Case No: 2024-0273 Date of visit: 20/08/2024

Time spent on site: 5 hrs 30 mins Main Inspector: [redacted]

Site No: FS0594 Site Name: Aird
Business No: FB0169 Business Name: Bakkafrost Scotland

Case Types: 1 ECI 2 CNI 3 SLI 4 VMD 5 REP 6 DIA

Water Temp (°C): 13.49 Thermometer No: T308 FHI 045 completed N/A

Observations: Region: HI Water type: S CoGP MA M-17

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/stock details and mortality records inspected remotely on 14/08/2024; lead by [redacted], supervised by [redacted]. Treatment, sea lice and FMS records inspected remotely on 16/08/2024; lead by [redacted], supervised by [redacted]. Movement, transport, biosecurity, health surveillance records inspected on 20/08/24; lead by [redacted], supervised by [redacted].

For increased mortalities, in recent weeks, MV Bakkanes which has an ensiler has been used but this has now stopped as coping with normal process of Billy Bowie skips onshore.

Salmon transferred in Jan, Feb and Mar 2024 from Applecross Smolt Unit (FS0500), Kinlochmoidart (FS0146) and Loch Lochy (FS0150); first input was 29/01 and last input 10/03. After transfer to site an increase in mortality was observed as a results of furunculosis in the Applecross stock (risk assessment seen for movement of stock). Mortality then settled down before a period of elevated mortality observed initially in pens 4 and 5; mortality was attributed to Enteric Redmouth (ERM) bacterial disease. Mortality in week 33 remained elevated with site staff observing red eyes and exothalmaia. AGD levels now beginning to rise on site, freshwater (FW) treatment scheduled for 22/08/2024 - pens 3, 4, 5 and 14 only initially.
Feed response across the site is still good even with plankton in the loch disturbing the routine feeding schedule. Increased mortality removal has been implemented onsite (3 times daily) and the in house biologist visits have been increased to every week. During site inspection, site biologist was also present.

FW treatment occurred in week 23 and 29 (3 hour flush); SLICE treatment ended 18/07/2024.

Wrasse origin - wild (Tobermory, Mull) and farmed (Otter Ferry Seafish Ltd, FB0012).

A farm management agreement between operators within Loch Torridon (M17) is currently being written and will supersede the current statements inspected on 16/08/2024.

Case No: 2024-0273 Site No: FS0594

Date of Visit: 20/08/2024 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	14	Facilities stocked		12	No facilities inspected		14
Species	SAL	WRS					
Age group	Q1 2024	Mixed					
No Fish	991,137	32,056					
Mean Fish Wt	889 g	Mixed					
Next Fallow Date (Site)	August 2025		Next Input Date (Site)		December 2025/January 2026		
Recent (last 4 wks) disease problems?		Y	Any escapes (since last visit)?				N
If yes, detail:	Enteric Redmouth (ERM) bacterial disease and amoebic gill disease (AGD)						

Movement Records

1. Movement records available for inspection?	Y
2. Date of last inspection:	10/05/2022
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)?	Y
If yes, is there a system in place for maintenance of transportation records?	Y

Mortality Records

1. Mortality records available for inspection?	Y
2. How are mortalities disposed of?	Other (detail)
If other detail:	See additional information
3. Mortality records complete and correctly entered?	Y
4. Recent mortality (last 4 wks):	SAL - wk 29: 0.48 % (6211 fish); wk 30: 0.40 % (5090 fish); wk 31: 7.92 % (101,016 fish), wk 32: 9.77 % (114,678 fish), wk 33: 4.36 % (45,800 fish). WRS - wk 29: 3.04 % (1170 fish); wk 30: 4.67 % (1726 fish); wk 31: 4.23 % (1506 fish); wk 32: 5.19 % (1756 fish), wk 33: 2.48% (816).
5. Evidence of recent increased/atypical mortalities?	Y

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

04/08/24 was the end of first week mortality notification received regarding ERM; pen 14 - 7.21 % (5481 fish), pen 5 - 3.36 % (4447 fish), pen 4 - 3.37 % (4447 fish). Peak day mortality so far 05/08/24 at 2.69 % (21,156 fish); largest percentage mortality came from pen 14.

6. Any other peaks in mortality during period checked?	Y
If yes, detail:	wk 6 2024: 7.37 % (86,640 fish), wk 7: 8.35 % (90,908 fish), wk 8: 6.9 % (68,859 fish), wk 9: 1.68 % (19,607 fish) - transfer mortality attributed to furunculosis at Applecross Smolt Unit (this was an emergency transfer).
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 and SLICE
If other, deta	
2. Medicines records available for inspection?	Y
3. Are records complete and correctly entered?	Y
4. Are fish in a withdrawal period?	Y
5. If yes, what treatment(s)?	T.M.S and SLICE
If other, deta	
6. Are medicines stored appropriately?	Y

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?	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).	
3rd party health surveillance identified Yersinia Ruckeri, causative agent of ERM.	
Records checked between:	10/05/2022-20/08/2024

Case no:	2024-0273	Site No:	FS0594	Date of visit/ Sampling:	20/08/2024	20/(							
Priority samples:	VI		BA		PA		MG		HI				
Time sampling starts/ends:	15:35:00	16:50:00	Inspector:		VMD No.	7							
Environmental conditions:	1	Indoors	2		3		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	6-7						
	Pool Group	P1	P2	P3	P4	P5							
Stock Details	Species	SAL	SAL	SAL	SAL	SAL	SAL						
	Average weight	0.8890	0.8890	0.8890	0.8890	0.8890	0.8890						
	Sex	N/A	N/A	N/A	N/A	N/A	N/A						
	Water Type	SW	SW	SW	SW	SW	SW						
	Stock Origin	Applecross Smolt Unit (FS0500)	Applecross Smolt Unit (FS0500)	Applecross Smolt Unit (FS0500)	Applecross Smolt Unit (FS0500)	Applecross Smolt Unit (FS0500)	Loch Lochy (FS0150)						
	Facility No	3	4	4	3	3	6						

08/2024 Additional Sample Information:

Diagnostic samples - fish 1, 2, 5 performed by [redacted] shadowed by [redacted], fish 3 and 4 performed by [redacted] shadowed by [redacted]. VMD sampled by [redacted].

5 Total Tests assigned 4

Case no: 2024-0273 Site No: FS0594 Method of killing: Percussive

Date of visit: 20/08/2024 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)			50mins	70mins	103min	103min					
External Signs											
Behaviour	Moribund	S	S	S	S	S					
	Lethargic	S	S	S	S	S					
	Hanging vertical										
	Spiralling										
	Flashing										
	Loss of equilibrium										
Body	Dark	S	S	S	S	S					
	Distended abdomen										
	Anorexic					W					
	Scale Oedema										
Opercula	Shortened					M					
	Flared										
Haemorrhaging	Throat										
	Ventrum	W				M					
	Base of fins	W			W						
	Elsewhere	W			W	W					
Eyes	Exophthalmic	W									
	Enophthalmic (sunken)										
	Cataract				W						
	Haemorrhagic	M		W							
Gills	Pale		W	W							
	Zoned					W					
	Necrotic										
Lesions	Flank										
	Elsewhere										
Vent	Inflamed	S				S					
	Trailing faeces										
Lice Load	Estimate numbers	0	0	0	0	0					
Internal Signs											
Ascites	Clear										
	Bloody	S									
Oedema	In tissues										
Heart	Pale/anaemic										
	Granulomas										
	Deformed										
Liver	Petechial haem	W									
	Gross haem										
	Tissue breakdown										
	Enlarged										
	Colour number(s)	2	2	2	4	2					
	Granulomas										
	Lesions										
Pyloric caeca	Petechial haem	W			W						
	Tubules mauve										
	Lack of fat					W					
Spleen	Enlarged	S	S	M	S	S					
	Granulomas										
Gut	No food present	S	S	S	S	S					
	Yellow pseudo-faeces	S		S							
	External haem										
	Internal haem										
Body wall	Haemorrhaging										
Swim bladder	Haemorrhaging	W	W	W							
	Fluid filled										
Kidney	Swollen	W									
	Grey										
	Granular										
	Liquefied										
General	Parasites present										
	Anaemia										

Case no: 2024-0273

Date of visit: 20/08/2024

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:

Case Number:	2024-0273		Site No:	FS0594	Insp:	
Date of Visit	20/08/2024					

		No of movements/supp./dest.				Score
Live fish movements		**0**	**1-5**	**6-10**	**>10**	
Movements on (from out with GB) of susceptible species	Frequency of movements on from equivalent MS	0	5	10	14	0
	Frequency of movements on from equivalent zone or compartment including third country	0	9	18	26	0
	Number of suppliers	0	5	10	14	0
Movements off	Frequency of movements off	0	3	6	10	10
	Number of destinations	0	3	6	10	3
Exposure via water	**Site contacts**	**0**	**1-5**	**6-10**		
Water contacts with other farms (holding species susceptible to same diseases)	Farm is protected (secure water supply through disinfection or borehole)	0				
	Farm is on-line or in a coastal zone with category I farms upstream or within 1 tidal excursion	1	2	4		2
	Farm is on-line or in a coastal zone with category III farms upstream or within 1 tidal excursion	1	3	6		
	Farm is on-line or in a coastal zone with category V farms upstream or within 1 tidal excursion	1	4	8		
Management practices		None	Secure	Unsecure		
Water contacts with processors	Any processing plant discharging into adjacent waters	0	1	2		0
On farm processing within the rules of the directive	No on farm processing	0				0
	Processing own fish (re-cycling risk)	1				
	Processing fish from MS of equivalent status	2				
	Processing fish from zone or compartment of equivalent status	4				
	Processing fish from Category III farm	8				
	Processing fish from Category V farm	10				
Disposal of fish and fish by-products	Site's own waste only processed.	0				
	Common processes with other farms	3				3
	Collection point for waste from other farms	5				
Use of unpasteurised feeds	No feeding of unpasteurised feed	0				0
	Feeding unpasteurised feed	5				
Biosecurity	**Number of sites**	**1**	**2 or 3**	**≥ 4**		
Contacts with other sites	Sites operating from single shorebase	0	1	2		1
	Sites sharing staff and equipment	0	1	2		0
Disinfection of equipment between sites, use of footbaths etc	Yes	0				0
	No	1				
CoGP/Regulator						
Practices in accordance with regulator or industry code of practice	Yes	0				0
	No	3				
Platform access to cages	Yes	0				0
	No	2				
				Total		19
				Rank		MEDIUM

Case No: 2024-0273 Site No: FS0594

Sea Lice Inspection (Seawater Sites Only)

1. Has the site experienced sea lice problems in the previous 4 years?
2. Is the CoGP Farm Management Area (or equivalent) fallowed synchronously on a single year class basis?
3. Does the site have access to a range of licenced in-feed and bath sea lice medications (including deltamethrin, azamethiphos and benzoate) as well as access to suitable biological and/or mechanical control measures, and can these be deployed in a reasonable time?
4. Is there a signed documented farm management agreement or statement relevant to the site and CoGP Farm Management Area equivalent)?
5. Are sea lice count records available for inspection? (Legal SSI, CoGP Annex 6)
6. Do records adequately reflect the required standard specified in the SSI and the CoGP? (Legal SSI, CoGP Annex 6)
7. Are sea lice (*L. salmonis*) record levels below the suggested criteria for treatment in the CoGP during the period that records are (CoGP Annex 6)
8. Have average adult female sea lice (*L. salmonis*) numbers per fish been at a level of 3 or above (prior to w/b 10/6/19) or 2 or abo 10/6/19) during the period that records are inspected?

If yes, have these been reported to the Fish Health Inspectorate? If no, FHI see comment.

9. Is *C. elongatus* infestation at a level which is considered to cause significant welfare problems? (CoGP 4.3.81, 5.3.50)
10. Have therapeutic treatments been administered or other actions taken when *L. salmonis levels* have exceeded the suggested c treatment or where *C. elongatus* is considered to have welfare implications? (CoGP 4.3.82, 5.3.51)
11. Has any other action been taken (where applicable)?
12. Have therapeutic treatments or the actions taken had a significant impact upon the lice levels recorded?
13. Are treatments, where conducted, carried out in cooperation between participating farms?
14. Is there a harvesting strategy for the site, where fewer populations or part populations are held without treatment for sea lice?
15. Is there a site specific written lice management procedure with waypoints describing set actions to deal with recognised scenario escalation of a sea lice infestation?
16. Do the sea lice levels observed on stocks reflect sea lice count data? If no please detail reasons.

Containment Inspection

1. Has the site experienced equipment damage due to predators in the current or previous production cycles?
2. Are measures in place to mitigate against the predation experienced on site? (Detail below)

Seal pro, jump and top nets. All nets were tensioned.

If other, detail below:

3. Have escape incidents or events been experienced on or in the vicinity of the site since the last FHI inspection?

If Yes proceed with questions 4 – 9. If No skip to question 10

4. Have these been reported to Scottish Ministers?
5. Have these been reported to local DSFB forthwith (where they exist)? (CoGP – 4.4.37, 5.4.17)
6. Have these been reported to the SSPO and local fisheries trusts forthwith (where they exist)? (CoGP – 4.4.37, 5.4.17)
7. Were methods (if any) used to recover escapees? If yes give detail
8. If gill nets were deployed was this action agreed with local wild fish interests and was permission given by Scottish Ministers? (Le 4.4.38, 5.4.18)
9. What action was taken to prevent and minimise the risk of further escapes? (Not covered in code but could be considered under satisfactory measures of the Act)
10. Is the site inspected as satisfactory with regards to containment? If no, please detail reason(s)

	N
	Y
d emamectin period of	Y
(or	Y
	Y
	Y
inspected?	Y
ve (from w/b	N
	N/A
	N
riteria for	Y
	N/A
	Y
	Y
	Y
s during the	Y
	Y
	N
	Y
	N
gal, CoGP –	
	Y

Case No: 2024-0273 Site No: FS0594

Date of Visit: 20/08/2024 Inspector: [redacted]

Point of Compliance

1. Is the farm under inspection located within a farm management area?	Y

If N, no further questions require completion.

Points of Compliance for Both Farm Management Agreements and Statements

2. Has a current farm management agreement or statement (FMAg/S) been prepared?	Y
3. Is the current FMAg/S available for inspection?	Y
4. Does the FMAg/S identify the relevant farm management area?	Y
5. Does the FMAg/S identify the fish farm site(s) to which it applies?	Y
6. Does the FMAg/S identify the date of commencement of the agreement or statement?	Y
7. Does the FMAg/S identify the date of review?	Y

Arrangements for Fish Health Management

8. Does the FMAg/S identify the minimum health standards for the stocks to be introduced to the area or farm?	Y
9. Does the FMAg/S identify the vaccination requirements for stocks held in the area or farm?	Y
10. Does the FMAg/S identify the species of fish which may be stocked into the area or farm?	Y
11. Does the FMAg/S identify the maximum stocking density of any pen on any farm in the area or the individual farm?	Y
12. Does the FMAg/S identify the arrangements for the storage and disposal of any dead fish from any fish farm in the area or the individual farm?	Y

Arrangements for The Management of Sea Lice

13. Does the FMAg/S identify arrangements for the sharing of data on sea lice numbers and treatments?	Y
14. Does the FMAg/S identify the availability and the use of medicines on farms covered by the agreement of statement?	Y
15. Does the FMAg/S identify any requirements for the sensitivity testing of available treatments for sea lice on farms in the area or individual farms?	Y
16. Does the FMAg/S identify the circumstances under which biological controls and cleaner fish are to be used on farms in the area or individual farms?	Y
17. Does the FMAg/S identify the arrangements for synchronous treatments on farms within the area?	Y

Live Fish Movements

18. Does the FMAg/S identify the circumstances when live fish may be introduced or removed from the area or farm?	Y
19. Does the FMAg/S identify the arrangements for the movement of live fish on and off sites in the area or individual farms?	Y

Harvesting

20. Does the FMAg/S identify acceptable harvest practices on farms in the area or individual farms? Y

Fallowing

21. Does the FMAg/S identify the dates by which the area or individual farm will be fallow and the earliest date when a farm or area may be restocked? Y

22. Does the FMAg/S identify whether one or more year classes may be stocked onto sites covered by the agreement or statement? Y

23. Does the FMAg/S identify whether broodstock or potential broodstock are to be kept on any site covered by the agreement or statement? Y

Point of Compliance for Farm Management Agreements Only

24. Does the farm management agreement include arrangements for persons to become, or cease to be, parties to the agreement? N/A

Management and operation

25. Is the fish farm being managed and operated in accordance with the agreement or statement? Y

26. What is the version no/date of issue of the FMAg/S? 22/12/2023

Case No: 2024-0273 Date of visit: 20/08/2024

Site No: FS0594 Inspector: [redacted]

Results Summary	Freq.	Date of Notification						
		Database	Insp	Phone	Insp	Writing	Insp	2nd Insp
MG_AGDQ	5/5	26/08/2024		26/08/2024		06/09/2024		
MG_IHNQ	0/5	26/08/2024		26/08/2024		06/09/2024		
MG_PARA_THER_Q	5/5	26/08/2024		26/08/2024		06/09/2024		
MG_SAL_POX	5/5	26/08/2024		26/08/2024		06/09/2024		
MG_SAV	0/5	26/08/2024		26/08/2024		06/09/2024		
MG_IPN	3/5	26/08/2024		26/08/2024		06/09/2024		
MG_ISA	0/5	26/08/2024		26/08/2024		06/09/2024		
MG_PMCV	0/5	26/08/2024		26/08/2024		06/09/2024		
MG_VHS	0/5	26/08/2024		26/08/2024		06/09/2024		
MG_PRV	2/2	03/09/2024		03/09/2024		06/09/2024		
YRUK (Isolate A)	5/5	05/09/2024		06/09/2024		06/09/2024		
VSPE (Isolate B)	1/5	05/09/2024		06/09/2024		06/09/2024		
VSPE (Isolate C)	3/5	05/09/2024		06/09/2024		06/09/2024		
VSPE (Isolate D)	5/5	05/09/2024		06/09/2024		06/09/2024		
VSPE (Isolate E)	3/5	05/09/2024		06/09/2024		06/09/2024		
AMGD	1/5	05/09/2024		06/09/2024		06/09/2024		
EPIT	1/5	05/09/2024		06/09/2024		06/09/2024		
GPAT	5/5	05/09/2024		06/09/2024		06/09/2024		
HPAT	5/5	05/09/2024		06/09/2024		06/09/2024		
MPAT	3/5	05/09/2024		06/09/2024		06/09/2024		
CGDH	5/5	05/09/2024		06/09/2024		06/09/2024		
LPAT	5/5	05/09/2024		06/09/2024		06/09/2024		
SPAT	5/5	05/09/2024		06/09/2024		06/09/2024		

Report Summary			
Case Type	Date	Insp	2nd Insp
ECI, CNI, SLI, VMD	22/08/2024		
REP, DIA	11/09/2024		

FISH HEALTH INSPECTORATE VISIT REPORT

SUMMARY FOR INFORMATION OF SITE OPERATOR

BUSINESS NO	FB0169	**DATE OF VISIT**	20/08/2024
SITE NO	FS0594	**SITE NAME**	Aird
CASE NO	20240273	**INSPECTOR**	[redacted]

Section 1: Summary

Prior to a planned EC site inspection, the business submitted notifications of mortality above the reporting threshold. These mortality events were attributed to enteric redmouth (ERM) bacterial disease. On inspection of the site, moribund and lethargic fish were observed in all pens. Five fish were removed for diagnostic examination.

Histopathology examination revealed features of bacterial necrotising branchitis in two fish and small numbers of *Neoparamoeba perurans* in one fish. F1 displayed evidence of systemic bacterial infection. Coagulative hepatic necrosis and spleen capsulitis with bacteria was also observed. Two fish displayed minor inflammation on the red muscle which could potentially be related to the presence of piscine orthoreovirus, confirmed by qPCR, and myocarditis was present in all fish. Some bacteria were visible within the gut in three fish and are of uncertain significance.

Samples were screened for *Neoparamoeba perurans,* salmon gill poxvirus and *Paranucleospora theridion* by qPCR. All fish tested positive for *Neoparamoeba perurans*, the causative agent of amoebic gill disease, and salmon gill pox virus. Three fish tested positive for *Paranucleospora theridion*.

Infectious pancreatic necrosis virus was detected in three fish by qPCR.

Yersinia ruckeri, the causative agent of ERM, was isolated from all fish. The level of purity and growth would suggest this primary fish pathogen would be implicated as the primary source of morbidity. *Vibrio* species were also identified, and the level and purity of these *Vibrio* spp. would suggest they are present as secondary pathogens in this case. The level and purity of growth observed in gill tissue would suggest these bacteria may be significant to fish health.

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

A routine EC inspection was planned for 20/08/2024. The two weeks prior to the inspection, the business had submitted mortality notifications of 7.92% and 9.77% for the site. These mortality events were attributed to ERM.

UKAS Accredited Inspection Body - Type C No. 0269
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/

During the inspection of stocks, moribund and lethargic fish were observed in all pens. Many presented with dark bodies, red eyes and exophthalmia. At the time of inspection, sea lice levels were observed to be low. Five dark bodied, moribund and lethargic fish were removed for diagnostic sampling. Additionally, F5 was deemed to be anorexic and had a shortened operculum.

Externally, haemorrhaging was observed on F1, F4 and F5. In particular, F4 showed haemorrhaging on the base of the fins, whereas F5 displayed it on the ventrum; F1 displayed haemorraging on both areas. Exophthalmia was observed in F1 and F4 had a cataract. Haemorrhaging of the eyes was observed in F1 and F3. The gills of F2 and F3 were pale, with zoning present in F5. Inflamed vents were observed on F1 and F5.

Internally, all fish presented with enlarged spleens and a lack of food in the gut. Furthermore, pseudo faeces were observed in F1 and F3. Petechial haemorrhaging of the pyloric caeca was observed in F1 and F4 with a lack of fat on the pyloric caeca observed in F5. Haemorrhaging of the swim bladder was also observed in F1-F3. Additionally, bloody ascites, petechial haemorrhaging of the liver and swelling of the kidney was also observed in F1.

Samples

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

Fish number	Facility number	Species	Stage	Origin
F1, F4 & F5	3	Atlantic salmon	889g Q1 2024	Applecross Smolt Unit (FS0500)
F2 & F3	4			

Results

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

The following bacteria were isolated from F1-F5:

- *Yersinia ruckeri*: F1-F5 (Kidney) and F1, F4, F5 (Gill)
- *Vibrio* spp.: F1-F5 (Gills); F3-F5 (Kidney)

From the tests conducted for *Yersinia ruckeri,* we have evidence which may indicate some resistance to amoxycillin, but no evidence of resistance to oxytetracycline, sulphamethoxazole/trimethoprim or florfenicol.

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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	-	-	-	-	Negative
F2	16.43	35.63	33.01	35.86	**POSITIVE**
F3	-	-	-	-	Negative
F4	16.67	38.79	37.31	36.15	**POSITIVE**
F5	17.16	33.14	33.08	33.55	**POSITIVE**

Salmon gill poxvirus (SGPV)

Fish Number	Endogenous control Cp value	Cp Values			Reported Result (PCR)
F1	19.18	30.56	30.26	30.43	**POSITIVE**
F2	19.33	23.73	23.61	23.60	**POSITIVE**
F3	19.39	22.53	22.65	22.56	**POSITIVE**
F4	18.92	32.63	32.88	32.26	**POSITIVE**
F5	18.64	33.68	33.73	33.18	**POSITIVE**

Piscine orthoreovirus (PRV) – tested following request of histology

Fish Number	Endogenous control Cp value	Cp Values			Reported Result (PCR)
F2	16.30	31.47	31.54	31.78	**POSITIVE**
F4	16.32	31.64	31.81	31.67	**POSITIVE**

The samples tested negative for infectious haematopoietic necrosis virus (IHNV), 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	19.18	34.18	35.35	33.80	**POSITIVE**
F2	19.33	31.59	31.74	31.50	**POSITIVE**
F3	19.39	35.48	34.43	34.05	**POSITIVE**
F4	18.92	33.73	33.98	34.01	**POSITIVE**
F5	18.64	31.63	31.70	31.59	**POSITIVE**

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Paranucleospora theridion

Fish Number	Endogenous control Cp value	Cp Values			Reported Result (PCR)
F1	19.18	26.71	26.71	26.61	**POSITIVE**
F2	19.33	21.28	21.26	21.30	**POSITIVE**
F3	19.39	26.22	26.19	26.23	**POSITIVE**
F4	18.92	27.89	27.43	28.17	**POSITIVE**
F5	18.64	18.93	19.03	18.81	**POSITIVE**

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: Bacterial necrotising branchitis, focally extended (F2, F3) and F3 displayed haemorrhage. F5 hyperplasic branchitis, moderate, multifocal. Small foci of epithelial hyperplasia. Occasional basophilic epithelial inclusions (likely epitheliocystis) F1, and few amoeboid cells resembling *Neoparamoeba perurans* observed in F4.

Skin & Muscle: Mild, focal, red musculature inflammation (F2, F4). Some white muscle fibre degeneration (F1).

Heart: Mild, multifocal, myocarditis (F1-F5) with few Gram-negative rod-shaped bacteria (F1). Epicarditis, mild (F2-F4).

Pancreas: Within the normal range.

Gut and pyloric caeca: F2 displayed absence of abdominal fat and bacteria within the intestinal lumen observed in F2, F3 and F5. Peritonitis, mild (F3).

Liver: Hepatocellular necrosis, mild, multifocal to coalescence (F1, F2, F3, F5) and hepatocellular vacuolation (macrovesicles), mild, diffuse (F4, F5).

Kidney: Foci of interstitial cell (haemopoietic) necrosis (F1, F3, F5), with occasional Gram-negative rod-shaped bacteria (F1) also observed within glomeruli (F1).

Spleen: Capsulitis (F1, F2, F3, F5) with Gram-negative rod-shaped bacteria (F1). Evidence of erythrophagocytosis (F2). F1, F4 and F5 displayed evidence of some necrosis and F1, F3, F4 also displayed Gram-negative rod-shaped bacteria.

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

Signed:  Date: 11/09/2024

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)

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FISH HEALTH INSPECTORATE VISIT REPORT

SUMMARY FOR INFORMATION OF SITE OPERATOR

BUSINESS NO	FB0169	**DATE OF VISIT**	20/08/2024
SITE NO	FS0594	**SITE NAME**	Aird
CASE NO	20240273	**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.

Samples were taken for diagnostic purposes. A separate report will be issued detailing the results of these tests.

Records

The surveillance frequency category of the site was assessed as medium. An inspection under the Aquatic Animal Health (Scotland) Regulations 2009 will be conducted every second 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.

Records in relation to aquaculture animals transported by the business were inspected and found to be adequately maintained.

Mortality records were inspected and found to be adequately maintained.

Mortality levels had exceeded the reporting criteria since the last inspection and had been reported to the Fish Health Inspectorate as required.

Reports detailing the results of animal health surveillance carried out by or on behalf of the business and/or Marine Directorate were available for inspection.

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

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

Medicine records were inspected and found to be adequately maintained.

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Samples were taken to be analysed for veterinary residues.

Inspection under the Aquaculture and Fisheries (Scotland) Act 2007

The site was also inspected in accordance with the Aquaculture and Fisheries (Scotland) Act 2007, as amended, with respect to section 3 regarding parasites (sea lice), section 4A regarding fish farm management agreements and statements and section 5 regarding containment and escapes.

On this occasion the site was found to be satisfactory with regards to parasites, fish farm management agreements and statements and containment and escapes.

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

Signed:  Date: 21/08/2024

Fish Health Inspector

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Diagnostic Sampling Photos: 2024-0273

Figure 1 Picture of F1 (pen 3) and F2 (pen 4)

Figure 2 Picture of gills of F1 and picture of eye F1

Figure 3 Picture of gill of F2

Figure 4 Internal view of F1.

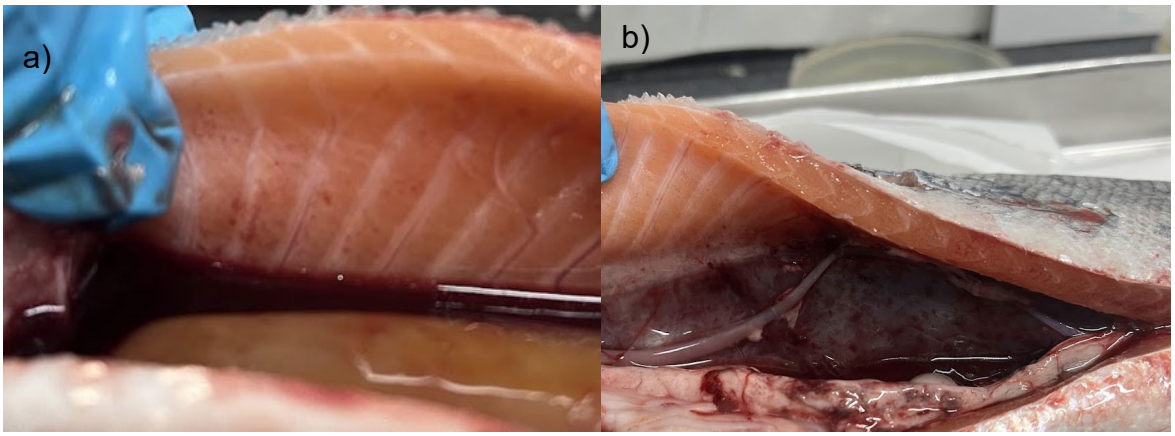

Figure 5 a) image depicts petechial haemorrhaging and bloody ascites in F1; b) image depicts haemorrhaging on swimbladder in F1.

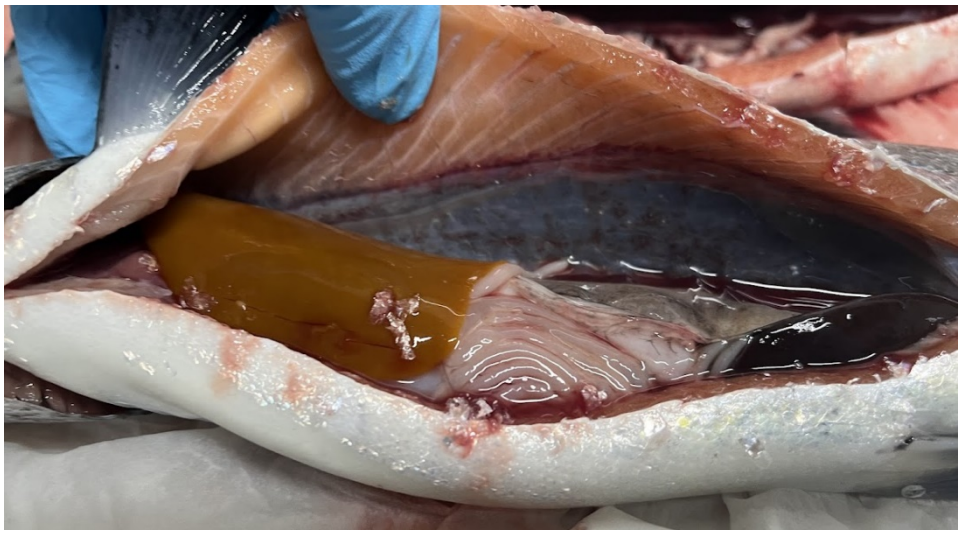

Figure 6 internal picture of F2.

Figure 7 Overview of F3-F5.

Figure 8 Picture of eye and gill of F3

Figure 9 Picture of eye (slight blindness) and gill of F4.

Figure 10 Picture of gill of F5

Figure 11 Internal view of F3. NB: haemorrhaging on swimbladder.

Figure 12 Internal view of F4.

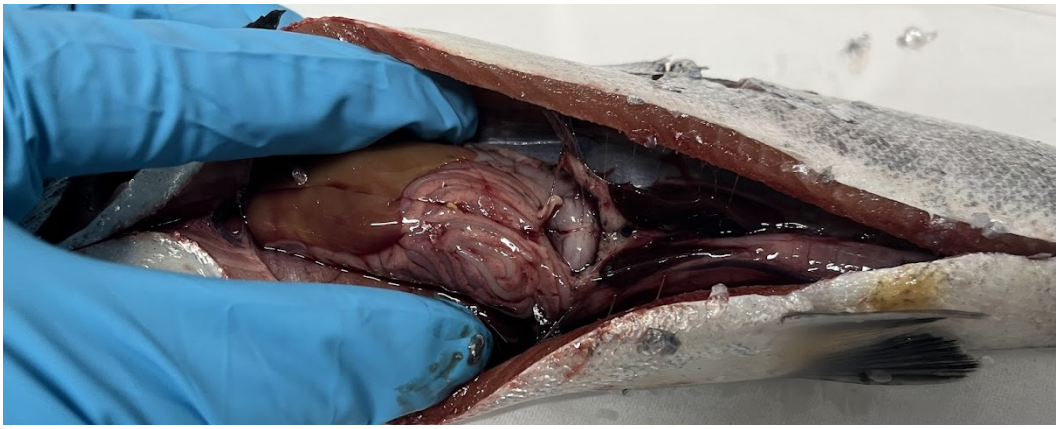

Figure 13 Internal view of F5.