

Case No: Date of visit:

Time spent on site: Main Inspector:

Site No: Site Name:
Business No: Business Name:

Case Types: 1 2 3 4 5 6

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

Observations: Region: ST Water type: S CoGP MA M-48

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

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

Additional Case Information:

Site inspected following mortality notifications received by the FHI. Elevated mortalities have been recorded on site since May

Peaks in mortality above reporting threshold: 2023, wk 18 3139 (1.92%), wk 19 2909 (2.04%), wk 22 757 (4.68%), wk 24 566 (2.18%), wk 25 (2.75%), wk 26 325 (2.12%), wk 30 11692 (9.80%), wk 31 8281 (7.70%), wk 32 13992 (14.09%), wk 33 8793 (10.31%). week 34 (to date), 3098 (4.05%).

Site received additional stock from Sgeir Dughall in Feb/March, Maaey in May and Geasgill in July. Site was fallowed for 10 days prior to the Geasgill input. Gill issues have been the main issue.

Recent health report details that AGD scores were low, PGD scoring between 1-3, with moderate gill damage noted.

Peaks in mortality 2022 wk 43 3018 (1.61%), wk 44 4869 (2.63%), wk 45 9330 (5.18%), wk 46 5514 (3.23%), gill health the main cause but some external lesions were reported.

Recent treatments have been the FW FLS (15/8/2023) system only which has been effective for lice control.

On inspection of stocks two moribunds were observed however these were too deep in the water column to remove, a number of lethargic fish were observed five were selected and removed for diagnostic sampling.

Wrasse mortalities for the last four weeks: wk 31 0, wk 32 14 (0.59%), wk 33 32 (1.35%) and wk 34 7 (0.30%).

Case No: **2023-0372** Site No: **FS0423**
 Date of Visit: **24/08/2023** Inspector(s): **[REDACTED]**

Registration/Authorisation Details

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

Site Details (include cleaner fish for all sections)

Total No facilities	14	Facilities stocked	6	No facilities inspected	14
Species	SAL	WRA			
Age group	2022 Q3	wild			
No Fish	73,430	1,553			
Mean Fish Wt	2.8kg	N/A			
Next Fallow Date (Site)	December 2023		Next Input Date (Site)	2024 Q2	
Recent (last 4 wks) disease problems?		Y	Any escapes (since last visit)?		N
If yes, detail:	Gill health issues,				

Movement Records

- 1. Movement records available for inspection?
- 2. Date of last inspection: **27/10/2022**
- 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? **Whole fish - Dundas Chemicals**
- If other detail: **[REDACTED]**
- 3. Mortality records complete and correctly entered?
- 4. Recent mortality (last 4 wks): **see additional information**
- 5. Evidence of recent increased/atypical mortalities?
- If yes, facility nos/no mortality per facility/no stock per facility/reason: **see additional comments**
- 6. Any other peaks in mortality during period checked?
- If yes, detail: **see additional comments**
- 7. Have increased (unexplained) mortalities been reported to vet or FHI?
- If yes, detail action: **[REDACTED]**
- 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)?	<input type="checkbox"/>	Y
If yes, detail:	Optomease	
If other, detail:		
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)?	Optomease	
If other, detail:		
6. Are medicines stored appropriately?	<input type="checkbox"/>	N/A

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) mortality</i> 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).		

Records checked between:	27/10/2022 to 24/08/2023
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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	P1	P1	P1	P1	P1							
Species	SAL	SAL	SAL	SAL	SAL							
Average weight	2.8000	2.8000	2.8000	1.0000	2.8000							
Sex	N/A	N/A	N/A	N/A	N/A							
Water Type	SW	SW	SW	SW	SW							
Stock Details		Geasgill	Geasgill	Geasgill	Geasgill	Geasgill						
	Stock Origin											
Facility No	3	3	4	4	4							

Case no: 2023-0372

Site No: FS0423

Method of killing: Percussive

Date of visit: 24/08/2023

Inspector(s):

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									
	Lethargic	S	S	S	S	S				
	Hanging vertical									
	Spiralling									
	Flashing									
	Loss of equilibrium									
Body	Dark									
	Distended abdomen									
	Anorexic			m						
	Scale Oedema									
Opercula	Shortened									
	Flared									
Haemorrhaging	Throat									
	Ventrum									
	Base of fins									
	Elsewhere									
Eyes	Exophthalmic	S								
	Enophthalmic (sunken)									
	Cataract									
	Haemorrhagic									
Gills	Pale	w	w	w	w	w				
	Zoned									
	Necrotic	w	w	m	w	w				
Lesions	Flank	m	S		w	w				
	Elsewhere									
Vent	Inflamed									
	Trailing faeces									
Lice Load	Estimate numbers	0	0	0	0	0				
Internal Signs										
Ascites	Clear									
	Bloody									
Oedema	In tissues									
Heart	Pale/anaemic	m	m	m	m	m				
	Granulomas				S					
	Deformed	M	m	m	m	m				
Liver	Petechial haem									
	Gross haem									
	Tissue breakdown									
	Enlarged									
	Colour number(s)	4	4	4	4	4				
	Granulomas									
	Lesions									
Pyloric caeca	Petechial haem									
	Tubules mauve									
	Lack of fat				w					
Spleen	Enlarged	w	w	w	w	w				
	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:	2023-0372	Site No:	FS0423	Insp:		
Date of Visit	24/08/2023	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		1
	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				0
	Common processes with other farms	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		0
	Sites sharing staff and equipment	0	1	2		
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 Rank					14	LOW

Case No: **2023-0372** Date of visit: **24/08/2023**
 Site No: **FS0423** Inspector: **[REDACTED]**

Results Summary	Freq.	Date of Notification						
		Database	Insp	Phone	Insp	Writing	Insp	2 nd Insp
AGD (Neoparamoeba perurans) (PCR) - AGDQ	3/5	29/08/2023		29/08/2023		03/10/2023		
IHN (PCR) - IHNP	0/5	29/08/2023		29/08/2023		03/10/2023		
IPN (PCR) - IPNM	0/5	29/08/2023		29/08/2023		03/10/2023		
ISA (real time qPCR - heart & kidney) - ISAQ	0/5	29/08/2023		29/08/2023		03/10/2023		
Paranucleospora theridion (PCR) - PNST	5/5	29/08/2023		29/08/2023		03/10/2023		
Piscine myocarditis virus (CMS) (PCR) - PMVP	0/5	29/08/2023		29/08/2023		03/10/2023		
Salmon gill poxvirus (PCR) - SPVP	5/5	29/08/2023		29/08/2023		03/10/2023		
VHS (PCR) - VHSP	0/5	29/08/2023		29/08/2023		03/10/2023		
Salmonid alphavirus (SAV) (PCR) - SALP	1/5	30/08/2023		30/08/2023		03/10/2023		
Aeromonas salmonicida (Furunculosis) - ASAL	4/5	07/09/2023		07/09/2023		03/10/2023		
Aeromonas spp - AERO	4/5	07/09/2023		07/09/2023		03/10/2023		
Vibrio species (culture) - VSPE	1/5	07/09/2023		07/09/2023		03/10/2023		
Epitheliocystis - EPIT	1/5	19/09/2023		19/09/2023		03/10/2023		
Gill pathology - GPAT	5/5	19/09/2023		19/09/2023		03/10/2023		
Aeromonas (histology) - AERH	5/5	19/09/2023		19/09/2023		03/10/2023		
*communicated by email								

Report Summary			
Case Type	Date	Insp	2 nd Insp
DIA	03/10/2023		
REG	11/10/2023		



FISH HEALTH INSPECTORATE VISIT REPORT

SUMMARY FOR INFORMATION OF SITE OPERATOR

BUSINESS No	FB0169	DATE OF VISIT	24/08/2023
SITE No	FS0423	SITE NAME	Lamlash
CASE No	20230372	INSPECTOR	[REDACTED]

Section 1: Summary

This site was inspected following reports of increased mortality, five lethargic fish were removed from the pens for further examination and subsequent diagnostic sampling.

Histopathology examination revealed features consistent with *Aeromonas salmonicida* (furunculosis) which was also identified from plates taken from kidney and lesion material. The level and purity of growth of this bacterium suggest it would be implicated as a primary cause of morbidity.

Also observed was mild, hyperplastic branchitis and two fish displayed bacterial necrotising branchitis. One fish also displayed areas of light H&S stain in the compactum stratum. Hepatocellular necrosis also observed.

Aeromonas sp. was identified on plates taken from lesion material and *Vibrio* sp. was identified on plates taken from kidney material. The level and purity of growth would suggest neither bacteria were implicated as the primary cause of the pathologies observed.

Samples tested positive for Salmonid alphavirus (SAV) and the gill related pathogens: *Paranucleospora theridion*, salmon gill poxvirus (SGPV) and *Neoparamoeba perurans* (AGD).

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

Elevated mortalities in the current crop of fish have been reported to the FHI since the start of August 2023, the cause being attributed to gill health and furunculosis. Due to the high levels of mortality reported a site inspection was conducted. The week prior to the inspection the mortality rate was 10.31% (8793 fish).

On inspection of the site two moribund fish were observed, these were deep in the water column so could not be caught however a number of lethargic fish were observed, five of which were removed for further examination and subsequent diagnostic sampling.

Externally F3 appeared anorexic and F1 displayed bilateral exophthalmia. The gills of all fish were pale and necrotic and flank lesions were present on F1, F2, F4 and F5.

Internally the hearts of all fish appeared deformed and pale with granulomas present on F4. Splenomegaly was evident in all fish and a distinct lack of fat was noted on the pyloric caeca of F4.

Samples

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

Fish number	Facility number	Species	Stage	Origin
1-2	3	Atlantic salmon	2.8 kg 2022 Q3	Geasgill
3-5	4	Atlantic salmon	2.8 kg 2022 Q3	Geasgill

Results

Bacteriology: Kidney and gill material from F1 - F5 and lesion material from F1, F2, F4 and F5 were inoculated onto appropriate media for the isolation of bacteria.

The following bacteria were isolated:

- *Aeromonas salmonicida* (kidney (F1, F2, F3 and F4) lesion (F2 and F4));
- *Aeromonas* sp. (lesion F1, F2, F4 and F5);
- *Vibrio* sp. (kidney F5).

From the tests conducted we do not have evidence of resistance to amoxycillin, 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).

Salmonid alphavirus

Fish Number	Endogenous control Cp value	Cp Values			Reported Result (PCR)
F1	-	-	-	-	Negative
F2	-	-	-	-	Negative
F3	-	-	-	-	Negative
F4	17.10	34.56	34.47	34.58	POSITIVE
F5	-	-	-	-	Negative

Salmon gill poxvirus

Fish Number	Endogenous control Cp value	Cp Values			Reported Result (PCR)
F1	22.91	36.53	38.28	38.99	POSITIVE
F2	23.13	28.27	28.29	28.28	POSITIVE
F3	22.58	28.35	28.52	28.50	POSITIVE
F4	20.92	33.85	34.00	33.73	POSITIVE
F5	21.76	25.08	25.10	25.05	POSITIVE

The samples tested negative for infectious haematopoietic necrosis virus (IHNV), infectious pancreatic necrosis virus (IPNV), infectious salmon anaemia virus (ISAV), piscine myocarditis virus (PMCV) 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	23.13	31.96	31.82	31.98	POSITIVE
F3	22.58	31.05	30.95	31.04	POSITIVE
F4	-	-	-	-	Negative
F5	21.76	31.78	31.79	32.03	POSITIVE

Paranucleospora theridion

Fish Number	Endogenous control Cp value	Cp Values			Reported Result (PCR)
F1	22.91	35.98	35.74	35.73	POSITIVE
F2	23.13	25.89	25.95	25.94	POSITIVE
F3	22.58	29.69	29.74	29.69	POSITIVE
F4	20.92	33.33	33.41	33.24	POSITIVE
F5	21.76	24.07	24.07	24.09	POSITIVE

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

Histopathological examination revealed the following:

Gill: Filament branchitis, mild, multifocal (F1), F2 displayed lamellar hyperplastic branchitis with areas of haemorrhage, mainly at the tip filaments, chronic, multifocal. F3 and F5 displayed necrotising bacterial (mixed Gram-negative bacteria) branchitis, marked, focal. F3 exhibited few aggregates of Gram-negative rod-shaped bacteria, filament hyperplastic branchitis, mild, multifocal, and occasional basophilic epithelial inclusions (likely epitheliocystis). Aneurysmal dilation/telangiectasia observed among all fish and free blood among gill filaments. Features of autolysis observed on F2-F5.

Skin & Muscle: Dermatitis with several aggregates of aggregates of Gram-negative rod-shaped bacteria, mild, multifocal (F1, F4). F5 displayed a mild dermatitis.

Heart: Several small dense aggregates of Gram-negative bacteria (F2). Some light H&E stain observed in the compact layer (F5). Epicarditis (F3, F5).

Gut and pyloric caeca: Marked cell sloughing (potentially associated with post-mortem artefact) observed in F2-F5.

Pancreas: Within the normal range.

Liver: Hepatocellular necrosis, mild, multifocal with Gram-negative rod-shaped bacterial aggregates (F4). Hepatocellular necrosis, very mild to mild, multifocal (F2, F3, F5) with focal area of haemorrhage (F3). Mild, diffuse hepatocellular vacuolation (macrovesicles) observed in all fish.

Kidney: Foci of interstitial cell (haemopoietic) necrosis (F2, F3, F5) with few to several dense aggregates of Gram-negative rod-shaped bacteria in F2, F3, F4, F5.

Spleen: Necrotising splenitis with Gram-negative rod-shaped bacteria, multifocal, mild (F3), few aggregates of Gram-negative rod-shaped bacteria in F2, F3, F4. F5 exhibited cuffing (F4).

Signed:pp



Date: 03/10/2023

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 \(www.gov.scot\)](https://www.gov.scot/resources/consultations-petitions-and-statements/fish-health-inspectorate-service-charter-2023/)



FISH HEALTH INSPECTORATE VISIT REPORT

SUMMARY FOR INFORMATION OF SITE OPERATOR

BUSINESS No	FB0169	DATE OF VISIT	24/08/2023
SITE No	FS0423	SITE NAME	Lamlash
CASE No	20230372	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 information required for the public record of aquaculture production businesses regarding this site was verified and where necessary updated.

Medicine records were inspected and found to be adequately maintained.

Aquaculture animal and aquaculture animal product movement records were inspected and appeared 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.

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

Signed: [REDACTED]

Fish Health Inspector

Date: 11/10/2023

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/Topics/marine/science)

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