Case No: 2022-0229 Date of visit: 27/07/2022

Time spent on site: 7.5h Main Inspector: [redacted]

Site No: FS1277 Site Name: Reibinish
Business No: FB0169 Business Name: The Scottish Salmon Company

Case Types: 1 DIA 2 REP 3 4 5 6

Water Temp (°C): 12.6 Thermometer No: T310 FHI 045 completed N/A

Observations: Region: WI Water type: S CoGP MA W-8

Dead/weak/abnormally behaving fish present?	Y	If yes, see additional information/clinical score sheet.
Clinical signs of disease observed?	Y	If yes, see additional information/clinical score sheet.
Gross pathology observed?	Y	If yes, see additional information/clinical score sheet.
Diagnostic samples taken?	Y	

UNI/REG only - if unable to carry out intended visit detail reason below:

Additional Case Information:

Site inspection and paper work conducted by [redacted], supervised by [redacted].
F1 sampled by [redacted], F2 - F4 sampled by [redacted] and supervised by [redacted].
The site was visited in response to prolonged elevated mortality caused by an early spring plankton bloom causing gill irritation and anaemia. Visibility was good on the date of inspection, with fish feeding deep. A number of lethargic fish were observed across the entire pen group. Pens 2, 8 and 16 displayed the highest number of visibly lethargic and moribund fish, fish from these pens were selected for diagnostic sampling.

The site experienced mass mortality due to input failure at the beginning of the cycle with their KLM stock upon first input, the site lost 4 cages totalling >200,000 fish. Input mortality of KLM stock attributed to Tenacibaculum and a poor feeding response. Following the input failure of the KLM stock, the site restocked with 550,000 fish from Loch Lochy in early August 2021. This stock is currently still held onsite although mortality for the cycle has been in excess of 60%, most of this mortality attributed to gill health issues suffered from an early spring plankton bloom. The site has conducted 6 slice treatments this cycle with a withdrawal of 500 degree days. Last slice treatment dated 22/06/2022, with all pens being treated over a 7 day period. Daily plankton trawls are conducted onsite, nothing significant has been dected this cycle but it is thought that a plankton bloom occurred and passed through the site in late April 2022 during the night. Around this time high levels of plankton were identified at Scotasay (nearby site within 4 miles).

Mortalities are removed onsite using a mort uplift system and the waste is taken by white shore cockels for landfill. The site employed the Backiness for mort removal between 28th June - 16th July 2022, waste was ensiled on the boat.

Shorebase moved to Scalpay.

Case No: 2022-0229 Site No: FS1277

Date of Visit: 27/07/2022 Inspector(s): [redacted]

Registration/Authorisation Details

1. Business/site details summary checked by site representative?	Y
2. Changes made to details?	Y

Site Details (include cleaner fish for all sections)

Total No facilities	16	Facilities stocked	12	No facilities inspected	12		
Species	SAL	LUM					
Age group	2021 Q3	2021					
No Fish	229,836	26,612					
Mean Fish Wt	4.6kg	180g					
Next Fallow Date (Site)	09/2022	Next Input Date (Site)	Spring 2023				
Recent (last 4 wks) disease problems?	Y	Any escapes (since last visit)?	N				
If yes, detail:	Fish don't appear to have recovered from suspected plankton bloom early in cycle. Ongoing Gill challenges.						

Movement Records

1. Movement records available for inspection?	Y
2. Date of last inspection:	16/02/2022
3. Are records complete and correctly entered?	Y
4. Are movement records available for dead fish and waste?	Y
5. Are records complete and correctly entered?	Y
6. Are health certificates for introductions (outwith GB) available?	N/A

Transport Records

1. Are any movements carried out by (or on behalf) of the business (not using a STB)?	
If yes, is there a system in place for maintenance of transportation records?	

Mortality Records

1. Mortality records available for inspection?	Y
2. How are mortalities disposed of?	Other (detail)
If other detail:	White shore cockles
3. Mortality records complete and correctly entered?	Y
4. Recent mortality (last 4 wks):	SAL: Week 29 (6,096 2.57%), Week 28 (11,571 4.65%), Week 27 (18,329 6.86%), Week 26 (21,114, 7.33%) LUM: Week 29 (175, 0.65%) Week 28 (237, 0.88%), Week 27 (79, 0.29%), Week 26 (291, 1.06%)
5. Evidence of recent increased/atypical mortalities?	Y

If yes, facility nos/no mortality per facility/no stock per facility/reason:

A wide range in mortality seen over dates checked. Divers occasionally employed to assist with mort removal, on dates where mortality has spiked. Mortality has been constantly high across the site for the past 12 weeks. Mortally beginning to show signs of slowing down.

6. Any other peaks in mortality during period checked?	Y
If yes, detail:	Mortality has exceeded the reporting threshold weekly from 15/05/2022 - 07/08/2022. Peaks in mortality for the weeks beginning 04/07/2022 (7.33%) and 11/07/2022 (6.86%).
7. Have increased (unexplained) mortalities been reported to vet or FHI?	N/A
If yes, detail action:	
8. Have 'mortality events' been reported to FHI? If no, enter details on mortality events sheet.	Y

Treatments and Medicines Records

1. Recent treatments (see comment)?	Y
If yes, detail:	T.M.S.
If other, detail:	Slice
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)?	Slice
If other, detail:	
6. Are medicines stored appropriately?	Y

Biosecurity Records

1. Biosecurity records available for inspection?	
2. Has the manner and frequency of mortality removal, recording and safe disposal been considered?	
3. Has the manner and period in which the APB will notify Scottish Ministers or veterinary professional of any *increased* (*unexplained)* mortality at the site been included?	
4. Has the action that will be taken in the event that the presence or suspicion of the presence of a listed disease is detected been included and *how* and *when* that will be notified to Scottish Ministers?	
5. Has the health status of aquaculture animals being stocked on the farm site been covered (equal or higher health status, certification if required)?	
6. Have the husbandry and biosecurity measures implemented between each epidemiological unit to minimise transmission of disease been covered (movement of staff, visitors, equipment, live or dead fish etc.)?	
7. Is documentation available regarding the measures in place to maintain the physical containment of aquaculture animals held on site?	
8. Have the biosecurity procedures been adequately implemented on site?	
If no, detail:	

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).	Plankton bloom

PatoGen report 15/7/22: Gill PCR samples 1/12 AGD; Branchiomonas, Paranucleospora & Poxvirus 3/3. PatoGen report 19/7/22: Furunculosis 2/2, PRV 2/2, PMCV 1/2, T. maritimum 2/2.

Records checked between: 16/02/2022 - 27/07/2022

Case no:	2022-0229	Site No:	FS1277	Date of visit/ Sampling:	27/07/2022	27/(						
Priority samples:	VI		BA		PA		MG		HI			
Time sampling starts/ends:	15:00:00	16:45:00	Inspector:		VMD No.	0						
Environmental conditions:	1	Dry	2	Sunny	3	Cloudy	4		5			
Summary samples	HIST	Y	BA	Y	MG	Y	VI		PA		Total Samples	

Add Fish/Pools - click

	Pool/Fish No	F1	F2	F3	F4	F5							
	Fish nos	1	2	3	4	5							
	Pool Group												
Stock Details	Species	SAL	SAL	SAL	SAL	SAL							
	Average weight	2kg	4kg	2.5kg	3kg	4kg							
	Sex	N/A	N/A	N/A	N/A	N/A							
	Water Type	SW	SW	SW	SW	SW							
	Stock Origin	Loch Lochy	Loch Lochy	Loch Lochy	Loch Lochy	Loch Lochy							
	Facility No	2	8	2	16	16							

07/2022 Additional Sample Information:

F1 sampled by [redacted] F2 - F4 sampled by [redacted].

5 Total Tests assigned 5

Case no: 2022-0229 Site No: FS1277 Method of killing: Percussive

Date of visit: 27/07/2022 Inspector(s): [redacted] Sheet Relevant: Y

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)			60min		90min	100min					
External Signs											
Behaviour	Moribund	S	S	S	S	S					
	Lethargic	S	S	S	S	S					
	Hanging vertical				S						
	Spiralling										
	Flashing										
	Loss of equilibrium										
Body	Dark	W				W					
	Distended abdomen										
	Anorexic	M		W							
	Scale Oedema										
Opercula	Shortened				W						
	Flared										
Haemorrhaging	Throat										
	Ventrum										
	Base of fins										
	Elsewhere										
Eyes	Exophthalmic										
	Enophthalmic (sunken)					M					
	Cataract										
	Haemorrhagic										
Gills	Pale	M	S	M	M	M					
	Zoned	M	M	M	M	M					
	Necrotic										
Lesions	Flank				M						
	Elsewhere										
Vent	Inflamed										
	Trailing faeces										
Lice Load	Estimate numbers	25	15	50	30	30					
Internal Signs											
Ascites	Clear										
	Bloody	S	W	S		M					
Oedema	In tissues										
Heart	Pale/anaemic										
	Granulomas										
	Deformed			M							
Liver	Petechial haem	M		S		W					
	Gross haem										
	Tissue breakdown										
	Enlarged	W									
	Colour number(s)	6	4	7	3	7					
	Granulomas										
	Lesions										
Pyloric caeca	Petechial haem		W								
	Tubules mauve										
	Lack of fat										
Spleen	Enlarged					S					
	Granulomas					W					
Gut	No food present			M		M					
	Yellow pseudo-faeces	S			S						
	External haem										
	Internal haem										
Body wall	Haemorrhaging					S					
Swim bladder	Haemorrhaging	W	S								
	Fluid filled										
Kidney	Swollen										
	Grey										
	Granular										
	Liquefied										
General	Parasites present	W									
	Anaemia										

Case no: 2022-0229

Date of visit: 27/07/2022

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

Fish Number											
Time sampled after death (if > 45 minutes)											
External Signs											
Behaviour	**Moribund**										
	Lethargic										
	Hanging vertical										
	Spiralling										
	Flashing										
	Loss of equilibrium										
Body	**Dark**										
	Distended abdomen										
	Anorexic										
	Scale Oedema										
Opercula	**Shortened**										
	Flared										
Haemorrhaging	**Throat**										
	Ventrum										
	Base of fins										
	Elsewhere										
Eyes	**Exophthalmic**										
	Enophthalmic (sunken)										
	Cataract										
	Haemorrhagic										
Gills	**Pale**										
	Zoned										
	Necrotic										
Lesions	**Flank**										
	Elsewhere										
Vent	**Inflamed**										
	Trailing faeces										
Lice Load	**Estimate numbers**										
Internal Signs											
Ascites	**Clear**										
	Bloody										
Oedema	**In tissues**										
Heart	**Pale/anaemic**										
	Granulomas										
	Deformed										
Liver	**Petechial haem**										
	Gross haem										
	Tissue breakdown										
	Enlarged										
	Colour number(s)										
	Granulomas										
	Lesions										
Pyloric caeca	**Petechial haem**										
	Tubules mauve										
	Lack of fat										
Spleen	**Enlarged**										
	Granulomas										
Gut	**No food present**										
	Yellow pseudo-faeces										
	External haem										
	Internal haem										
Body wall	**Haemorrhaging**										
Swim bladder	**Haemorrhaging**										
	Fluid filled										
Kidney	**Swollen**										
	Grey										
	Granular										
	Liquefied										
General	**Parasites present**										
	Anaemia										

Additional comments:

F4 hanging vertically in the water and gasping

F1 substantial damage to the jaw (lower jaw looked like it was sliced in half, upper jaw partially missing); sampled something from the body cavity for parasitology unsure if this was a parasite.

F3 substantial damage to both eyes. Some damage to the snout. Damage to the operculum thought to be lice damage.

Site No: FS1277

Case No: 2022-0229

Nature of non-compliance:

Action taken (FHI):

Non-compliance relevant to (delete): VirologyMolGen/Bacteriology/Histology/Parasitology

Case No: 2022-0229 Date of visit: 27/07/2022

Site No: FS1277 Inspector:

Results Summary	Freq.	Date of Notification						
		Database	Insp	Phone	Insp	Writing	Insp	2nd Insp
MG-IHN	0/5	05/08/2022		11/08/2022		25/05/2022		
MG-VHS	0/5	05/08/2022		12/08/2022		25/05/2022		
MG-IPN	5/5	05/08/2022		13/08/2022		25/05/2022		
MG-PMCV	1/5	05/08/2022		14/08/2022		25/05/2022		
MG-SAV	0/5	05/08/2022		15/08/2022		25/05/2022		
MG-ISA	0/5	05/08/2022		16/08/2022		25/05/2022		
MG-SAL POX	4/5	05/08/2022		17/08/2022		25/05/2022		
MG- Para	5/5	05/08/2022		18/08/2022		25/05/2022		
MG-AGD	1/5	05/08/2022		19/08/2022		25/05/2022		
PMCH	3/5	12/08/2022		12/08/2022		25/05/2022		
AERH	1/5	12/08/2022		12/08/2022		25/05/2022		
KPAT	2/5	12/08/2022		12/08/2022		25/05/2022		
HPAT	2/5	12/08/2022		12/08/2022		25/05/2022		
VSPE	3/5	19/08/2022				26/05/2022		
VSPE	2/5	19/08/2022				27/05/2022		
ASAL	1/5	19/08/2022				28/05/2022		

Report Summary			
Case Type	Date	Insp	2nd Insp
DIA, REP	25/08/2022		

FISH HEALTH INSPECTORATE VISIT REPORT

SUMMARY FOR INFORMATION OF SITE OPERATOR

BUSINESS NO	FB0169	**DATE OF VISIT**	27/07/2022
SITE NO	FS1277	**SITE NAME**	Reibinish
CASE NO	20220229	**INSPECTOR**	[redacted]

Section 1: Summary

The site was inspected due to sustained mortality reports above the reporting criteria attributed to gill issues. Five fish were selected for diagnostic sampling.

Histopathological examination revealed features consistent with *Aeromonas salmonicida*, the causative agent of furunculosis, in F2. Although F1 tested positive for piscine myocarditis virus (PMCV) by qPCR, the heart only displayed a minimal focal lesion that is likely related to this virus. Features of autolysis were observed and may have hindered the reading.

Aeromonas salmonicida was identified on plates taken from kidney and gill material of F2. Two *Vibrio* spp. were also identified. *Aeromonas salmonicida* is a primary fish pathogen and poses a significant risk to fish health. *Vibrio* sp. is more commonly a secondary pathogen. The level and purity of growth would not suggest that any one of these bacteria should be implicated as the primary cause of morbidity in this case.

Samples also tested positive for gill related pathogens: *Paranucleospora theridion* (5/5), salmon gill poxvirus (SGPV) (4/5) and *Neoparamoeba perurans* (AGD) (1/5). Samples tested positive for Infectious pancreatic necrosis virus (IPNV) (5/5) and Piscine myocarditis virus (PMCV) (1/5).

Please contact myself or the duty inspector should you require any further information, have any queries regarding this report or if any problems develop.

Section 2: Case Detail

Observations

The site was inspected due to sustained mortality reports above the reporting criteria attributed to gill issues. At the time of the visit the site was stocked with 2021 Q3 stock at an average weight of 4.6kg. Lethargic and moribund fish were observed in the majority of pens on site. Five fish were selected for diagnostic sampling.

All five fish sampled displayed moribund and lethargic behaviour prior to removal from the pens, with F4 also hanging in the water vertically and gasping at the surface. Externally, F1 & F5 showed a darker body colour and F1 & F3 appeared anorexic to varying degrees. F4 has a shortened operculum, while F5 had enophthalmic eyes. The gills were pale and zoned on all five fish. F4 has a lesion on the flank and all fish had a noticeable presence of lice between 15-30 per fish all stages.

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Website - www.gov.scot/Topics/marine/science

Internally, bloody ascites was evident in F1-F3 and F5. The heart appeared deformed in F3. Petechial haemorrhaging was evident in F1, F3 and F5, with the liver also being enlarged in F1. F2 had some petechial haemorrhaging on the pyloric caeca. F5 had an enlarged spleen, which also appeared granulomas. No food was present in the gut of F3 and F5, while F1 and F4 has yellow pseudo faeces present. F1 and F2 showed haemorrhaging on the swim bladder, while F5 showed haemorrhaging on the body wall.

Samples

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

Fish number	Facility number	Species	Stage	Origin
F1, F3	2	Atlantic salmon	2021, Q3; 2-2.5kg	Loch Lochy
F2	8	Atlantic salmon	2021, Q3; 4kg	Loch Lochy
F4-F5	16	Atlantic salmon	2021, Q3;3-4kg	Loch Lochy

Results

Bacteriology: Kidney and gill material from F1 – F5, as well as lesion material from F4, was inoculated onto appropriate media for the isolation of bacteria.

The following bacteria were isolated:

- *Aeromonas salmonicida*: F2 (Kidney & Gill)
- *Vibrio* sp.: F3, F4, F5 (Kidney); F4 (Lesion)
- *Vibrio* sp.: F3 (Kidney); F4 (Lesion)

Aeromonas salmonicida is a primary fish pathogen and poses a significant risk to fish health. *Vibrio* sp. is more commonly a secondary pathogen. The level and purity of growth would not suggest that any one of these bacteria should be implicated as the primary cause of morbidity in this case.

From the antimicrobial sensitivity tests conducted for *Aeromonas salmonicida*, we have evidence which may indicate resistance to amoxycillin. We do not have evidence of resistance to oxytetracycline, sulphamethoxazole/trimethoprim or florfenicol.

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)

Fish Number	**Endogenous control Cp value**	**Cp Values**			**Reported Result (PCR)**
F1	16.79	28.93	28.85	28.91	**POSITIVE**
F2	16.98	36.38	35.25	35.4	**POSITIVE**
F3	18.14	33.56	34.03	33.86	**POSITIVE**
F4	18.06	34.48	34.37	34.82	**POSITIVE**
F5	17.46	34.56	34.33	34.45	**POSITIVE**

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Piscine myocarditis virus (PMCV)

Fish Number	Endogenous control Cp value	Cp Values			Reported Result (PCR)
F1	17.07	22.5	22.14	22.46	**POSITIVE**
F2	-	-	-	-	Negative
F3	-	-	-	-	Negative
F4	-	-	-	-	Negative
F5	-	-	-	-	Negative

Salmon gill poxvirus (SGPV)

Fish Number	Endogenous control Cp value	Cp Values			Reported Result (PCR)
F1	18.94	34.08	34.9	34.23	**POSITIVE**
F2	19.29	37.47	35.47	36.07	**POSITIVE**
F3	-	-	-	-	Negative
F4	19.28	28.96	29.12	28.96	**POSITIVE**
F5	18.99	32.5	32.61	32.37	**POSITIVE**

The samples tested negative for infectious haematopoietic necrosis virus (IHNV), infectious salmon anaemia virus (ISAV), salmonid alphavirus (SAV) and viral haemorrhagic septicemia virus (VHSV).

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	-	-	-	-	Negative
F2	-	-	-	-	Negative
F3	-	-	-	-	Negative
F4	19.28	33.23	33.55	34.27	**POSITIVE**
F5	-	-	-	-	Negative

Paranucleospora theridion

Fish Number	Endogenous control Cp value	Cp Values			Reported Result (PCR)
F1	18.94	31.14	31.24	30.85	**POSITIVE**
F2	19.29	32.93	33.92	32.72	**POSITIVE**
F3	18.72	34.42	35.14	34.64	**POSITIVE**
F4	19.28	31.37	31.05	29.97	**POSITIVE**
F5	18.99	28.41	28.32	28.24	**POSITIVE**

A sample from the body cavity of an Atlantic salmon was received in ethanol. It had been observed attached from the distal edge of the liver to the pyloric caeca.

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On inspection, the sample was filamentous, terminating in some fatty tissue and displayed no morphology consistent with a parasite. There was evidence of melanisation which was also observed on the lining of the body cavity from sampling pictures. Due to this, the sample is likely a fibrinous exudate as result of an inflammatory reaction in the fish.

Histology: Tissue samples of gill, skin and skeletal muscle, heart, pyloric caeca, pancreas, hind gut, liver, spleen and kidney were taken from F1-F5. The tissue samples were fixed in 10% neutral buffered formalin.

Histopathological examination by light microscopy revealed the following:

Gill: Few sparse lamellae with epithelial thickness (F1-F5). One basophilic epithelial inclusion (likely epitheliocystis) observed in F1. Some multifocal hyperplasia. Several aneurysmal dilation/telangiectasia (F1-F5). F3 displayed congested lamellae potentially associated with euthanasia method. F2, F4 & F5, autolysis artefacts hindered the reading.

Skin & Muscle: Partial absence of epidermal layer, dermal oedema, sparse leucocyte infiltration and mixed Gram-negative bacteria (F4).

Heart: F2 several dense aggregates of varied size of rod-shaped Gram-negative bacteria, one area of fibre necrosis at the vicinity of the bacterial aggregates. F1 displayed one minimal area with sub-endocardial infiltration in both heart chambers. Mild pericarditis (F1, F4). Inflammatory cell infiltrate (mainly neutrophil granulocytes) observed in several areas of the trabecular spongy layer and within the vessels observed in F4. F3 no atrium chamber present in section.

Gut and pyloric caeca: Marked cellular sloughing potentially associated with autolysis artefacts (F3-F4). Some fibrous adhesions (likely associated with vaccine administration) (F1).

Pancreas: Within the normal range. F4 autolysis artefacts hindered the reading.

Liver: Minimal cuffing (F1). Several aggregates of rod-shaped Gram-negative bacteria. Small foci of cellular necrosis at the vicinity of the bacterial aggregates. Circulating leucocytes observed in the vessels (F2). F5, capsulitis, inflammatory cell infiltrate, multifocal, mild and some sinusoidal congestion. F4 autolysis artefacts hindered the reading.

Kidney: Foci of cellular necrosis and aggregates of rod-shaped Gram-negative bacteria associated (F2). Some cuffing and small foci of cellular necrosis observed in F1. F4 autolysis artefacts hindered the reading.

Spleen: Cuffing (F1), cellular necrosis and marked presence of dense aggregates of rod-shaped Gram-negative bacteria (F2).

Signed: [redacted] Date: 25/08/2022

Fish Health Inspector

The Fish Health Inspectorate Service Charter detailing standards of service is available on the Marine Scotland website at https://www.gov.scot/publications/fish-health-inspectorate-service-charter/

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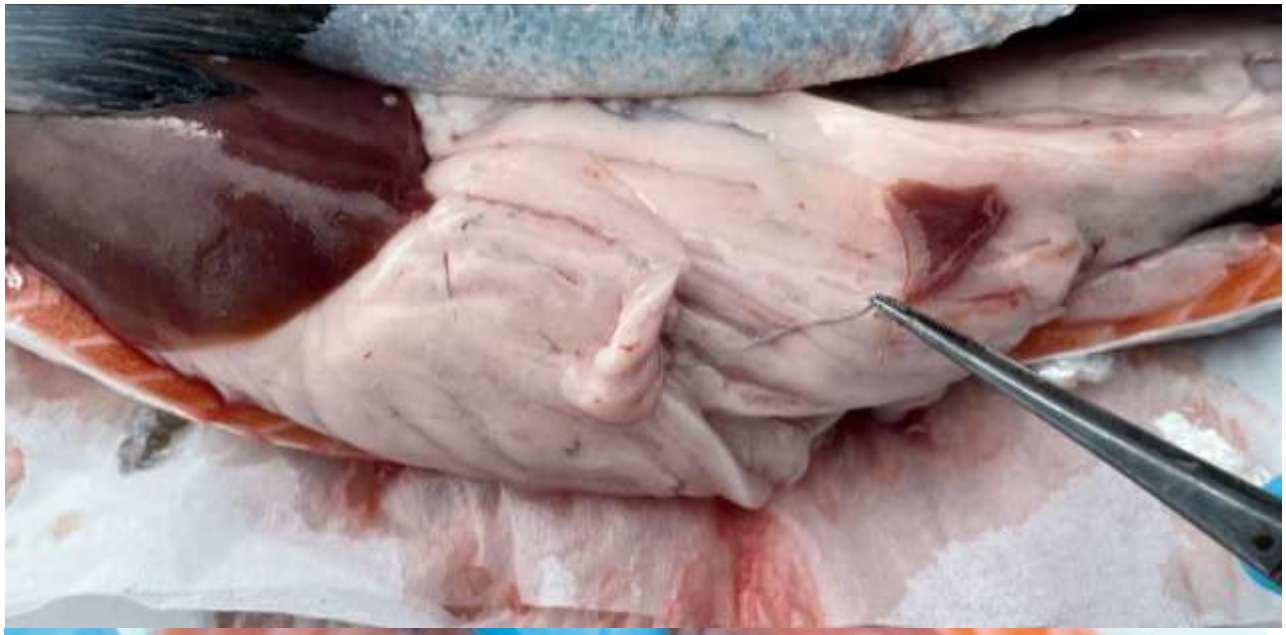
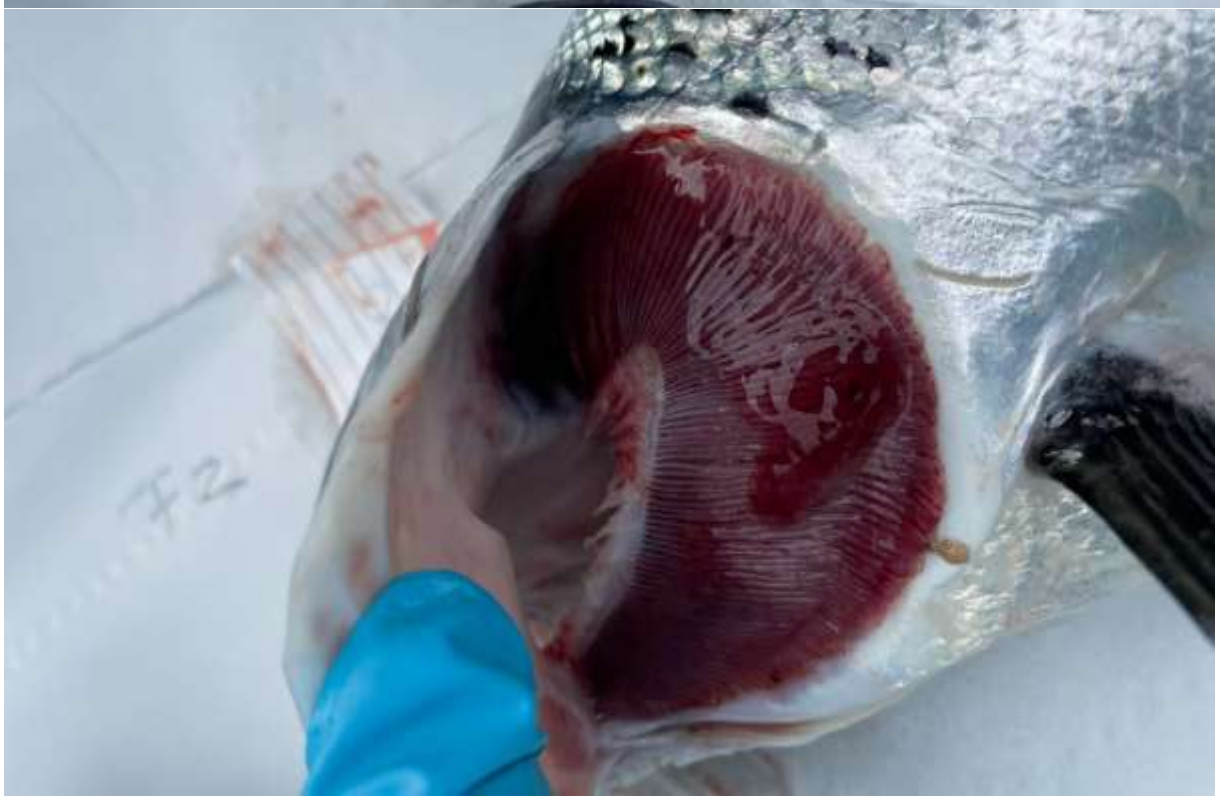
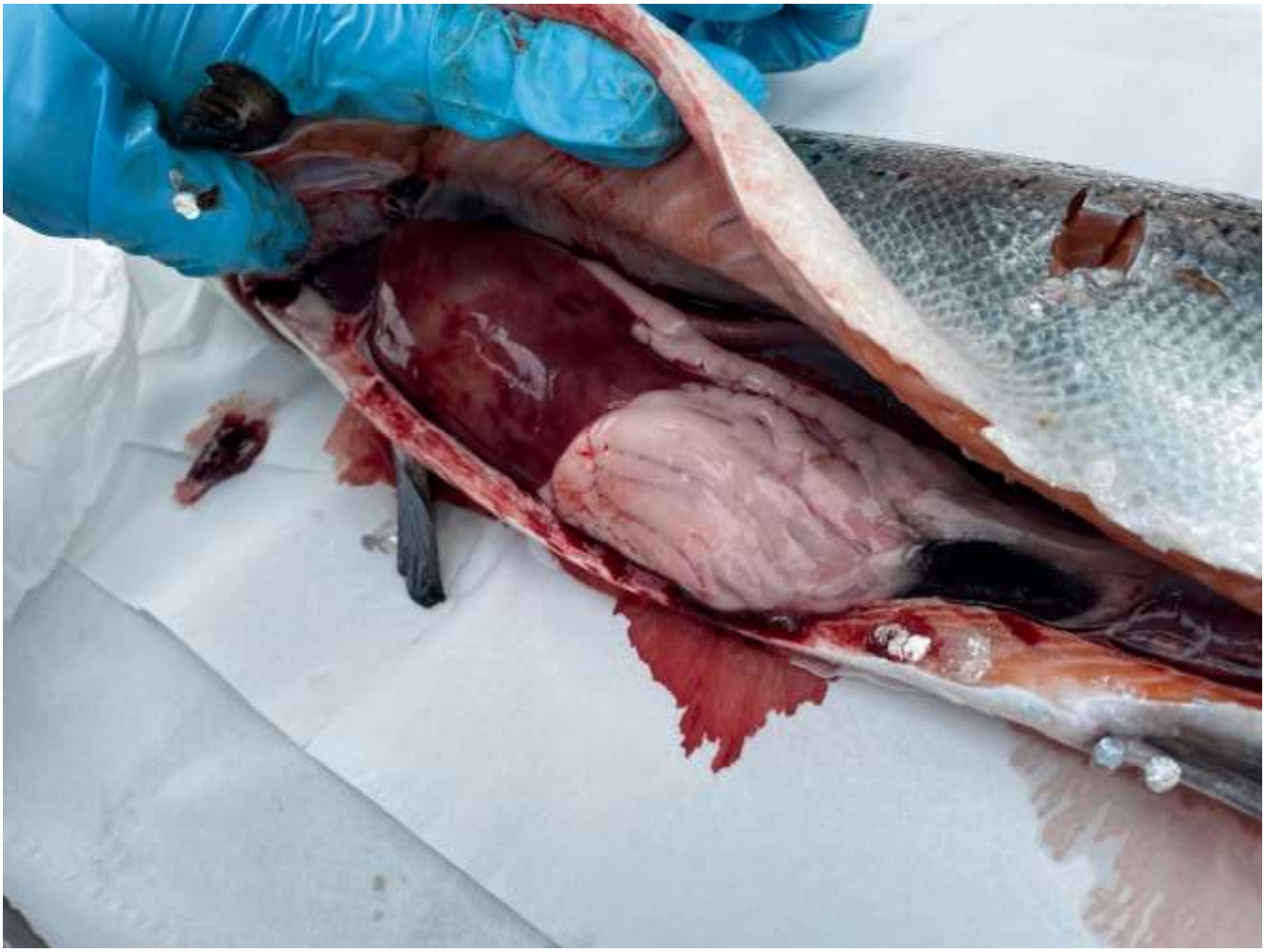
2022-0229 (FS1277 Reibinish)
F1



F2

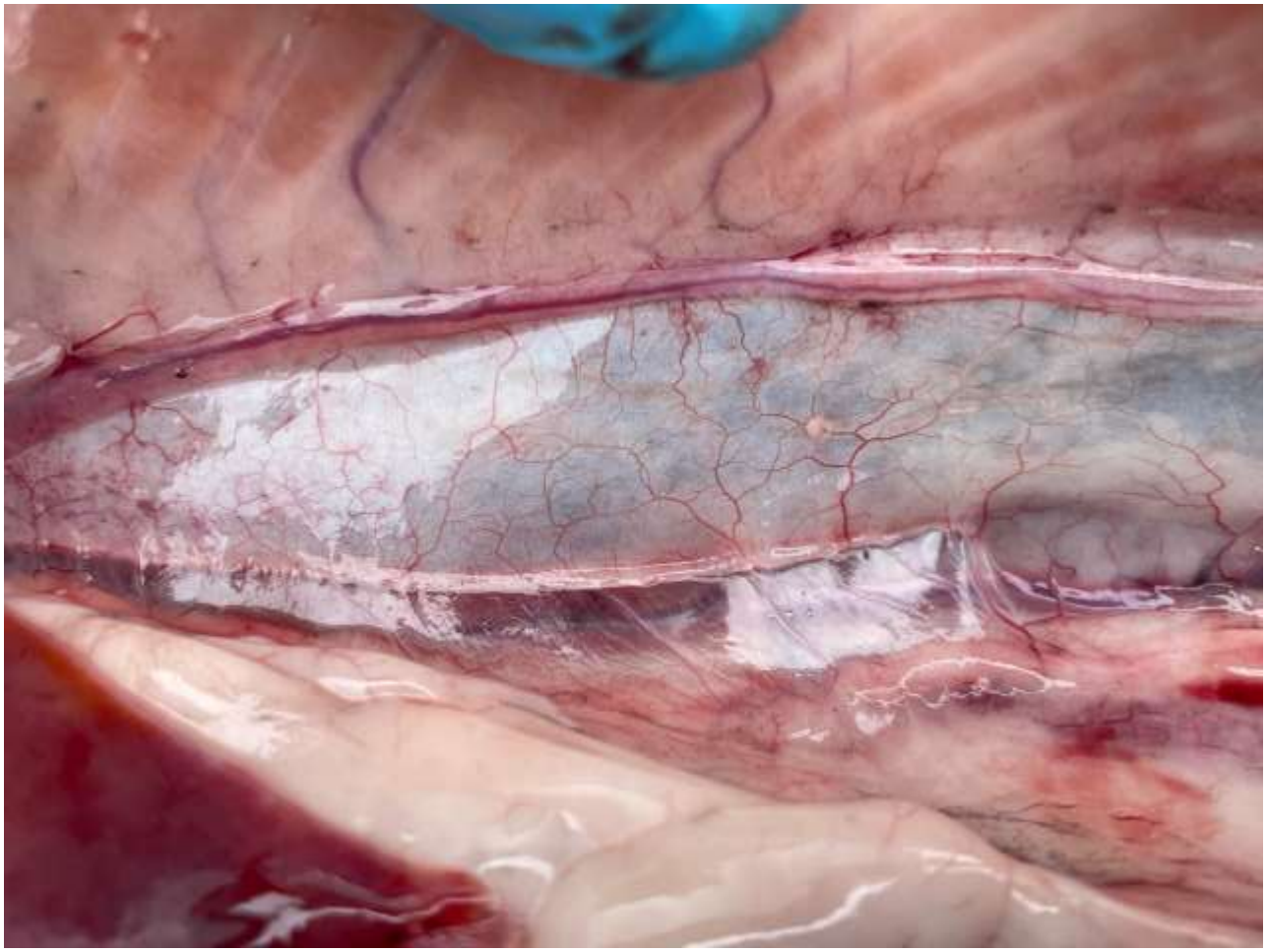


F3



F4

F5



Case No: 2022-0262 Date of visit: 18/07/2022

Time spent on site: 4.5 hours Main Inspector: [redacted]

Site No: FS1047 Site Name: Loch Creran (D)
Business No: FB0125 Business Name: Scottish Sea Farms Ltd

Case Types: 1 REP 2 DIA 3 WEL 4 5 6

Water Temp (°C): 13.55 Thermometer No: T308 FHI 045 completed

Observations: Region: ST Water type: S CoGP MA: M-36

Dead/weak/abnormally behaving fish present?	Y	If yes, see additional information/clinical score sheet.
Clinical signs of disease observed?	Y	If yes, see additional information/clinical score sheet.
Gross pathology observed?	Y	If yes, see additional information/clinical score sheet.
Diagnostic samples taken?	Y	

UNI/REG only - if unable to carry out intended visit detail reason below:

Additional Case Information:

Treatment Timeline:
Wk 9- thermolicer treatment (all pens)
Wk 12- thermolicer treatment (all pens)
Wk 17- thermolicer light treatment (all pens)
Wk24- light thermolicer treatment (all pens)
Wk 27- hydrolicer 10/12 pens
W/b 11/07/2022- hydrolicer remaining two pens

Mortality events:
Wk 19- 2.7%, 12191; following thermolicer treatment in wk 17
Wk20- 2.1%, 9032; continuation of previous week mortality
Wk21- 1.3%, 5429
Wk24- 1.6%, 6826; following thermolicer
Wk25- 2%, 8175
Wk26- 4%, 15943
Wk27- 3.8%, 14441

Inspection of site was conducted in conjunction with APHA, following 3 weeks of notifications of increased mortality above the threshold, as well as a response to investigate claims of a welfare complaint.
Stocking of wrasse on site 24/06/2022; wild caught from Orkney.

Timeline of recent disease:
Routine vet visit conducted in week 9, confirmed PRV +ve results for the whole site (100%), but no increased mortality associated with it seen on site. In Wk 14, histology again confirmed PRV +ve site with moderate levels, and slight increase in mortality seen but still below reporting threshold. Skin lesions seen on site were tested and were found to be a result of secondary bacterial infection; bad weather earlier in the year had affected the fish previously. P. skyensis was tested for during diagnostic taken in Wk 15 but result were negative and mortality remained below reporting threshold until wk 18. Wk 19 samples were positive for furunculosis (5/5). No moribunds were seen at vet visit in Wk 21. As mortality increased from Wk 24 present, PCR samples continued to be positive for furunculosis in Wk 25. As a result, decision to remove leading mort pens through harvest, and as of 18/07/2022 site is potentially fallowing within next 3 weeks. Next pens to harvest out are pen 7, 9 and 11. Site has been using diet with supplementary health ingredients called Assit Skin with Resist Lice from 5th to 25th May. Presently, fish are on Resist lice diet.

Observations on site:
From the first pen, moribunds were observed exhibiting exothalmia and lethargy. Two pens in particular were observed to have the highest mortality; pen 9 and 11, with ~20 moribunds seen upon pen inspection. Fish removed from pen 1 for diagnostic purpose were observed to have enlarged atriums of the heart, and some moderate petechial haemorrhaging on the liver too. Raised scales or ‘furuncle-like' bubbles were also seen in sampled fish from pen 1 and 9. Upon observation of pens 4 and 6, fish were seen with more such skin lesions/boils, none of which were observed to be open or ruptured. Lastly, a few fish were observed to be belly up approx. 3-4m below the water surface hanging on the side of the net.

Case No:	2022-0262	Site No:	FS1047
Date of Visit:	18/07/2022	Inspector(s):	[redacted]

Registration/Authorisation Details

1. Business/site details summary checked by site representative?	Y
2. Changes made to details?	N

Site Details (include cleaner fish for all sections)

Total No facilities	14	Facilities stocked	12	No facilities inspected	12		
Species	SAL	WRS					
Age group	Q3 2021	wild caught					
No Fish	298,038	10,833					
Mean Fish Wt	2.8kg	250g					
Next Fallow Date (Site)	08/08/2022	Next Input Date (Site)	Undecided				
Recent (last 4 wks) disease problems?	Y	Any escapes (since last visit)?	N				
If yes, detail:	PRV, HSMI, Furunculosis (clinical signs in the pens seen first time today)						

Movement Records

1. Movement records available for inspection?	Y
2. Date of last inspection:	08/12/2021
3. Are records complete and correctly entered?	Y
4. Are movement records available for dead fish and waste?	Y
5. Are records complete and correctly entered?	Y
6. Are health certificates for introductions (outwith GB) available?	N/A

Transport Records

1. Are any movements carried out by (or on behalf) of the business (not using a STB)?	
If yes, is there a system in place for maintenance of transportation records?	

Mortality Records

1. Mortality records available for inspection?	Y
2. How are mortalities disposed of?	Other (detail)
If other detail:	Billy Bowie- Dundas, incinerated onsite and increased mortality processed and then ensiled.
3. Mortality records complete and correctly entered?	Y
4. Recent mortality (last 4 wks):	See additional information.
5. Evidence of recent increased/atypical mortalities?	Y

If yes, facility nos/no mortality per facility/no stock per facility/reason:

Pen 5, 9, 11; HSMI and furunculosis

6. Any other peaks in mortality during period checked?	N
If yes, detail:	
7. Have increased (unexplained) mortalities been reported to vet or FHI?	N/A
If yes, detail action:	
8. Have 'mortality events' been reported to FHI? If no, enter details on mortality events sheet.	Y

Treatments and Medicines Records

1. Recent treatments (see comment)?	N
If yes, detail:	
If other, detail:	Thermolicer and Hydrolicer
2. Medicines records available for inspection?	Y
3. Are records complete and correctly entered?	Y
4. Are fish in a withdrawal period?	N
5. If yes, what treatment(s)?	
If other, detail:	
6. Are medicines stored appropriately?	Y

Biosecurity Records

1. Biosecurity records available for inspection?	
2. Has the manner and frequency of mortality removal, recording and safe disposal been considered?	
3. Has the manner and period in which the APB will notify Scottish Ministers or veterinary professional of any *increased* (*unexplained)* mortality at the site been included?	
4. Has the action that will be taken in the event that the presence or suspicion of the presence of a listed disease is detected been included and *how* and *when* that will be notified to Scottish Ministers?	
5. Has the health status of aquaculture animals being stocked on the farm site been covered (equal or higher health status, certification if required)?	
6. Have the husbandry and biosecurity measures implemented between each epidemiological unit to minimise transmission of disease been covered (movement of staff, visitors, equipment, live or dead fish etc.)?	
7. Is documentation available regarding the measures in place to maintain the physical containment of aquaculture animals held on site?	
8. Have the biosecurity procedures been adequately implemented on site?	
If no, detail:	

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 additional Information

Records checked between:	08/12/2021- 18/07/2022

Case no:	2022-0262	Site No:	FS1047	Date of visit/ Sampling:	18/07/2022	18/0							
Priority samples:	VI		BA		PA		MG		HI				
Time sampling starts/ends:	10:20:00	11:55:00	Inspector:		VMD No.	0							
Environmental conditions:	1	Sunny	2	Calm	3		4		5				
Summary samples	HIST	Y	BA	Y	MG	Y	VI	Y	PA		Total Samples		

Add Fish/Pools - click

	Pool/Fish No	F1	F2	F3	F4	F5							
	Fish nos	1	2	3	4	5							
	Pool Group	P1	P1	P1	P1	P1							
Stock Details	Species	SAL	SAL	SAL	SAL	SAL							
	Average weight	2.8kg	2.8kg	2.8kg	2.8kg	2.8kg							
	Sex	N/A	N/A	N/A	N/A	N/A							
	Water Type	SW	SW	SW	SW	SW							
	Stock Origin	Barcaldine Smolt Unit (FS1328)	Barcaldine Smolt Unit (FS1328)	Barcaldine Smolt Unit (FS1328)	Barcaldine Smolt Unit (FS1328)	Barcaldine Smolt Unit (FS1328)							
	Facility No	1	1	1	9	9							

07/2022 Additional Sample Information:

Fish 1-3 were sampled at the same time; sampling began at 10:20 and ended at 11:15. Fish 4-5 were sampled simultaneously at 11: 20 and finished at 11:55.

5 Total Tests assigned 9

Case no: 2022-0262 Site No: FS1047 Method of killing: Anaesthetic

Date of visit: 18/07/2022 Inspector(s): [redacted] Sheet Relevant: Y

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	M	S	S	S	S					
	Lethargic	M	S	S	M	M					
	Hanging vertical										
	Spiralling										
	Flashing										
	Loss of equilibrium										
Body	Dark										
	Distended abdomen										
	Anorexic		M								
	Scale Oedema					M					
Opercula	Shortened										
	Flared										
Haemorrhaging	Throat										
	Ventrum										
	Base of fins										
	Elsewhere										
Eyes	Exophthalmic		S		S						
	Enophthalmic (sunken)										
	Cataract										
	Haemorrhagic		M								
Gills	Pale			M		W					
	Zoned	W	W	M	W	W					
	Necrotic										
Lesions	Flank										
	Elsewhere										
Vent	Inflamed										
	Trailing faeces										
Lice Load	Estimate numbers										
Internal Signs											
Ascites	Clear	M									
	Bloody		S	S	S	S					
Oedema	In tissues										
Heart	Pale/anaemic										
	Granulomas										
	Deformed										
Liver	Petechial haem		M								
	Gross haem										
	Tissue breakdown										
	Enlarged										
	Colour number(s)										
	Granulomas										
	Lesions										
Pyloric caeca	Petechial haem			W							
	Tubules mauve										
	Lack of fat										
Spleen	Enlarged	W	W	M	W	W					
	Granulomas										
Gut	No food present										
	Yellow pseudo-faeces	S	S	S	S	S					
	External haem										
	Internal haem										
Body wall	Haemorrhaging			W							
Swim bladder	Haemorrhaging										
	Fluid filled										
Kidney	Swollen										
	Grey				W	W					
	Granular										
	Liquefied										
General	Parasites present										
	Anaemia										

Case no: 2022-0262

Date of visit: 18/07/2022

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

Fish Number											
Time sampled after death (if > 45 minutes)											
External Signs											
Behaviour	**Moribund**										
	Lethargic										
	Hanging vertical										
	Spiralling										
	Flashing										
	Loss of equilibrium										
Body	**Dark**										
	Distended abdomen										
	Anorexic										
	Scale Oedema										
Opercula	**Shortened**										
	Flared										
Haemorrhaging	**Throat**										
	Ventrum										
	Base of fins										
	Elsewhere										
Eyes	**Exophthalmic**										
	Enophthalmic (sunken)										
	Cataract										
	Haemorrhagic										
Gills	**Pale**										
	Zoned										
	Necrotic										
Lesions	**Flank**										
	Elsewhere										
Vent	**Inflamed**										
	Trailing faeces										
Lice Load	**Estimate numbers**										
Internal Signs											
Ascites	**Clear**										
	Bloody										
Oedema	**In tissues**										
Heart	**Pale/anaemic**										
	Granulomas										
	Deformed										
Liver	**Petechial haem**										
	Gross haem										
	Tissue breakdown										
	Enlarged										
	Colour number(s)										
	Granulomas										
	Lesions										
Pyloric caeca	**Petechial haem**										
	Tubules mauve										
	Lack of fat										
Spleen	**Enlarged**										
	Granulomas										
Gut	**No food present**										
	Yellow pseudo-faeces										
	External haem										
	Internal haem										
Body wall	**Haemorrhaging**										
Swim bladder	**Haemorrhaging**										
	Fluid filled										
Kidney	**Swollen**										
	Grey										
	Granular										
	Liquefied										
General	**Parasites present**										
	Anaemia										

Additional comments:

Fish 1 was found to have mildly pale and frayed gills. Internally, fish 1 was found to appear relatively normal, with the exception of a swollen atrium in the heart and yellow pseudofaeces in the gut.

Fish 2 was found also to exhibit pale and frayed gills. Externally, raised scales were also visible. In addition, the fish exhibited exothalmia with slight haemorhaging on the upper eye surface. Internally, fish 2 also exhibited a heart with a slightly swollen atrium and bloody cavity. The Liver showed medium levels of petechial haemorraghing. The body cavity was found to possess bloody ascites. The gut possessed yellow pseudofaeces also.

Fish 3 also possessed pale and frayed gills. In addition, raised scales and 'bubbles' under the scales/skin layer were observed. Internally, the heart was also found to have an enlarged atrium. The fish's cavity was found to have bloody ascites. Very slight petechial haemorrhaging was found on the liver and in the body cavity/flesh. The pyloric caeca showed very slight haemorrhaging also. The gut possessed yellow pseudofaeces.

Fish 4 exhibited frayed gills, as well as strong exothalmia of the eyes. Raised scales/ bubbles in the skin were evident on the flanks of the fish. Internally, the cavity possessed bloody ascites and the spleen was slightly enlarged. The gut also possessed yellow pseudofaeces.

Fish 5 again was found to have frayed gills. A very larged 'bubble' was found on the left flank of the fish and upon rupturing exhibited a bloody fluid (extra bacteriology sample taken). Internally the fish possessed a slightly greyish kidney and again, the gut possessed yellow pesudofaeces.

Case No: 2022-0262 Date of visit: 18/07/2022

Site No: FS1047 Inspector: [redacted]

Results Summary	Freq.	Date of Notification						
		Database	Insp	Phone	Insp	Writing	Insp	2nd Insp
ASAL	4/5	02/08/2022		02/08/2022		22/08/2022		
AERH	4/5	11/08/2022		12/08/2022		22/08/2022		
GPAT	5/5	11/08/2022		12/08/2022		22/08/2022		
LPAT	5/5	11/08/2022		12/08/2022		22/08/2022		
SPAT	4/5	11/08/2022		12/08/2022		22/08/2022		
MG_AGDQ	1/4	11/08/2022		12/08/2022		22/08/2022		
MG_IHNQ	0/4	11/08/2022		12/08/2022		22/08/2022		
MG_IPN	0/4	11/08/2022		12/08/2022		22/08/2022		
MG_ISA	0/4	11/08/2022		12/08/2022		22/08/2022		
MG_SAV	0/4	11/08/2022		12/08/2022		22/08/2022		
MG_VHS	0/4	11/08/2022		12/08/2022		22/08/2022		
MG_PARA_THER_Q	3/4	11/08/2022		12/08/2022		22/08/2022		
MG_PMCV	0/4	11/08/2022		12/08/2022		22/08/2022		
MG_SAL_POX	4/4	11/08/2022		12/08/2022		22/08/2022		

Report Summary			
Case Type	Date	Insp	2nd Insp
DIAG	22/08/2022		

FISH HEALTH INSPECTORATE VISIT REPORT

SUMMARY FOR INFORMATION OF SITE OPERATOR

BUSINESS NO	FB0125	**DATE OF VISIT**	18/07/2022
SITE NO	FS1047	**SITE NAME**	Loch Creran (D)
CASE NO	20220262	**INSPECTOR**	[redacted]

Section 1: Summary

The above site was inspected following reports of increased mortality by the farm operator. The inspection was conducted in conjunction with a veterinary officer from the Animal and Plant Health Agency (APHA). A separate report will be issued by the Animal and Plant Health Agency. During the physical inspection of all pens, five fish were removed for diagnostic sampling.

Histopathology examination revealed pathology consistent with *Aeromonas salmonicida* (confirmed by bacteriology in F1,3,4,5), and cellular necrosis in the spleen and liver. Gills displayed features of necrosis and mild epitheliocystis.

Gills samples from F1, F3 and F5 tested positive for *Paranucleospora theridion* by qPCR. In addition, all fish samples tested positive for salmon gill pox virus by qPCR.

Aeromonas salmonicida was identified on plates taken from the kidney material of F1, F3, F4, F5. The level and purity of the growth on the plates would suggest that this isolate would be implicated as a source of morbidity.

Please contact myself or the duty inspector should you require any further information, have any queries regarding this report or if any problems develop.

Section 2: Case Detail

Observations

Following 3 weeks of notifications of increased mortality above the reporting threshold a site inspection was conducted. The inspection was also conducted as a response a welfare complaint. On site, a high number of lethargic and moribund fish were observed in all pens. Some fish were observed to exhibit exophthalmia. Two pens in particular were observed to have the highest mortality and approximately 20 moribunds were seen on pen inspection in each pen.

All fish sampled were lethargic and moribund. A few fish were observed to be belly up approximately 3-4m below the water surface, on the side of the nets. Raised scales or furuncles were also seen in some sampled fish from pen 1 and 9. These were also observed in pens 4 and 6. The gills of all fish were zoned and in F3 and F5 were pale.

Internally, all fish displayed enlarged spleens and yellow pseudo faeces was present within the hind gut. In F2-F5 bloody ascites were observed. Some petechial haemorrhaging in F2 on the liver and in F3 on the pyloric caeca.

Marine Laboratory, 375 Victoria Road, Aberdeen, AB11 9DB
Tel – 0131 244 3498 Fax – 0131 244 0944 Email – ms.fishhealth@gov.scot
Website - www.gov.scot/Topics/marine/science

Samples

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

Fish number	Facility number	Species	Stage	Origin
1-3	1	Atlantic Salmon	2.8kg 2021 Q3	Barcaldine Smolt Unit
4-5	9	Atlantic Salmon	2.8kg 2021 Q3	Barcaldine Smolt Unit

Results

Bacteriology: Kidney, gill and lesion material from F1 to F5 inoculated onto appropriate media for the isolation of bacteria.

The following bacteria were isolated:

- *Aeromonas salmonicida* from;
  - Kidney of F1, F3, F4, F5
  - Lesion of F5

From the tests conducted, we have evidence which may indicate resistance to amoxicillin. However, we do not have evidence of resistance to oxytetracycline, sulphamethoxazole/trimethoprim or florfenicol.

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

Four fish were put forward for the analyses due to sampling error.

Salmon gill pox virus

Fish Number	Endogenous control Cp value	Cp Values			Reported Result (PCR)
F1	19.75	35.99	34.26	34.95	POSITIVE
F2	20.1	33.31	32.81	33.11	POSITIVE
F3	19.33	33.02	33.52	33.12	POSITIVE
F5	20.82	32.79	32.33	31.77	POSITIVE

The samples tested negative for infectious haematopoietic necrosis virus (IHNV), infectious pancreatic necrosis virus (IPNV), infectious salmon anaemia virus (ISAV), salmonid alphavirus (SAV) and viral haemorrhagic septicemia virus (VHSV).

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Website - www.gov.scot/Topics/marine/science

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	-	-	-	-	NEGATIVE
F2	20.1	33.13	33.18	33.51	POSITIVE
F3	-	-	-	-	NEGATIVE
F5	-	-	-	-	NEGATIVE

Paranucleospora theridion

Fish Number	Endogenous control Cp value	Cp Values			Reported Result (PCR)
F1	19.75	30.54	30.96	30.79	POSITIVE
F2	-	-	-	-	NEGATIVE
F3	19.33	31.35	30.98	30.7	POSITIVE
F5	20.82	32.66	32.24	32.92	POSITIVE

Histology: Tissue samples of gill, skin and skeletal muscle, heart, pyloric caeca, pancreas, hind gut, liver, spleen and kidney taken from F1 to F5. The tissue samples were fixed in 10% neutral buffered formalin.

Histopathological examination revealed the following:

Gill: Several lamellae exhibiting features of necrosis and some display dense aggregates of Gram-negative bacteria. Few sparse lamellae with epithelial thickness (F1-F5). F2-F5 exhibited filament tips with some bluntness and several aneurysmal dilation/telangiectasia. F2 also displayed some lamellar haemorrhage and some influx of neutrophils. One basophilic epithelial inclusion (likely epitheliocystis) observed in F2 and F5.

Skin & Muscle: within the normal range.

Heart: F1 display several small dense aggregates of Gram-negative bacteria in the two chambers and F3 and F5 only in the ventricle.

Gut and pyloric caeca: Some fibrous adhesions (likely associated with vaccine administration) (F2).

Pancreas: Within the normal range.

Liver: Some cutting (F1-F5), small foci of cellular necrosis with aggregates of Gram-negative bacteria associated and several vessels displayed inflammatory cell influx with presence of circulating Gram-negative bacteria (F1). F2 exhibited a focal extended area of cellular necrosis, haemorrhage and inflammatory cell infiltrate (mostly neutrophils granylocytes). F5 displayed several areas of marked presence of inflammatory cell infiltrate (mostly neutrophils granulocytes).

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Website - www.gov.scot/Topics/marine/science

Kidney: Foci of cellular necrosis and aggregates of Gram-negative bacteria associated (F1), some reduction of haematopoietic tissue and presence Gram-negative bacteria (F3). F5 displayed several areas of marked inflammatory cell infiltrate (mostly neutrophils granulocytes).

Spleen: Cuffing (F1-F5), cellular necrosis and small dense aggregates of Gram-negative bacteria (F1, F3, F5). F2 displayed a pustule-like lesions filled with mostly neutrophil-like granulocytes and aggregates of Gram-negative bacteria.

Signed: Date: 22/08/2022

Fish Health Inspector

The Fish Health Inspectorate Service Charter detailing standards of service is available on the Marine Scotland website at https://www.gov.scot/publications/fish-health-inspectorate-service-charter/

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Tel – 0131 244 3498 Fax – 0131 244 0944 Email – ms.fishhealth@gov.scot
Website - www.gov.scot/Topics/marine/science

Figure 1 External image of fish 1 to 3. Exothalmia can be seen in fish 2.

Figure 2 Gills of fish 1. Frayed tips and pale gills observed.

Figure 3 Gills of fish 2; pale and frayed significantly.

Figure 4 Significantly pale gills and frayed tips of fish 3.

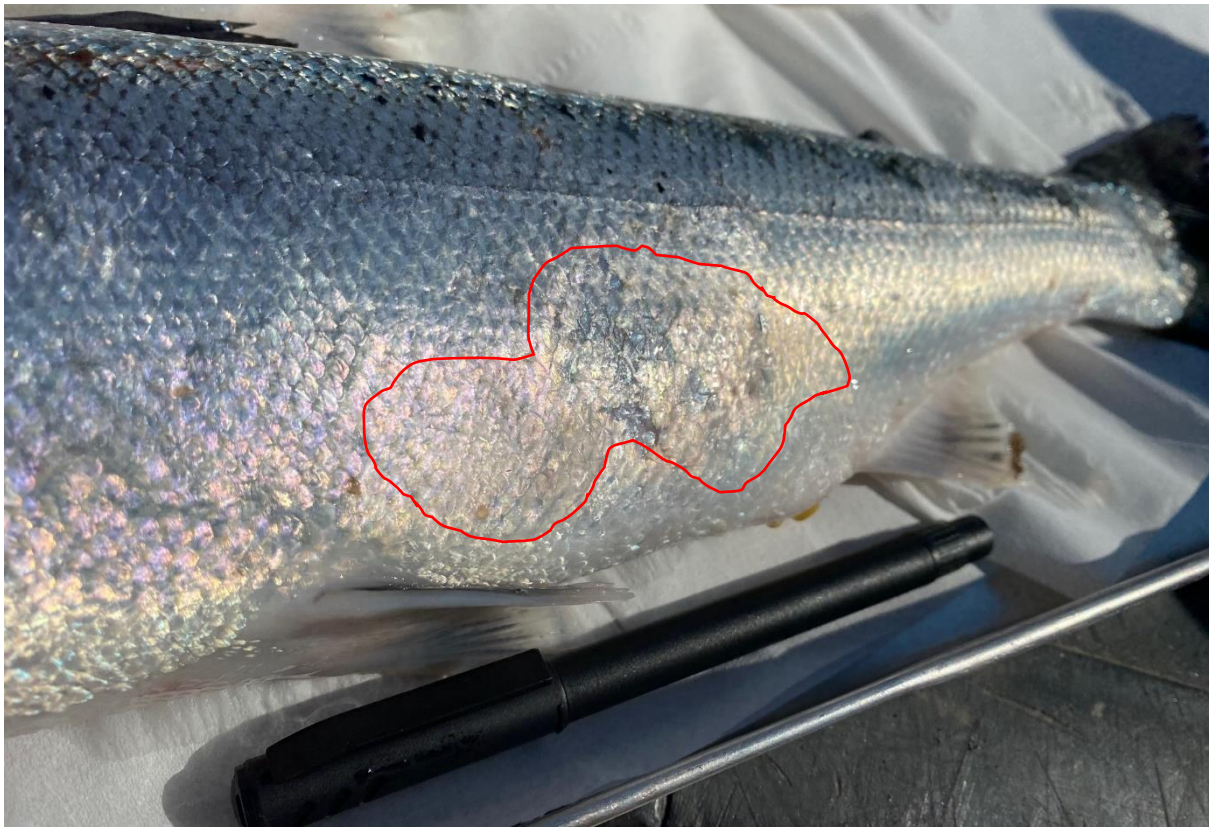

Figure 5 Region of raised scales/ 'bubbles' under the skin on fish 3.

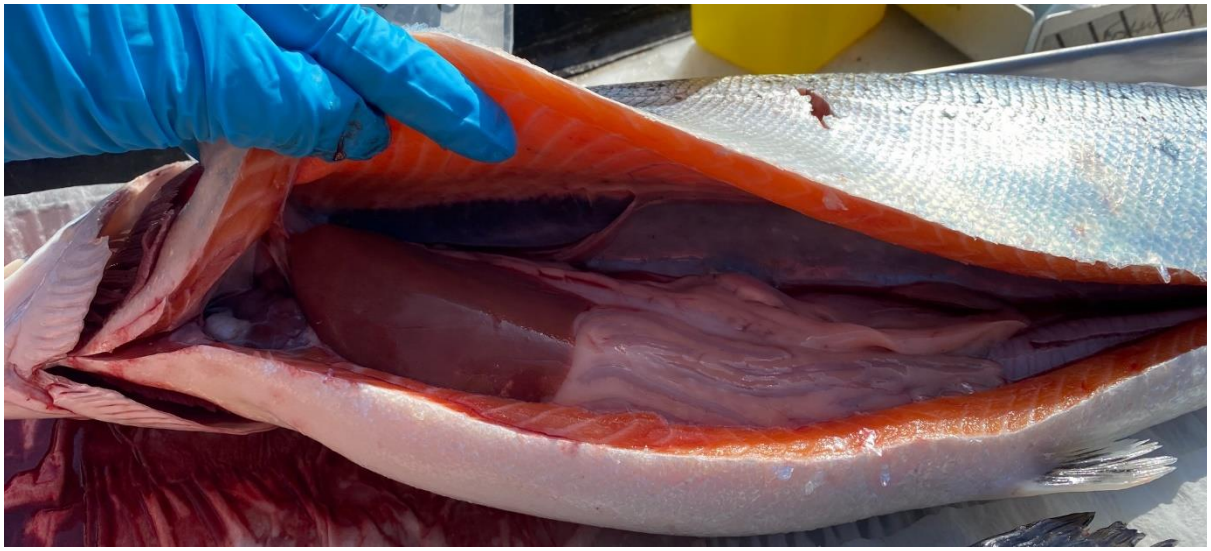

Figure 6 Internal picture of fish 1.

Figure 7 Internal picture of fish 2. Note the petechial haemorrhaging on liver. Bloody ascites observed in the cavity of the fish.

Figure 8 Internal image of fish 3, depicting slight petechial haemorrhaging on liver and on pyloric caeca. Additionally slight haemorrhaging in the flesh was observed.

Figure 9 External image of fish 4 and 5. Evidence of raised scales/'bubble' under skin on fish 5 below the dorsal fin. See figure 12 for closer image.

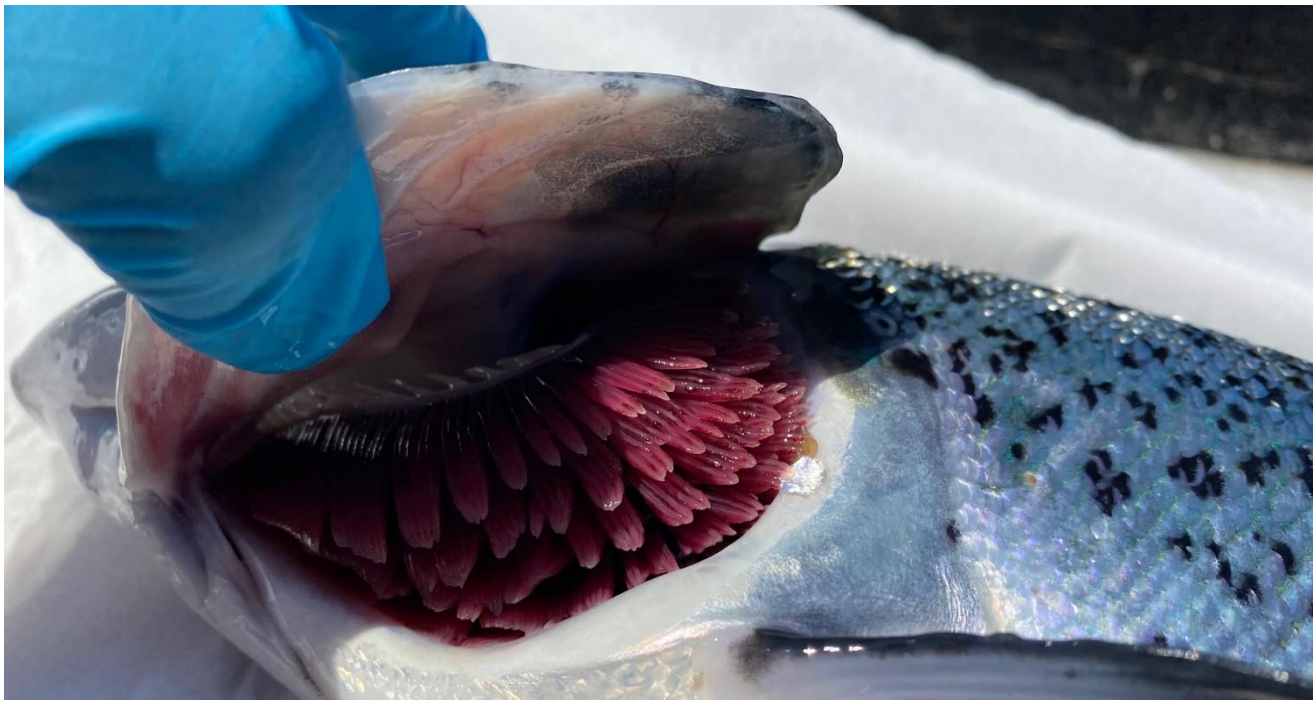

Figure 10 Image of gills from fish 4.

Figure 11 Image of gills from fish 5.

Figure 12 Region of raised scales/ 'bubble' under skin. No open lesion and when ruptured, bloody fluid escapes.

Case No: 2022-0277 Date of visit: 27/07/2022

Time spent on site: 1hour Main Inspector: [redacted]

Site No: SS0942 Site Name: Sron An Dubh Aird
Business No: SB0561 Business Name: Loch Torridon Mussels

Case Types: 1 ECI 2 3 4 5 6

Water Temp (°C): 13.75 Thermometer No: T308 FHI 045 completed

Observations: Region: HI Water type: S CoGP MA

Dead/weak/abnormally behaving fish present?	N	If yes, see additional information/clinical score sheet.
Clinical signs of disease observed?	N	If yes, see additional information/clinical score sheet.
Gross pathology observed?	N	If yes, see additional information/clinical score sheet.
Diagnostic samples taken?	N	

UNI/REG only - if unable to carry out intended visit detail reason below:

Additional Case Information:

Eider ducks have been seen on site but not seeming to cause issues. Will be revaluated upon harvest at the end of 2022.

No movements on or off site have taken place. Lines were placed into the water in 2020.

No evidence of increased or atypical mortality seen on site. Stock appeared in good condition, with minimal/no eider duck predation seen. Some fouling observed on lines. Due to weight of stock on lines some buoys were seen to be lower in the water than others. Site owner noted that more buoys will be tied on to balance out weight of mussels on the site.

BMP has been written and inspected.

Case No: 2022-0277 Site No: SS0942

Date of Visit: 27/07/2022 Inspector(s): [redacted]

Registration/Authorisation Details

1. Business/site details summary checked by site representative?	Y
2. Changes made to details?	N

Site Details (include cleaner fish for all sections)

Total No facilities		2 double lines	Facilities stocked		2 double lines	No facilities inspected	2 double lines
Species	MED						
Age group	2020						
No Fish	15 tonnes						
Mean Fish Wt	N/A						
Next Fallow Date (Site)		ongoing cycle	Next Input Date (Site)		next spat fall 2023		
Recent (last 4 wks) disease problems?			N	Any escapes (since last visit)?			N/A
If yes, detail:							

Movement Records

1. Movement records available for inspection?	Y
2. Date of last inspection:	27/07/2022
3. Are records complete and correctly entered?	Y
4. Are movement records available for dead fish and waste?	N/A
5. Are records complete and correctly entered?	N/A
6. Are health certificates for introductions (outwith GB) available?	N/A

Transport Records

1. Are any movements carried out by (or on behalf) of the business (not using a STB)?	
If yes, is there a system in place for maintenance of transportation records?	

Mortality Records

1. Mortality records available for inspection?	N/A
2. How are mortalities disposed of?	Other (detail)
If other detail:	any empty shells fall onto the seabed
3. Mortality records complete and correctly entered?	N/A
4. Recent mortality (last 4 wks):	None
5. Evidence of recent increased/atypical mortalities?	N/A
If yes, facility nos/no mortality per facility/no stock per facility/reason:	
6. Any other peaks in mortality during period checked?	N/A
If yes, detail:	
7. Have increased (unexplained) mortalities been reported to vet or FHI?	N/A
If yes, detail action:	
8. Have 'mortality events' been reported to FHI? If no, enter details on mortality events sheet.	N/A

Treatments and Medicines Records

1. Recent treatments (see comment)?	
If yes, detail:	
If other, detail:	
2. Medicines records available for inspection?	
3. Are records complete and correctly entered?	
4. Are fish in a withdrawal period?	
5. If yes, what treatment(s)?	
If other, detail:	
6. Are medicines stored appropriately?	

Biosecurity Records

1. Biosecurity records available for inspection?	Y
2. Has the manner and frequency of mortality removal, recording and safe disposal been considered?	Y
3. Has the manner and period in which the APB will notify Scottish Ministers or veterinary professional of any *increased* (*unexplained)* mortality at the site been included?	Y
4. Has the action that will be taken in the event that the presence or suspicion of the presence of a listed disease is detected been included and *how* and *when* that will be notified to Scottish Ministers?	Y
5. Has the health status of aquaculture animals being stocked on the farm site been covered (equal or higher health status, certification if required)?	Y
6. Have the husbandry and biosecurity measures implemented between each epidemiological unit to minimise transmission of disease been covered (movement of staff, visitors, equipment, live or dead fish etc.)?	Y
7. Is documentation available regarding the measures in place to maintain the physical containment of aquaculture animals held on site?	Y
8. Have the biosecurity procedures been adequately implemented on site?	Y
If no, detail:	

Results of Surveillance

1. Has any animal health surveillance been carried out by, or on behalf of, the business?	N/A
2. If yes, are results available for inspection?	
3. Any significant results?	
If yes, detail (if not detailed under recent disease problems).	

Records checked between:	27/07/2022-29/08/2022

Case Number:	2022-0277	Site No:	SS0942
Date of Visit	27/07/2022	Inspector:	[redacted]

Number of Susceptible species on site

If no susceptible species present = **LOW** risk

If susceptible species present, score for each pathogen

	No	Yes	
Susceptible to Bonamia ostrea (OED)	0	25	0
Susceptible to Marteilia refringens (OED, MED)	0	3	3
Susceptible to OsHV (CGI)	0	3	0

Sites within a tidal excursion		**1**	**2-5**	**>6**	
Site contacts	Number of sites holding susceptible species within a tidal excursion	0	2	10	2

Live shellfish movements		**0**	**1-2**	**>3**	
Movements on	Frequency of movements on from equivalent MS	0	5	10	0
	Frequency of movements on from equivalent zone or compartment including third country	0	10	20	0
	Number of suppliers	0	5	10	0
Movements off	Frequency of movements off within MSS Management Areas	0	1	2	0
	Frequency of movements off outwith MSS Management Areas	0	3	6	0
	Number of destinations	0	3	6	0

Management practices		**None**	**Secure (effluent treatment)**	**Unsecure (no effluent treatment)**	
Water contacts with depuration facilities	Depuration of stock from own sites within MSS management area	0	1	2	1
	Depuration of stock from other businesses sites within MSS management area	0	2	6	0
	Depuration of stock from sites outwith MSS management area	0	4	8	0

Biosecurity	**Number of sites**	**1**	**2 or 3**	**≥ 4**	
Contacts with other sites	Sites operating from single shorebase	0	1	2	0
	Sites sharing staff and equipment	0	1	5	0
			Yes	**No**	
	Disinfection of equipment between sites, use of footbaths etc		0	2	2

Total	**8**
Risk	**LOW**

Case No: 2022-0277 Date of visit: 27/07/2022

Site No: SS0942 Inspector: [redacted]

Results Summary	Freq.	Date of Notification						
		Database	Insp	Phone	Insp	Writing	Insp	2nd Insp

Report Summary			
Case Type	Date	Insp	2nd Insp
ECI	29/08/2022		

FISH HEALTH INSPECTORATE VISIT REPORT

SUMMARY FOR INFORMATION OF SITE OPERATOR

BUSINESS NO	SB0561	**DATE OF VISIT**	27/07/2022
SITE NO	SS0942	**SITE NAME**	Sron An Dubh Aird
CASE NO	20220277	**INSPECTOR**	[redacted]

Inspection under the Aquatic Animal Health (Scotland) Regulations 2009
The above site was inspected, in accordance with the Aquatic Animal Health (Scotland) Regulations 2009.

All epidemiological units were inspected. On this occasion no samples were taken for disease analysis. The Inspector did not observe any clinical signs associated with the listed diseases as described in the Aquatic Animal Health (Scotland) Regulations 2009.

Records

The surveillance frequency category of the site was assessed as low. An inspection under the Aquatic Animal Health (Scotland) Regulations 2009 will be conducted every fourth year. The category of the site will be reassessed on a routine basis and updated as required.

The information required for the public record of aquaculture production businesses regarding this site was verified and where necessary updated. The following records were also inspected to ensure that the conditions of authorisation for your Aquaculture Production Business (APB) are being met:

Aquaculture animal and aquaculture animal product movement records were inspected and appeared to be adequately maintained.

No mortality had been observed on site since the last inspection by Marine Scotland.

No animal health surveillance had been carried out on behalf of the business and/or Marine Scotland since the last Marine Scotland Inspection.

Please contact myself or the duty inspector should you require any further information or have any queries regarding this report.

Signed: [redacted] Date: 29/08/2022

Fish Health Inspector

The Fish Health Inspectorate Service Charter detailing standards of service is available on the Marine Scotland website at https://www.gov.scot/publications/fish-health-inspectorate-service-charter/

Marine Laboratory, 375 Victoria Road, Aberdeen, AB11 9DB
Tel – 0131 244 3498 Email – ms.fishhealth@gov.scot
Website - https://www.gov.scot/policies/fish-health-inspectorate/

Case No: 2022-0330 Date of visit: 19/07/2022

Time spent on site: 20min Main Inspector: [redacted]

Site No: SS0957 Site Name: Papa North
Business No: SB0372 Business Name: Shetland Mussels Ltd

Case Types: 1 ECI 2 3 4 5 6

Water Temp (°C): 13.6 Thermometer No: T307 FHI 045 completed

Observations: Region: SH Water type: S CoGP MA: 4a

Dead/weak/abnormally behaving fish present?	N	If yes, see additional information/clinical score sheet.
Clinical signs of disease observed?	N	If yes, see additional information/clinical score sheet.
Gross pathology observed?	N	If yes, see additional information/clinical score sheet.
Diagnostic samples taken?	N	

UNI/REG only - if unable to carry out intended visit detail reason below:

Additional Case Information:

Shells appeared clean with minimal seaweed fouling on the lines.
The site has been stocked and recording movements since June 2019, but the business applied for planning permission for the site in January 2022. Given that the business was already authorised to operate at other sites, they have recorded the required information since the site has become operational and they have already rectified the issue a warning letter will be issued on this occasion.

Case No:	2022-0330	Site No:	SS0957
Date of Visit:	19/07/2022	Inspector(s):	[redacted]

Registration/Authorisation Details

1. Business/site details summary checked by site representative?	Y
2. Changes made to details?	Y

Site Details (include cleaner fish for all sections)

Total No facilities		6	Facilities stocked		6	No facilities inspected		6
Species	MED	MED						
Age group	Mix	Mix						
No Fish	3 lines	3 lines						
Mean Fish Wt	<20mm	20-45mm						
Next Fallow Date (Site)		No plan	Next Input Date (Site)			Unsure		
Recent (last 4 wks) disease problems?			N	Any escapes (since last visit)?				N/A
If yes, detail:								

Movement Records

1. Movement records available for inspection?	Y
2. Date of last inspection:	First Inspection
3. Are records complete and correctly entered?	Y
4. Are movement records available for dead fish and waste?	N/A
5. Are records complete and correctly entered?	N/A
6. Are health certificates for introductions (outwith GB) available?	N/A

Transport Records

1. Are any movements carried out by (or on behalf) of the business (not using a STB)?	
If yes, is there a system in place for maintenance of transportation records?	

Mortality Records

1. Mortality records available for inspection?	N/A
2. How are mortalities disposed of?	Other (detail)
If other detail:	Empty shells fall to seabed.
3. Mortality records complete and correctly entered?	N/A
4. Recent mortality (last 4 wks):	None observed.
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?	N/A
If yes, detail:	
7. Have increased (unexplained) mortalities been reported to vet or FHI?	N/A
If yes, detail action:	
8. Have 'mortality events' been reported to FHI? If no, enter details on mortality events sheet.	N/A

Treatments and Medicines Records

1. Recent treatments (see comment)?	
If yes, detail:	
If other, detail:	
2. Medicines records available for inspection?	
3. Are records complete and correctly entered?	
4. Are fish in a withdrawal period?	
5. If yes, what treatment(s)?	
If other, detail:	
6. Are medicines stored appropriately?	

Biosecurity Records

1. Biosecurity records available for inspection?	Y
2. Has the manner and frequency of mortality removal, recording and safe disposal been considered?	Y
3. Has the manner and period in which the APB will notify Scottish Ministers or veterinary professional of any *increased* (*unexplained)* mortality at the site been included?	Y
4. Has the action that will be taken in the event that the presence or suspicion of the presence of a listed disease is detected been included and *how* and *when* that will be notified to Scottish Ministers?	Y
5. Has the health status of aquaculture animals being stocked on the farm site been covered (equal or higher health status, certification if required)?	Y
6. Have the husbandry and biosecurity measures implemented between each epidemiological unit to minimise transmission of disease been covered (movement of staff, visitors, equipment, live or dead fish etc.)?	Y
7. Is documentation available regarding the measures in place to maintain the physical containment of aquaculture animals held on site?	N/A
8. Have the biosecurity procedures been adequately implemented on site?	Y
If no, detail:	

Results of Surveillance

1. Has any animal health surveillance been carried out by, or on behalf of, the business?	N
2. If yes, are results available for inspection?	
3. Any significant results?	
If yes, detail (if not detailed under recent disease problems).	

Records checked between:	June 2019 - 19/07/2022

Case Number:	2022-0330	Site No:	SS0957
Date of Visit	19/07/2022	Inspector:	[redacted]

Number of Susceptible species on site

If no susceptible species present = **LOW** risk

If susceptible species present, score for each pathogen

	No	Yes	
Susceptible to Bonamia ostrea (OED)	0	25	0
Susceptible to Marteilia refringens (OED, MED)	0	3	3
Susceptible to OsHV (CGI)	0	3	0

Sites within a tidal excursion		**1**	**2-5**	**>6**	
Site contacts	Number of sites holding susceptible species within a tidal excursion	0	2	10	10

Live shellfish movements		**0**	**1-2**	**>3**	
Movements on	Frequency of movements on from equivalent MS	0	5	10	0
	Frequency of movements on from equivalent zone or compartment including third country	0	10	20	0
	Number of suppliers	0	5	10	0
Movements off	Frequency of movements off within MSS Management Areas	0	1	2	0
	Frequency of movements off outwith MSS Management Areas	0	3	6	6
	Number of destinations	0	3	6	3

Management practices		**None**	**Secure (effluent treatment)**	**Unsecure (no effluent treatment)**	
Water contacts with depuration facilities	Depuration of stock from own sites within MSS management area	0	1	2	0
	Depuration of stock from other businesses sites within MSS management area	0	2	6	0
	Depuration of stock from sites outwith MSS management area	0	4	8	0

Biosecurity	**Number of sites**	**1**	**2 or 3**	**≥ 4**	
Contacts with other sites	Sites operating from single shorebase	0	1	2	2
	Sites sharing staff and equipment	0	1	5	5
			Yes	**No**	
	Disinfection of equipment between sites, use of footbaths etc		0	2	2

Total	**31**
Risk	**HIGH**

Case No: 2022-0330 Date of visit: 19/07/2022

Site No: SS0957 Inspector: [redacted]

Results Summary	Freq.	Date of Notification						
		Database	Insp	Phone	Insp	Writing	Insp	2nd Insp

Report Summary			
Case Type	Date	Insp	2nd Insp
ECI	22/08/2022		

FISH HEALTH INSPECTORATE VISIT REPORT

SUMMARY FOR INFORMATION OF SITE OPERATOR

BUSINESS NO	SB0372	**DATE OF VISIT**	19/07/2022
SITE NO	SS0957	**SITE NAME**	Papa North
CASE NO	20220330	**INSPECTOR**	[redacted]

Inspection under the Aquatic Animal Health (Scotland) Regulations 2009

The above site was inspected, in accordance with the Aquatic Animal Health (Scotland) Regulations 2009.

All epidemiological units were inspected. On this occasion no samples were taken for disease analysis. The Inspector did not observe any clinical signs associated with the listed diseases as described in the Aquatic Animal Health (Scotland) Regulations 2009.

Records

The surveillance frequency category of the site was assessed as high. An inspection under the Aquatic Animal Health (Scotland) Regulations 2009 will be conducted annually. The category of the site will be reassessed on a routine basis and updated as required.

The information required for the public record of aquaculture production businesses regarding this site was verified and where necessary updated. The following records were also inspected to ensure that the conditions of authorisation for your Aquaculture Production Business (APB) are being met:

Aquaculture animal and aquaculture animal product movement records were inspected and appeared to be adequately maintained.

No evidence of increased mortality has been observed on site since the site was first stocked.

No animal health surveillance had been carried out on behalf of the business and/or Marine Scotland since the site was first stocked.

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

The following point was raised with the site representative during the inspection:

- The shellfish farm site had been operated between June 2019 and May 2022 whilst Shetland Mussels Ltd were not authorised to operate a shellfish farm at the location. A warning letter will be issued separately.

Please contact myself or the duty inspector should you require any further information or have any queries regarding this report.

Marine Laboratory, 375 Victoria Road, Aberdeen, AB11 9DB
Tel – 0131 244 3498 Email – ms.fishhealth@gov.scot
Website - https://www.gov.scot/policies/fish-health-inspectorate/

Signed:  Date: 22/08/2022

Fish Health Inspector

The Fish Health Inspectorate Service Charter detailing standards of service is available on the Marine Scotland website at https://www.gov.scot/publications/fish-health-inspectorate-service-charter/

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