

Case No: 2023-0530 Date of visit: 21/11/2023

Time spent on site: 4 Hours Main Inspector:

Site No: FS1118 Site Name: Trilleachan Mor
Business No: FB0119 Business Name: Mowi Scotland Ltd

Case Types: 1 DIA 2 REP 3 4 5 6

Water Temp (°C): 11.1 Thermometer No: T309 FHI 045 completed N/A

Observations: Region: WI Water type: S CoGP MA: W-6

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 inspected in response to rapid increased mortality. Week 45 (54,755, 9.93%) and Week 46 (77,987, 15.7%) attributed to a combination of issues including AGD, PGD, treatment losses and bacterial infection.

Due to time constraints imposed by poor weather on the date of inspection, only 2 pens were inspected for clinical signs of disease. 5 fish were removed for diagnostic sampling from the two pens inspected, sampling was conducted in a rough sea state in wet and windy weather on the floor of the sites voe boat.

From inspection of the stock, approximately 50 fish in each pen were observed as moribund and lethargic. A healthy population of fish was observed shoaling in each pen.

The most recent results reported from the site company vet was on 21/11/2023 which showed positives for PRV, P.Skyensis, Piscirickettsia, Yersinia and Tenacibaculum.

Site planning to treat Aquatet (Oxtetracycline) antibiotics, 10 - 14 day treatment started Friday 24th.

Slice treatment 16/11/2023, Tricaine, 14/11/2023 Freshwater FLS, 3 hour treatments.

Cleanerfish mortality (Wrasse) - Wk 47 (217, 1.03%), Wk 46 (36, 0.17%), Wk 45 (70, 0.33%), Wk 44 (98, 0.46%).

Cleanerfish mortality (Lumpfish) - Wk47 (615, 0.73%), Wk46 (138, 0.16%), Wk45 (1,144, 1.33%), Wk 44 (525, 0.61%)

Case No: **2023-0530** Site No: **FS1118**
 Date of Visit: **21/11/2023** 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	5	Facilities stocked	4	No facilities inspected	2
Species	SAL	LUMP	Wrasse		
Age group	2023 Q1	2023	2023		
No Fish	316,750	84,064	20,827		
Mean Fish Wt	2.7kg	40g	80 - 100g		
Next Fallow Date (Site)	09/2024		Next Input Date (Site)	12/2025	
Recent (last 4 wks) disease problems?			Y	Any escapes (since last visit)?	N
If yes, detail:	See additional info				

Movement Records

1. Movement records available for inspection? **Y**
 2. Date of last inspection: **31/05/2022**
 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)? **[REDACTED]**
 If yes, is there a system in place for maintenance of transportation records? **[REDACTED]**

Mortality Records

1. Mortality records available for inspection? **Y**
 2. How are mortalities disposed of? **Other (detail)**
 If other detail: **Whole fish - whiteshore cockles**
 3. Mortality records complete and correctly entered? **Y**
 4. Recent mortality (last 4 wks): **Wk 47 (41,386, 11.56%), Week 46 (138,693, 27.92%), Week 45 (54,755, 9.93%), Week 44 (9,870, 1.76%)**
 5. Evidence of recent increased/atypical mortalities? **Y**
 If yes, facility nos/no mortality per facility/no stock per facility/reason:
All stocked facilities affected by increased mortality. Mortality onsite has been elevated since Wk42. See additional info.
 6. Any other peaks in mortality during period checked? **N**
 If yes, detail: **[REDACTED]**
 7. Have increased (unexplained) mortalities been reported to vet or FHI? **N/A**
 If yes, detail action: **[REDACTED]**
 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)?	<input type="checkbox"/>	Y
If yes, detail: SLICE		
If other, detail: T.M.S		
2. Medicines records available for inspection?	<input type="checkbox"/>	Y
3. Are records complete and correctly entered?	<input type="checkbox"/>	Y
4. Are fish in a withdrawal period?	<input type="checkbox"/>	Y
5. If yes, what treatment(s)?	<input type="checkbox"/>	SLICE
If other, detail: T.M.S		
6. Are medicines stored appropriately?	<input type="checkbox"/>	Y

Biosecurity Records

1. Biosecurity records available for inspection?	<input type="checkbox"/>
2. Has the manner and frequency of mortality removal, recording and safe disposal been considered?	<input type="checkbox"/>
3. Has the manner and period in which the APB will notify Scottish Ministers or veterinary professional of any <i>increased (unexplained)</i> mortality at the site been included?	<input type="checkbox"/>
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 <i>how</i> and <i>when</i> that will be notified to Scottish Ministers?	<input type="checkbox"/>
5. Has the health status of aquaculture animals being stocked on the farm site been covered (equal or higher health status, certification if required)?	<input type="checkbox"/>
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.)?	<input type="checkbox"/>
7. Is documentation available regarding the measures in place to maintain the physical containment of aquaculture animals held on site?	<input type="checkbox"/>
8. Have the biosecurity procedures been adequately implemented on site?	<input type="checkbox"/>
If no, detail:	

Results of Surveillance

1. Has any animal health surveillance been carried out by, or on behalf of, the business?	<input type="checkbox"/>	Y
2. If yes, are results available for inspection?	<input type="checkbox"/>	Y
3. Any significant results?	<input type="checkbox"/>	Y
If yes, detail (if not detailed under recent disease problems). See additional info		

Records checked between:	31/05/2022 - 21/11/2023
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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/Pools - click

Pool/Fish No	F1	F2	F3	F4	F5							
Fish nos	1	2	3	4	5							
Pool Group												
Species	SAL	SAL	SAL	SAL	SAL							
Average weight	1.7kg	1.7kg	1.7kg	1.7kg	1.7kg							
Sex	N/A	N/A	N/A	N/A	N/A							
Water Type	SW	SW	SW	SW	SW							
Stock Details		Seaforth (FS1042)	Seaforth (FS1042)	Seaforth (FS1042)	Seaforth (FS1042)	Seaforth (FS1042)						
	Stock Origin											
Facility No	4	4	4	3	3							

Case no: 2023-0530

Site No: FS1118

Method of killing: Percussive

Date of visit: 21/11/2023

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)						0	15						
External Signs													
Behaviour	Moribund	S	S	S	S	S							
	Lethargic	S	S	S	S	S							
	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	M	M	M	M	M							
	Zoned												
	Necrotic												
Lesions	Flank												
	Elsewhere												
Vent	Inflamed	W		W									
	Trailing faeces												
Lice Load	Estimate numbers		3	5	1	8	4						
Internal Signs													
Ascites	Clear	S	S	S	S	S							
	Bloody	W	W	W	W	W							
Oedema	In tissues												
Heart	Pale/anaemic												
	Granulomas	W	W	W	W	W							
	Deformed												
Liver	Petechial haem												
	Gross haem		W										
	Tissue breakdown												
	Enlarged												
	Colour number(s)		4	4	3	3	4						
	Granulomas												
	Lesions												
Pyloric caeca	Petechial haem	W	W	W		M							
	Tubules mauve												
	Lack of fat		W			W							
Spleen	Enlarged												
	Granulomas												
Gut	No food present	S	S	S	S	S							
	Yellow pseudo-faeces												
	External haem												
	Internal haem												
Body wall	Haemorrhaging												
Swim bladder	Haemorrhaging	M	M	M		M							
	Fluid filled	S	S	S	S	S							
Kidney	Swollen												
	Grey												
	Granular												
	Liquefied												
General	Parasites present												
	Anaemia												

Additional comments:

Pericardium was fluid filled around the heart of each fish. Heart had what looked like white scar tissue present in each fish.

Site No: FS1118
Case No: 2023-0530
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	FB0119	DATE OF VISIT	21/11/2023
SITE No	FS1118	SITE NAME	Trilleachan Mor
CASE No	20230530	INSPECTOR	██████████

Section 1: Summary

The above site was inspected following reports of increased mortality by the farm operator. During the physical inspection of the site, five fish were removed for diagnostic sampling.

Histopathologic examination revealed chronic, multifocal splenitis, nephritis and myocarditis with moderate pericarditis potentially associated with bacterial infection. However, no associated bacterial isolation was made due to an absence of specific media. Mild, multifocal, hyperplastic branchitis was also observed.

Vibrio was identified on plates taken from kidney material of 4/5 fish. The level and purity of growth would not suggest this bacterium would be implicated as the primary source of morbidity.

Five fish tested positive for *Paranucleospora theridion* and salmon gill poxvirus (SGPV) and one fish tested positive for *Neoparamoeba perurans* 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

The site was inspected following reports of increased mortality by the farm operator. At the time of visit the site was stocked with 316,750 Atlantic salmon at an average weight of 2.7kg.

Mortality at Trilleachan Mor peaked at its highest level in weeks 45 (54,755 9.93%) and 46 (77,987, 15.7%) with mortality being attributed to a combination of issues including AGD, proliferative gill disease (PGD), treatment losses and bacterial infection.

Upon the physical inspection of the stocks, the visible population of fish presented as moribund and slow moving. Fish in pens 3 and 4 displayed more severe in regards to clinical signs of disease, five fish were removed from these pens for diagnostic sampling.

All fish removed for sampling presented as moribund prior to sampling. Externally, the gills of all five fish were pale. Lice levels observed on fish removed for sampling ranged between 1 and 8 lice per fish of all stages. The ventrum of F1 and F3 was inflamed.

Internally, bloody ascites was present in all fish sampled. The pericardium in all fish sampled was fluid filled and heart of each fish had some tissue discolouration. Petechial haemorrhaging was observed to the pyloric caeca in F1, F2, F3 and F5 and a lack of fat was observed in F2 and F5 to the organ. The swim bladder was fluid filled in all fish sampled and petechial haemorrhaging was

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observed in F1, F2, F3 and F5. Some haemorrhaging was present to the liver of F2 and F5 and the liver of F3 was pale.

Samples

Samples were collected from 5 fish according to the table below:

Fish number	Facility number	Species	Stage	Origin
F1 – F3	4	Atlantic salmon	2023 Q1 1.7kg	Seaforth (FS1042)
F4 – F5	3	Atlantic salmon	2023 Q1 1.7kg	Seaforth (FS1042)

Results

Bacteriology: Kidney and gill material from five fish was inoculated onto appropriate media for the isolation of bacteria.

The following bacteria were isolated:

- *Vibrio sp.*: F1, F2, F3 and F4 (Kidney).

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	20.85	22.22	22.35	22.40	POSITIVE
F2	19.52	21.41	21.50	21.54	POSITIVE
F3	20.08	20.32	20.26	20.31	POSITIVE
F4	19.28	22.30	22.27	22.31	POSITIVE
F5	19.34	22.54	22.58	22.59	POSITIVE

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

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	20.85	34.72	34.81	35.30	POSITIVE
F2	-	-	-	-	negative
F3	-	-	-	-	negative

F4	-	-	-	-	negative
F5	-	-	-	-	negative

Paranucliospora theridion

Fish Number	Endogenous control Cp value	Cp Values			Reported Result (PCR)
F1	20.85	25.44	25.43	25.53	POSITIVE
F2	19.52	27.40	27.58	27.50	POSITIVE
F3	20.08	28.11	27.96	28.17	POSITIVE
F4	19.28	30.77	30.88	30.85	POSITIVE
F5	19.34	28.55	28.87	28.86	POSITIVE

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 revealed the following:

Gill: Lamellar hyperplasia and fusion, mild, multifocal (F1-F5), F2 also displayed minor foci of cellular necrosis and F3 some vascular disturbance. Some basophilic epithelial inclusions (likely epitheliocystis) observed in F4. F5 also displayed a small focal area with rod-shaped bacterial aggregates and some lamellar adhesions, mild, multifocal. Some aneurysmal dilation/telangiectasia (F1-F5).

Skin & Muscle: Within the normal range.

Heart: Myocarditis multifocal, ranging from very minor to minor (F3, F5) and few thrombi (F3). Necrotising epicarditis, moderate, diffuse (F1-F5) with few rod-shaped Gram-negative bacteria (F1, F2, F5), few intracellular round blue structures resembling bacteria that stained Gram-negative (likely *Piscirickettsia* sp.) (F2, F3, F4) and foci of granulomatous inflammation displaying centrally splendore-hoepli reaction (homogeneous eosinophilic material) and an area of mineralisation (F3), and F2 displayed occasional round blue structures resembling bacteria (likely *Piscirickettsia* sp.). Areas of light H&E stain observed in the compact layer of the ventricle chamber (F1). Several thrombi nests observed in the ventricle of F3 and F4 and foci of granulomatous inflammation displaying centrally splendore-hoepli reaction (homogeneous eosinophilic material) (F4, F5) and multinucleated giant cells (F5).

Gut and pyloric caeca: Peritonitis, mild, multifocal (F1, F4). F5: Almost no gut.

Pancreas: Within the normal range.

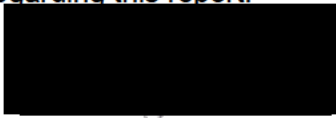
Liver: Capsulitis (F1-F4), some cuffing (F1). Hepatocellular necrosis, mild, multifocal (F2, F3, F4, F5).

Kidney: Interstitial necrosis, minor, multifocal (F1, F2, F5) with occasional rod-shaped Gram-negative bacteria F1 and F3, F4 with foci of granulomatous inflammation displaying centrally splendore-hoepli reaction (homogeneous eosinophilic material).

Spleen: F3, F5 displayed foci of granulomatous inflammation displaying centrally splendore-hoepli reaction (homogeneous eosinophilic material) and F4 to a lesser extent. Some cuffing (F1) and necrosis, mild, multifocal (F1). F2: spleen not present.

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

Signed:



Date: 12/01/2024

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 \(www.gov.scot\)](http://www.gov.scot/policies/fish-health-inspectorate/)

FS1118/FB0119 Trilleachan Mor – 2023-0530

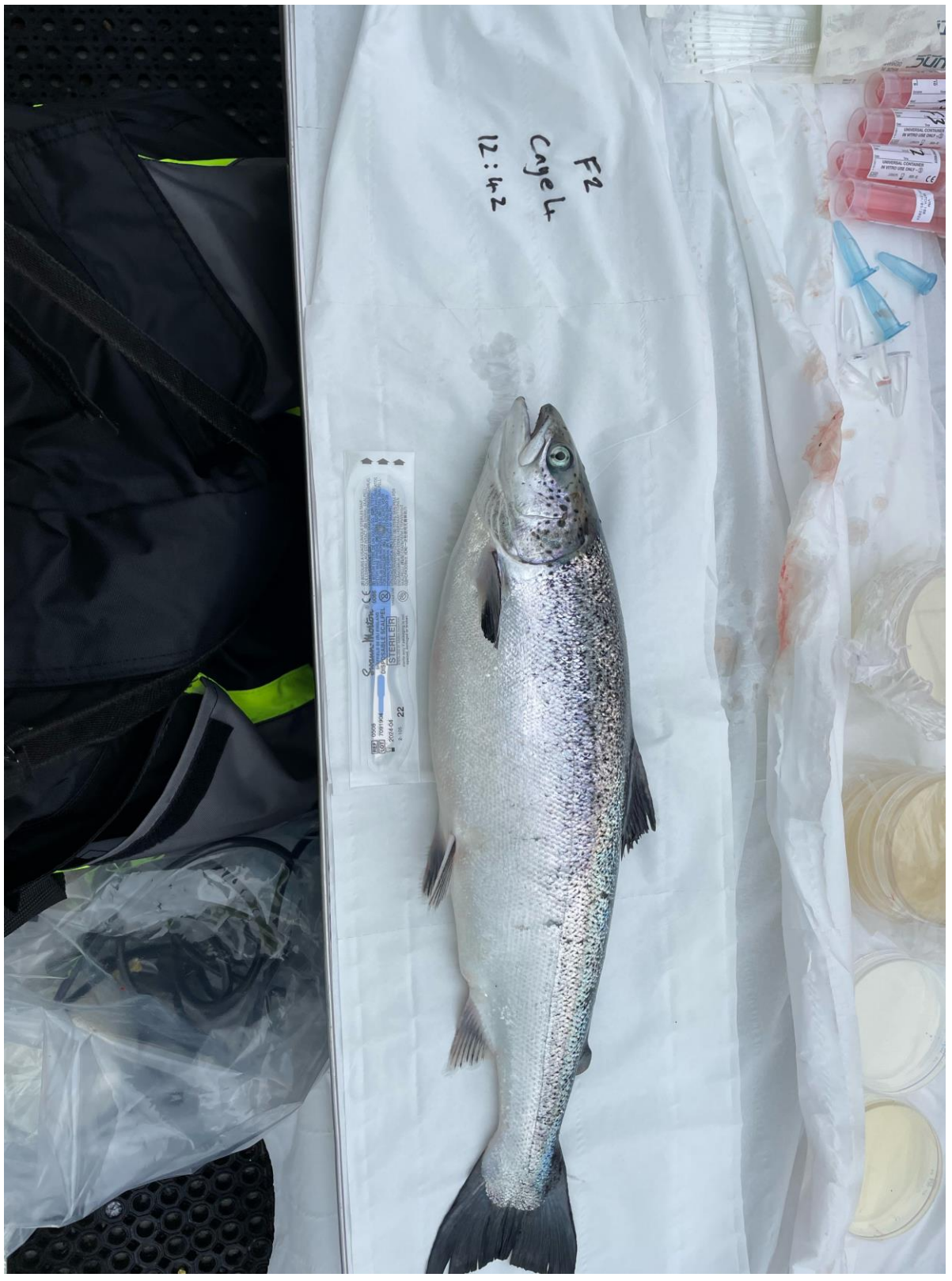








F2







F3







F4









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STERILE
Surgical Instruments
DIN EN ISO 15848-1
DIN EN ISO 15848-2
DIN EN ISO 15848-3
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Shimizu



KAUSAGE UNIKUJIE STERIL ES TANT
GESTI INPAI CAALPEL TIBI STEIPO
DNO STERN OUSO. (GR) TASZNAKATI

