

Case No: 2023-0358 Date of visit: 15/08/2023

Time spent on site: 3hrs Main Inspector: [Redacted]

Site No: FS1331 Site Name: Lober Rock (SMH)
Business No: FB0125 Business Name: Scottish Sea Farms Ltd

Case Types: 1 REP 2 DIA 3 4 5 6

Water Temp (°C): 13.9 Thermometer No: T152 FHI 045 completed

Observations: Region: OR Water type: S CoGP MA: O-3

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

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

Additional Case Information:

Site was re-visited following consecutive weeks of increased mortality. Salmon came on from Barcaldine Smolt Unit (FS1328) and had been performing well this cycle up until wk28 2023.

CMS and HSMI had been detected at the site earlier in the year but were not causing significant increases in mortality at that time. CMS, combined with environmental stress (low DO and presence of microjellies) has since been attributed to the cause of the increased mortality in wks28, 29 and 30.

Site is destocking through harvests and site will be fallow by the end of August/beginning of September 23.

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 Date of Visit: **15/08/2023** 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	12	Facilities stocked	7	No facilities inspected	
Species	SAL				
Age group	21 S0				
No Fish	106,771				
Mean Fish Wt	6.5kg				
Next Fallow Date (Site)	August 23	Next Input Date (Site)	October 23		
Recent (last 4 wks) disease problems?		Y	Any escapes (since last visit)?		
If yes, detail:	CMS, HSMI				

Movement Records

- 1. Movement records available for inspection?
- 2. Date of last inspection: **14/06/2023**
- 3. Are records complete and correctly entered?
- 4. Are movement records available for dead fish and waste?
- 5. Are records complete and correctly entered?
- 6. Are health certificates for introductions (outwith GB) available?

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?
- 2. How are mortalities disposed of? **Other (detail)**
 Whole fish transferred in sealed bins to shorebase where they are uplifted in bulkers to Keen ensiling.
- 3. Mortality records complete and correctly entered?
- 4. Recent mortality (last 4 wks): **Wk32: 470 (0.44%), Wk31: 506 (0.37%) , Wk30: 9,097 (6,2%), W (1.8%), WK28: 3,394 (2.06%)**
- 5. Evidence of recent increased/atypical mortalities?
 If yes, facility nos/no mortality per facility/no stock per facility/reason:
Increased mortality in recent weeks attributed to CMS combined with low DO and presence of microjellies at site.
- 6. Any other peaks in mortality during period checked?
 If yes, detail:
- 7. Have increased (unexplained) mortalities been reported to vet or FHI?
 If yes, detail action:
- 8. Have 'mortality events' been reported to FHI? If no, enter details on mortality events sheet.

Treatments and Medicines Records

1. Recent treatments (see comment)?

If yes, detail:

Optomease

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)?

Optomease

If other, detail:

6. Are medicines stored appropriately?

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?

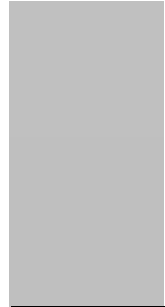
2. If yes, are results available for inspection?

3. Any significant results?

If yes, detail (if not detailed under recent disease problems).

Records checked between:

14/06/23 - 08/08/23



12
N

Y
Y
Y
Y
N/A

Y

ans for
Y
k29: 2,928

Y

N
N/A
Y

Case no: Site No: Date of visit/
Sampling:

Priority samples: VI BA PA MG HI

Time sampling starts/ends: Inspector: VMD No.

Environmental conditions: 1 2 3 4 5

Summary samples HIST BA MG VI PA Total Samples

Add Fish/Pool - click

Pool/Fish No	F1	F2	F3	F4	F5							
Fish nos	1	2	3	4	5							
Pool Group	P1	P2	P3	P4	P5							
Species	SAL	SAL	SAL	SAL	SAL							
Average weight	6.5kg	6.5kg	6.5kg	6.5kg	6.5kg							
Sex	N/A	N/A	N/A	N/A	N/A							
Water Type	SW	SW	SW	SW	SW							
Stock Details	Stock Origin	Barcaldine Smolt Unit FS1328	Barcaldine Smolt Unit FS1328	Barcaldine Smolt Unit FS1328	Barcaldine Smolt Unit FS1328	Barcaldine Smolt Unit FS1328						
	Facility No	3	3	8	8	12						

Case no: 2023-0358

Site No: FS1331

Method of killing: Percussive

Date of visit: 15/08/2023

Inspector(s):

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)										
External Signs										
Behaviour	Moribund	S	S	M	S	S				
	Lethargic			M						
	Hanging vertical									
	Spiralling									
	Flashing									
Loss of equilibrium										
Body	Dark									
	Distended abdomen									
	Anorexic	S	S		S	S				
Scale Oedema										
Opercula	Shortened									
	Flared									
Haemorrhaging	Throat									
	Ventrum				W					
	Base of fins				M					
Elsewhere										
Eyes	Exophthalmic									
	Enophthalmic (sunken)									
	Cataract				S	S				
Haemorrhagic										
Gills	Pale	M	S	W	M	M				
	Zoned									
	Necrotic	M	M		M	S				
Lesions	Flank									
	Elsewhere									
Vent	Inflamed									
	Trailing faeces									
Lice Load	Estimate numbers		6	14	3	7	19			
Internal Signs										
Ascites	Clear		W		W	W				
	Bloody									
Oedema	In tissues									
Heart	Pale/anaemic	M	M	W	M	M				
	Granulomas									
	Deformed									
Liver	Petechial haem									
	Gross haem									
	Tissue breakdown									
	Enlarged									
Colour number(s)										
			5	4	5	3	2			
Granulomas										
Lesions										
Pyloric caeca	Petechial haem									
	Tubules mauve									
	Lack of fat	W	S		S	S				
Spleen	Enlarged			W						
	Granulomas									
Gut	No food present	S								
	Yellow pseudo-faeces		M		S	M				
	External haem									
Internal haem										
Body wall	Haemorrhaging									
Swim bladder	Haemorrhaging									
	Fluid filled									
Kidney	Swollen									
	Grey									
	Granular									
	Liquefied									
General	Parasites present									
	Anaemia									

Additional comments:

Site No: FS1331
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Nature of non-compliance:
Action taken (FHI):
Non-compliance relevant to (delete): VirologyMolGen/Bacteriology/Histology/Parasitology



FISH HEALTH INSPECTORATE VISIT REPORT

SUMMARY FOR INFORMATION OF SITE OPERATOR

BUSINESS No	FB0125	DATE OF VISIT	15/08/2023
SITE No	FS1331	SITE NAME	Lober Rock (SMH)
CASE No	20230358	INSPECTOR	[REDACTED]

Section 1: Summary

The site was inspected due to recent mortality reports above the reporting threshold, all attributed to viral disease. Five fish were selected for diagnostic sampling.

Histopathological examination revealed features consistent with mild hyperplastic branchitis and cardiomyopathy syndrome (CMS). One fish also displayed features resembling the presence of salmonid alphavirus (SAV). Salmonid alphavirus (SAV) and piscine myocarditis virus (PMCV) were confirmed by qPCR. Fish also displayed features of osmotic imbalance and cachexia.

Paranucleospora theridion, and salmon gill poxvirus were also detected by qPCR.

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

Lober Rock (SMH) was inspected due to recent, consecutive mortality reports above the reporting criteria, all attributed to viral disease and which resulted in the loss of 16,553 fish in a 4-week period. At the time of inspection, the site was stocked with 106,771 S0 Atlantic salmon at an average weight of 6.5kg originating from the Barcaldine Smolt Unit (FS1328). All cages were inspected and mortalities and moribund fish were observed in the majority of cages on site. Five moribund fish were removed from cages 3, 8 and 12 for diagnostic sampling.

All five fish were moribund and 4/5 fish were anorexic. Haemorrhaging was noted on the ventral surface and flank of F4. Cataracts were observed in the eyes of F4 and F5. The gills of all five fish were pale and necrosis of the gills was noted in F1-2 and F4-5. Internally, F2, 4 and 5 had clear ascites in the body cavity and all five fish had pale/anaemic hearts. There was an obvious lack of fat surrounding the pyloric caeca of F1-2 and F4-5, and the spleen of F3 was enlarged. No food was present in the gut of F1 and yellow pseudo-faeces were present in the guts of F2, 4 and 5.

Samples

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

Fish number	Facility number	Species	Stage	Origin
F1-2	3	Atlantic salmon	21 S0	Barcaldine Smolt Unit (FS1328)
F3-4	8	Atlantic salmon	21 S0	Barcaldine Smolt Unit (FS1328)
F5	12	Atlantic salmon	21 S0	Barcaldine Smolt Unit (FS1328)

Results

Bacteriology: Kidney and gill material from F1-5 were inoculated onto appropriate media for the isolation of bacteria.

No significant bacteria were isolated.

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

Piscine myocarditis virus (CMS)

Fish Number	Endogenous control Cp value	Cp Values			Reported Result (PCR)
F1	16.47	31.23	31.09	30.68	POSITIVE
F2	16.63	30.00	29.50	29.17	POSITIVE
F3	16.95	27.22	26.75	26.81	POSITIVE
F4	17.32	30.26	29.11	30.17	POSITIVE
F5	17.32	26.17	25.97	26.63	POSITIVE

Salmon gill poxvirus (SGPV)

Fish Number	Endogenous control Cp value	Cp Values			Reported Result (PCR)
F1	-	-	-	-	Negative
F2	-	-	-	-	Negative
F3	19.72	34.91	35.13	35.96	POSITIVE
F4	-	-	-	-	Negative
F5	-	-	-	-	Negative

Salmonid alphavirus (SAV)

Fish Number	Endogenous control Cp value	Cp Values			Reported Result (PCR)
F1	-	-	-	-	Negative
F2	-	-	-	-	Negative
F3	16.95	28.49	29.02	28.84	POSITIVE
F4	17.32	33.74	34.05	35.09	POSITIVE
F5	-	-	-	-	Negative

The samples tested negative for infectious haematopoietic necrosis virus (IHNV), infectious pancreatic necrosis virus (IPNV), infectious salmon anaemia virus (ISAV) 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).

Paranucleospora theridion

Fish Number	Endogenous control Cp value	Cp Values			Reported Result (PCR)
F1	-	-	-	-	Negative
F2	19.83	35.19	36.18	35.33	POSITIVE
F3	19.72	34.98	36.33	35.36	POSITIVE
F4	-	-	-	-	Negative
F5	-	-	-	-	Negative

The samples tested negative for *Neoparamoeba perurans* (AGD).

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

Histopathological examination revealed the following:

Gill: Lamellar hyperplasia, very mild to mild, multifocal (F1, F2, F3, F4) with haemorrhage, (F2, F4) lamellar necrosis. F5 displayed one plankton-like structure between two gill filaments. Some aneurysmal dilation/telangiectasia (F1), free blood among gill filament (F3) and lamellar congestion observed in all fish (likely due to persecutive stunning).

Skin & Muscle: Skeletal white muscle necrosis, mild, multifocal (F2).

Heart: Myocarditis, minor, multifocal (F1, F2, F3) and moderate necrotising myocarditis (F5).

Gut and pyloric caeca: Reduced to absence of adipose tissues observed in all fish.

Pancreas: Within the normal range.

Liver: Some sinusoidal congestion (F5). Renal tubules with some epithelial vacuolation (F2).

Kidney: Increase number of melanomacrophage aggregates in all fish.

Spleen: Slightly to marked congestion in all fish.



Signed:

Date: 07/09/2023

Fish Health Inspector

The Fish Health Inspectorate Service Charter detailing standards of service is available on the Scottish Government website at [Fish Health Inspectorate Service Charter - gov.scot](http://www.gov.scot/Fish_Health_Inspectorate_Service_Charter) (www.gov.scot)