiomonas cysticola were confirmed by QPCR. Mild hepatic necrosis was also noted.

Due to gill health issues observed on site samples were screened for *Paranucleospora theridion* (syn. *Desmozoon lepeophtherii*) by QPCR and tested positive for the pathogen.

Few moribund salmon were observed across site, however it was noted that high numbers of mortalities were being removed from dead socks, and the fish were observed swimming slowly in the cages. Five fish were sampled for diagnostic purposes.

Mortality levels began to rise during August 2019, peaking at 8.28% in week 36. Site had already begun to harvest the worst affected cages. Health surveillance carried out by the business reported AGD.

Externally, F3 had pale gills, while F2's gills were slightly zoned. F4 had sustained abrasive damage to the flank. Internally, the liver of F1 showed weak petechial haemorrhaging, and the liver of F2 and F3 were yellow/orange in colour with a mottled appearance. All fish were on starve so the guts of F1 and F3-5 were empty. The gut of F2 contained yellow pseudo-faeces.

Candidatus Branchiomonas cysticola

Fish Number	Endogenous control Cp value	Cp Values			Reported Result (PCR)
F1	20.27	22.2	22.31	22.21	POSITIVE
F2	20.17	22.25	21.90	21.98	POSITIVE
F3	20.44	20.51	20.51	20.63	POSITIVE
F4	20.17	21.47	21.56	21.62	POSITIVE

Salmon gill poxvirus

Fish Number	Endogenous control Cp value	Cp Values			Reported Result (PCR)
F1	23.17	28.93	28.93	28.9	POSITIVE
F2	23.19	27.74	27.68	27.69	POSITIVE
F3	23.36	30.1	30.16	30.19	POSITIVE
F4	23.48	34.87	35.15	34.86	POSITIVE

Neoparamoeba perurans (AGD)

Fish Number	Endogenous control Cp value	Cp Values			Reported Result (PCR)
F1	23.17	30.64	30.69	31.46	POSITIVE
F2	23.19	31.47	31.49	31.52	POSITIVE
F4	23.48	31.94	32.07	32.07	POSITIVE

Paranucleospora theridion

Fish Number	Endogenous control Cp value	Cp Values			Reported Result (PCR)
F1	23.17	35.12	35.37	35.34	POSITIVE
F2	23.19	33.72	33.56	33.69	POSITIVE
F3	23.36	33.71	33.59	33.59	POSITIVE
F4	23.48	26.36	26.51	26.41	POSITIVE

No photos published.

FAI Aquaculture - FAI Aultbea (Wester Ross): 11 September 2019

110,000 lumpfish mortalities out of 147,471 input (75% mortality).

Lumpfish mortality had been high due to secondary bacterial infections, vibrio ordalii. Lumpfish treated with florical and bransil. October lost 110000 out of 147471 input. During vaccination the vaccine included baytril a short term antibiotic. Administered under cascade system. Vaccines; vibrio ordalii, Pseudomonas anguilliseptica and Pasteurella sp., Furunculosis. Lumps need to be 10g before vaccine. Succumbing to vibrio before that.

6. Any other peaks in mortality during period checked?	Y
If yes, detail:	lump fish issues with 2nd bacterial infections August 2018. Small fish 72,000 morts out of 291642 from batch 4 and batch 5 42000 morts out of 358000 input. Florical treatments.
7. Have increased (unexplained) mortalities been reported to vet or FHI?	Y
If yes, detail action:	treatment in lumps
8. Have 'mortality events' been reported to FHI? If no, add MRT case and enter on mortality events sheet.	N/A

Scottish Sea Farms - Kishorn B (Loch Kishorn): 10 September 2019

"Visit conducted following reported mort events, Week 24 - 1.14% Complex Gill Infection, Week 32 - 2.5% Complex Gill Infection, Week 33 - 4.12% Cardiomyopathy Syndrome and post treatment Thermolicer".

"Weather condition very poor. Only able to get onto one cage before having to come ashore. Computer network down so unable to view paper work. Information collected verbally. Fish observed in cage with white heads".

"Lice levels are high and a Salmosan [Azamethiphos] treatment is planned for cages 6, 8 and 15. Last lice count for the site. Verbally around 7 adult females for last lice count."

Case no:	2019-0491		Site No:	FS0804	
Date of visit:	10/09/2019		Inspector(s):	[redacted]	

S for strong presence: **M** for medium presence: **W** for weak presence

Fish Number		1	2	3	4
Time sampled after death (if > 45 minutes)		1 hor	1 hour	1.5hour	1.5
External Signs					
Behaviour	Moribund	S	S	S	S
Lice Load	Estimate numbers	50	50	50	50

Additional comments:

F1 -red head lice damage

F3 white head, lice damage. Fish 4 seal damaged. Head damage -red head- lice.

"SLICE [Emamectin benzoate] treatment last week".

"Wrasse on site not proving effective".

Proliferative Gill Disease reported.

marinescotland science

Scottish Government
Riaghaltas na h-Alba
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FISH HEALTH INSPECTORATE VISIT REPORT

SUMMARY FOR INFORMATION OF SITE OPERATOR

BUSINESS NO	FB0125	**DATE OF VISIT**	10/09/2019
SITE NO	FS0804	**SITE NAME**	Kishorn B (North)
INSPECTOR	[redacted]	**CASE NO**	20190491

Section 1: Summary

A report was received from the operator of increased mortality levels at the site due to complex gill issues and cardiomyopathy syndrome (CMS). Four moribund fish were removed for diagnostic sampling.

Histopathology examination revealed multifactorial gill pathology which included presence of amoebic cells suggestive of amoebic gill disease (confirmed by QPCR), epitheliocystis and mild to moderate lamellar circulatory disturbances potentially associated with water borne insult. Mild multifocal hepatic necrosis was noted in two fish and one fish displayed mild focal myocarditis.

Molecular genetic examination using real-time PCR (QPCR) produced a positive result for salmonid alphavirus (SAV), the causative agent of pancreas disease (PD).

Due to gill health issues observed on site, samples were also screened for *Paranucleospora theridion* (syn, *Desmozoon lepeophtherii*) and for salmon gill poxvirus by QPCR. Samples tested positive for the both pathogens.

Section 2: Case Detail

Observations

The above site was inspected following a report from the operator of increased mortality in the Atlantic salmon stocked on the site. At the time of the inspection the site was stocked with 140,000 2018 Q2 Atlantic salmon at an average weight of 5Kg. Due to unfavourable weather and increasing swell, only one cage was inspected. A number of lethargic salmon were observed and four were removed for diagnostic purpose.

Mortality levels were elevated during week 24 in June 2019, week 32 in August, and peaking at 4.12% in week 33. Health surveillance carried out by the business reported proliferative gill disease (PGD) and CMS.

From the fish removed for diagnostic examination, sea lice damage was evident on the heads of fish 1, 3 & 4. Fish 4 also had physical damage, most likely attributed to seal predation. F2 showed slightly raised scales due to oedema while all four fish sampled showed mild haemorrhaging along the ventral surface. The gills of F1-3 were pale and all four fish had a sea lice load of over 50. Internally the heart of F1 was pale, there was evidence of petechial haemorrhaging on the liver of F3 and the liver of F1 was yellow in colour.

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

Salmon gill poxvirus

Fish Number	Endogenous control Cp value	Cp Values			Reported Result (PCR)
F1	23.41	29.23	29.28	29.05	POSITIVE
F2	23.31	38.48	40	40	POSITIVE

Salmonid alphavirus

Pool Number	Endogenous control Cp value	Cp Values			Reported Result (PCR)
P1	17.19	29.87	29.21	29.08	POSITIVE

Parasitology: Tissue samples were tested for segments of nucleic acid indicative of the presence of the parasites specified below using real-time PCR (QPCR).

Neoparamoeba perurans (AGD)

Fish Number	Endogenous control Cp value	Cp Values			Reported Result (PCR)
F1	23.41	27.65	27.65	27.73	POSITIVE
F2	23.31	30.59	30.44	30.47	POSITIVE
F3	23.05	30.96	31.14	31.24	POSITIVE
F4	23.13	27.68	27.69	27.67	POSITIVE

Paranucleospora theridion

Fish Number	Endogenous control Cp value	Cp Values			Reported Result (PCR)
F1	23.41	31.68	31.79	31.78	POSITIVE
F2	23.31	37.54	38.41	37.43	POSITIVE
F4	23.13	36.58	36.58	36.37	POSITIVE

No photos published.

Mowi - Bagh Dail nan Ceann (Sound of Jura): 1 August 2019

Additional Case Information:

Accompanying APHA inspectors to inspect the site following reports of a welfare concern in cleaner fish stock.

Lumpfish monthly mortality = Dec 18) - 816 01) - 2,207 - 02) - 3653 03) - 1195 04) - 3007 05) - 5055 06) - 9009 07) - 26860 08) - 2781
WRA - Dec 1015 1) 781 2) 597 3)518 4)723 5)510 6)599 7)907 8) 81 Total - 41473 since January

Florfenicol treatment for lumpfish in February 2019. Mortality came down in March, but began rising again in April.

127,878 total lumpfish over cycle ~22,000 remain on site with the majority dying from unknown causes.

The company SOP says Cleaner fish mortality should be reported to cleaner fish vet when back ground mortality levels reach 0.3% background mortality per day, however it appear that few checks were carried out between May and August, even with mortality rising.

13/06/2019 - Health report suggests Crator disease may be a cause of mortality in lumpfish stock. Systemic bacterial infection

24/06 - There was a health inspection of the cleaner fish. There were signs of bacterial infection on the lumpfish with white nodules being present on the tips of spines. There was also a passive grade of the fish as well a thermolicer treatment.

31/07 - July 31st – Lumpfish have a known bacterial infection and no treatment plan is in place, as salmon are on harvest plans and starve days for treatment. However staff are removing infected lumpfish.

Situation at the site was not reflective of the mortality records. Very few fish were seen in general, possibly due to low number of fish left and of those fish ~3 displayed signs of disease. Samples were unable to be collected as there were very few moribund fish seen and all fish quickly scattered when approached with the net.

Treatments - Peroxide treatment WB 1st of July. Thermolicer treating from the 20th - 26th of June. Alphamax treatment on the 24th of July on pens 9 and 11. Slice treatment 1st June.

Recent (last 4 wks) disease problems?	Y
If yes, detail:	Disease issues with cleaner fish

Mowi - Tabhaigh (Loch Erisort): 28 May 2019

Additional Case Information:

Mortality events: 7/8/2017 - 3.7%, 14/8/17 - 6.57%, 21/8/17 - 2.54% (post treatment mortalities both medicine and thermolicer) all events had been reported. Morts for this input have been below the reporting threshold

sea lice counts 2017 wk 41 - 4.16, wk 42 - 7.5. this information had been reported. Current stock has been below the reporting threshold since input.

Seal predation had been an issue at start of cycle but this is reducing over the last four weeks. A large plastic killer whale is to be deployed.

Cleaner fish mortality had been high

Lumpfish were treated for Pastuerella, in October 2018 (Q3 lumpfish treatment Aquatet). Q4 Lumpfish treated in November 2018 (Tenebaculum), treated with Aquatet. The lumpfish were given a further treatment during April 2019 (florfenicol) for atypical furunculosis.

Mortality Records	
1. Mortality records available for inspection?	Y
2. How are mortalities disposed of?	Biogas - Energen, Cumbernauld
If other detail:	Deerdykes Scottish water
3. Mortality records complete and correctly entered?	Y
4. Recent mortality (last 4 wks):	3239/site/last four weeks (0.42%) (seal predation, physical damage)
5. Evidence of recent increased/atypical mortalities?	N
If yes, facility nos/no mortality per facility/no stock per facility/reason:	
6. Any other peaks in mortality during period checked?	y
If yes, detail:	Lumpfish October 2018 20794 (Pastuerella), November 2018 10599 (Tenebaculum), April 2019 7637 (Atypical furunculosis and freshwater treatment)
7. Have increased (unexplained) mortalities been reported to vet or FHI?	Y
If yes, detail action:	Vets on site, samples taken antibiotic prescribed
8. Have 'mortality events' been reported to FHI? If no, add MRT case and enter on mortality events sheet.	Y

Salmonid alphavirus (SAV)

Pool Number	Endogenous control Cp value	Cp Values			Reported Result (PCR)
P1	15.30	22.72	22.97	22.81	Positive

Piscine myocarditis virus (CMS)

Pool Number	Endogenous control Cp value	Cp Values			Reported Result (PCR)
P1	14.93	34.99	34.71	34.76	Positive

For more information please read: [Appendix: Fish Health Inspectorate 'Case Information' published on 19 December 2019]