Case No: 2024-0140 Date of visit: 23/05/2024

Time spent on site: 5 hours Main Inspector: [redacted]

Site No: FS0892 Site Name: Clachbreac
Business No: FB0061 Business Name: Landcatch Natural Selection Ltd

Case Types: 1 REP 2 DIA 3 4 5 6

Water Temp (°C): 15.9 Thermometer No: T172 FHI 045 completed N/A

Observations: Region: ST Water type: F CoGP MA

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:

Usually freeze mortality at the end of each day, then at the end of each week the morts are taken to incinerator at Ormsary HQ. As disease has been identified on site the fish are now emptied into a lined mortality bucket, then taken to the incinerator daily at Ormsary HQ.

Two weeks after input mortality was very low at 0-5 fish per tank per day. Mortality began to increase in wk 19, identified cause; fungus. Morts increased further in wk 20 with furuncles observed by the site contact and 3rd party vet.

Mortality began to increase in tanks B1 and B6 first. Then mortality also began to increase in tank B7 days later. Mortality in other tanks has been considerably lower at 3-17 per tank per day on the week of the inspection.

Input from Inchmore on 16/04/2024

Fish currently on a diet including florfenicol (florocol). The 10 day treatment ends 24/05/2024

Fish vaccinated with Micro 6 (furunculosis, vibrio, IPN, mortitella protection), PD1, new Mowi P.skyensis vaccine on 01/04/2024 at Inchmore.

Vet report from 13/05/24 observed moribund fish in every tank. On day of FHI inspection just 2 moribund fish were observed. 3 fish taken for analysis by 3rd party vet, all samples tested positive for Aeromonas salmonicida (furunculosis)

The plan is to move fish off the site on Sunday 26/05/2024

Case No:	2024-0140	Site No:	FS0892
Date of Visit:	23/05/2024	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	21	Facilities stocked	6	No facilities inspected	21			
Species	SAL							
Age group	24 S1							
No Fish	231,006							
Mean Fish Wt	103g							
Next Fallow Date (Site)	27/05/2024		Next Input Date (Site)	June 2024				
Recent (last 4 wks) disease problems?	Y		Any escapes (since last visit)?	N				
If yes, detail:	See additional comments							

Movement Records

1. Movement records available for inspection?	Y
2. Date of last inspection:	01/08/2023
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:	See additional info
3. Mortality records complete and correctly entered?	Y
4. Recent mortality (last 4 wks):	wk 18: 140 fish (0.04%), wk 19: 4,518 fish (1.67%), wk 20: 30,942 fish (11.62%), wk 21: 5,929 fish (2.51%) so far (3 days).
5. Evidence of recent increased/atypical mortalities?	Y
If yes, facility nos/no mortality per facility/no stock per facility/reason:	
See additional info	
6. Any other peaks in mortality during period checked?	N
If yes, detail:	
7. Have increased (unexplained) mortalities been reported to vet or FHI?	Y
If yes, detail action:	Vet contacted and FHI notified
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:	Formalin, florocol
If other, detail:	
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)?	Formalin, florocol
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:	16/04/2024 - 22/05/24

Case no:	2024-0140	Site No:	FS0892	Date of visit/ Sampling:	23/05/2024	23/0							
Priority samples:	VI		BA		PA		MG		HI				
Time sampling starts/ends:	11:30:00	13:00:00	Inspector:		VMD No.	0							
Environmental conditions:	1	Indoors	2		3		4		5				
Summary samples	HIST	Y	BA	Y	MG	Y	VI		PA	Y	Total Samples		

Add Fish/Pools - click

	Pool/Fish No	F1	F2	F3	F4	F5	P1						
	Fish nos	1	2	3	4	5	1-5						
	Pool Group	P1	P1	P1	P1	P1							
Stock Details	Species	SAL	SAL	SAL	SAL	SAL	SAL						
	Average weight	100g	100g	100g	100g	100g	100g						
	Sex	N/A	N/A	N/A	N/A	N/A	N/A						
	Water Type	FW	FW	FW	FW	FW	FW						
	Stock Origin	Inchmore	Inchmore	Inchmore	Inchmore	Inchmore	Inchmore						
	Facility No	B7	B7	B6	B6	B1							

05/2024 Additional Sample Information:

Lesion sample from F5 taken for histology and bacteriology

6 Total Tests assigned 4

Case no: 2024-0140 Site No: FS0892 Method of killing:

Date of visit: 23/05/2024 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)		~30mir	~30mir	~30mir	~30mir	~30min					
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										
	Zoned										
	Necrotic										
Lesions	Flank					M					
	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										

Case no: 2024-0140

Date of visit: 23/05/2024

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**										
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	Necrotic										
Lesions	**Flank**										
	Elsewhere										
Vent	**Inflamed**										
	Trailing faeces										
Lice Load	**Estimate numbers**										
Internal Signs											
Ascites	**Clear**										
	Bloody										
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	Granulomas										
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Swim bladder	**Haemorrhaging**										
	Fluid filled										
Kidney	**Swollen**										
	Grey										
	Granular										
	Liquefied										
General	**Parasites present**										
	Anaemia										

Additional comments:

F5: damaged tail with associated lesion (see photos). Sample taken for histology

Site No: FS0892

Case No: 2024-0140

Nature of non-compliance:

Action taken (FHI):

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

Case No:	2024-0140	Date of visit:	23/05/2024
Site No:	FS0892	Inspector:	[redacted]

Results Summary	Freq.	Date of Notification						
		Database	Insp	Phone	Insp	Writing	Insp	2nd Insp
IPNV	1/1	27/05/2024	[redacted]	27/05/2024	[redacted]	25/06/2024	[redacted]	[redacted]
VHSP	0/1	27/05/2024	[redacted]	27/05/2024	[redacted]	25/06/2024	[redacted]	[redacted]
IHNQ	0/1	27/05/2024	[redacted]	27/05/2024	[redacted]	25/06/2024	[redacted]	[redacted]
SALP	0/1	27/05/2024	[redacted]	27/05/2024	[redacted]	25/06/2024	[redacted]	[redacted]
ASAL	2/5	05/06/2024	[redacted]	05/06/2024	[redacted]	25/06/2024	[redacted]	[redacted]
ASAL	2/5	05/06/2024	[redacted]	05/06/2024	[redacted]	25/06/2024	[redacted]	[redacted]
SAPR	1/5	05/06/2024	[redacted]	05/06/2024	[redacted]	25/06/2024	[redacted]	[redacted]
AERH	4/5	05/06/2024	[redacted]	05/06/2024	[redacted]	25/06/2024	[redacted]	[redacted]
GPAT	3/5	05/06/2024	[redacted]	05/06/2024	[redacted]	25/06/2024	[redacted]	[redacted]
SKIN	3/5	05/06/2024	[redacted]	05/06/2024	[redacted]	25/06/2024	[redacted]	[redacted]
SPAT	4/5	05/06/2024	[redacted]	05/06/2024	[redacted]	25/06/2024	[redacted]	[redacted]
LPAT	2/5	05/06/2024	[redacted]	05/06/2024	[redacted]	25/06/2024	[redacted]	[redacted]
KPAT	3/5	05/06/2024	[redacted]	05/06/2024	[redacted]	25/06/2024	[redacted]	[redacted]
GSAL	0/5	25/06/2024	[redacted]	05/06/2024	[redacted]	25/06/2024	[redacted]	[redacted]

Report Summary			
Case Type	Date	Insp	2nd Insp
DIA	25/06/2024	[redacted]	[redacted]

Note - attachments file must be saved to ARC folder as PDF with correct name format e.g. 2012-0123-attach or 2012-0123-attach2 etc.

FISH HEALTH INSPECTORATE VISIT REPORT

SUMMARY FOR INFORMATION OF SITE OPERATOR

BUSINESS NO	FB0061	**DATE OF VISIT**	23/05/2024
SITE NO	FS0892	**SITE NAME**	Clachbreac
CASE NO	20240140	**INSPECTOR**	[redacted]

Section 1: Summary

The above site was inspected following the notification of increased mortality on site by the business. Mortality peaked during week 20 at 11.6% (30,945 fish). During the Fish Health Inspectorate (FHI) inspection, five moribund fish were removed from the tanks for diagnostic sampling. Although these fish were moribund, no other clinical signs of disease or gross pathology was observed in F1-F4. F5 displayed a skin lesion with associated growth resembling fungus.

Histopathology examination revealed features consistent with *Aeromonas salmonicida* (furunculosis). Two fish displayed mild nephrocalcinosis. One fish also displayed features resembling Saprolegniasis.

Aeromonas salmonicida was identified on plates taken from kidney material of F2-F5. The level and purity of growth observed would suggest that this bacterium would be implicated as a primary pathogen in this case.

Mycelium consistent with *Saprolegnia* sp. was present on one of the fins which was identified as *Saprolegnia parasitica* by sequencing analysis.

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 above site was inspected following the notification of increased mortality on site by the business. Mortality reportedly began to increase in week 19 at 1.67% (4,518 fish). This increased the week after to 11.6% (30,945 fish) when an inspection was scheduled for the following week. The business was contacted by the FHI regarding the increased mortality and (following inspection and sampling from a third party veterinary company) furunculosis was identified on site. *Saprolegnia* sp. was also identified on site. A 10 day treatment with florocol was then administered. This treatment began on 14/05/24. This treatment was reportedly successful in reducing mortality and clinical signs of disease.

During the inspection of the mortality records by the FHI on site, three tanks had noticeably higher mortality rate than the other three tanks on site. The tanks with increased mortality were B1, B6 and B7. Mortality began to increase in tanks B1 and B6 in week 19 and the following week mortality in tank B7 also began to increase. The fish were vaccinated against furunculosis, infectious pancreatic necrosis, *Moritella viscosa*, pancreas disease, and *Pasteurella skyensis* (amongst other pathogens).

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 the stock, initially two moribund fish were observed on the surface, another three moribund fish were removed by inserting a hand net into the gap between the effluent discharge screen and a plastic sleeve in the centre of each the tank.

Apart from being morbid, F1 – F4 (from tanks B6 and B7) showed no clinical signs of disease. No lesions typically associated with furunculosis were observed on any live, moribund or dead fish removed on the day of the inspection. F5 had a skin lesion on the caudal fin with associated growth resembling fungus. During necropsy no gross pathology was observed internally on any fish.

Samples

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

Fish number	Pool number	Facility number	Species	Stage	Origin
F1 + F2	P1	B7	Atlantic salmon (*Salmo salar*)	Smolt	Inchmore
F3 + F4	P1	B6	Atlantic salmon (*Salmo salar*)	Smolt	Inchmore
F5	P1	B1	Atlantic salmon (*Salmo salar*)	Smolt	Inchmore

Results

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

The following bacteria were isolated:

- *Aeromonas salmonicida* (isolate A.): F2 and F5 (kidney)
- *Aeromonas salmonicida* (isolate B.): F3 and F4 (kidney)

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

Pool number	**Endogenous control Cp value**	**Cp Values**			**Reported Result (PCR)**
P1	15.33	35.61	34.99	34.93	POSITIVE

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

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Parasitology: Fins were collected to determine the presence of *Gyrodactylus salaris* using light microscopy and molecular techniques (PCR).

No *G. salaris* parasites were detected in the samples examined.

Mycelium consistent with *Saprolegnia* sp. was present on one of the fins which was identified as *Saprolegnia parasitica* by sequencing analysis.

Histology: Tissue samples of gill, skin and skeletal muscle (including lesion material from F5), heart, pyloric caeca, pancreas, hind gut, liver, spleen and kidney were taken from F1 – F5.

Histopathological examination revealed the following:

Gill: Small scatter foci of lamellar hyperplasia (F1, F3). Several dense aggregates of Gram-negative rod-shape bacteria (F1, F3, F4) were observed. F3 also displayed hypertrophic chloride cells.

Skin & Muscle: Lesion: Dermatitis with associated Gram-negative rod-shape bacteria (F1, F4) and haemorrhagic myositis (F1). F5 displayed hyphal mat at the external layer of dermis and associated with stratum spongiosum of dermis and skeletal red muscle with muscular necrosis.

Heart: F1, F2 and F3 displayed several small areas with dense aggregates of Gram-negative rod-shape bacteria and some fibre necrosis surrounding the aggregates. F3 displayed epicarditis, mild.

Gut and pyloric caeca: Ranging from mild to marked peritonitis (F1, F4 & F5). F5 displayed some cell sloughing (potentially associated with post-mortem artefact) observed in F1.

Pancreas: Some post-mortem artefact observed in F4 and F5.

Liver: Hepatocellular vacuolation (macrovesicles), mild, diffuse (F2), one small area with granulomatous reaction (F3) and a cluster of aggregates of Gram-negative rod-shape bacteria.

Kidney: Few renal tubes displaying hyaline droplets in the linen epithelium (F1). Some foci of interstitial cell (haemopoietic) necrosis with few small aggregates of Gram-negative rod-shape bacteria observed in F1, F4. F1 and F5 also displayed mild tubular mineralization.

Spleen: Marked capsulitis (F1, F2). Necrotising splenitis, mild, multifocal (F2). F2 and F3 displayed some scattered Gram-negative rod-shape bacteria. F4 also displayed cuffing and few Gram-negative rod-shape bacteria.

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

Signed: [redacted] Date: 25/06/2024

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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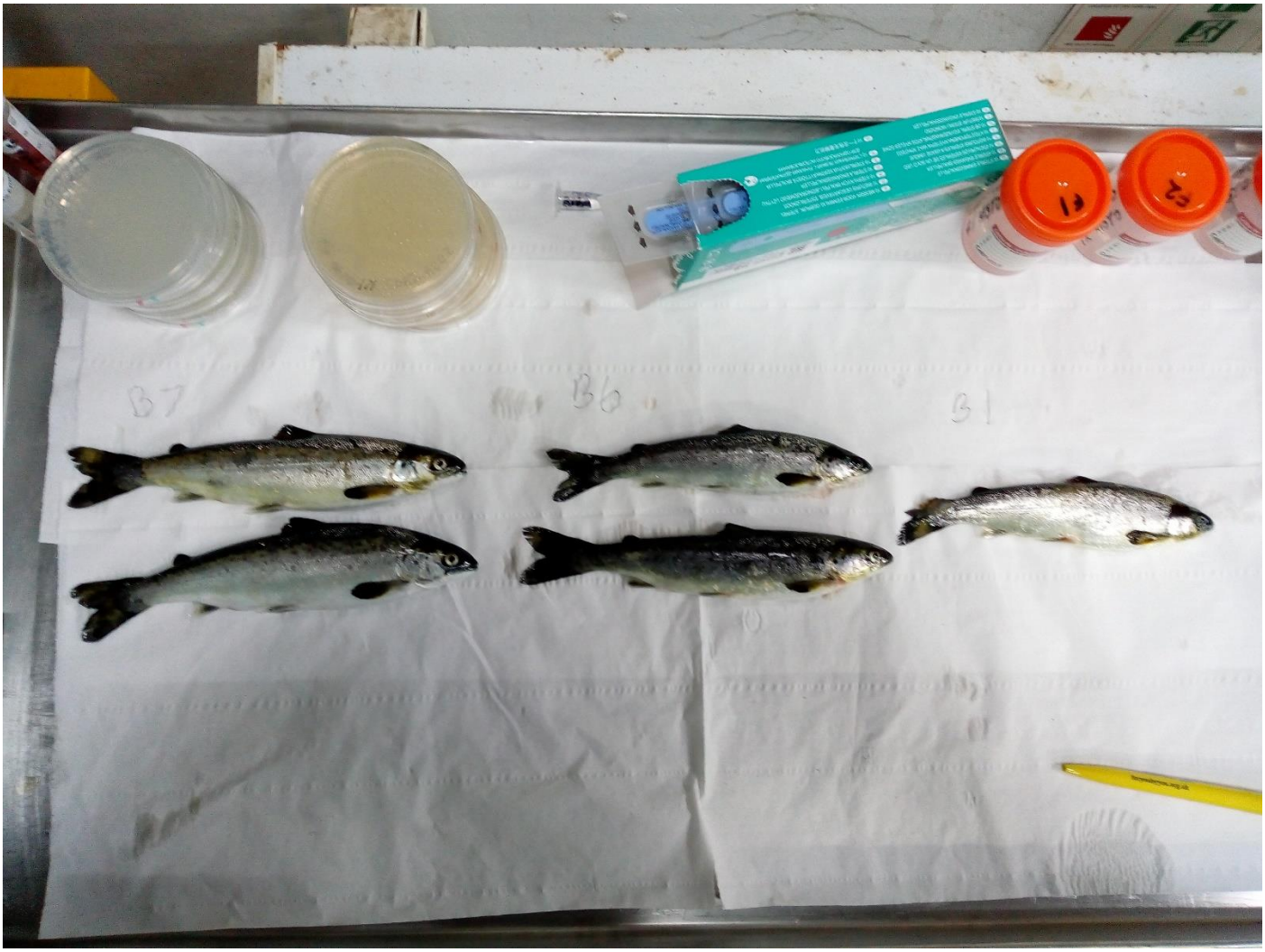

Image 1: Fish 1 - 5

Image 2: Fish 5

Image 3: Fish 3 and 4