

Case No: 2023-0029 Date of visit: 08/02/2023

Time spent on site: 4 hours Main Inspector: [Redacted]

Site No: FS1354 Site Name: Shuna Point
Business No: FB0125 Business Name: Scottish Sea Farms Ltd

Case Types: 1 REP 2 DIA 3 VMD 4 [] 5 [] 6 []

Water Temp (°C): 8.75 Thermometer No: T307 FHI 045 completed []

Observations: Region: ST Water type: S CoGP MA: M-36

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:
[Redacted]

Additional Case Information:

Stock origin: Barcaldine Smolt unit, Stofinfiskur

Wrasse on site, wild caught from Orkney. Mortality on site low but furunculosis was observed on site and is attributed to spikes in mortality. Wrasse mortality since input- 5124

An inspection of the site was scheduled for the 08/02/2023 following repeated weeks of increased mortality above the reporting threshold. On site, pens 3, 7 and 8 were highlighted as the pens that had the highest mortality on site. Few moribund fish were observed in the pens, but those that were seen were lethargic and moribund. White ring-shaped lesions were also observed in some fish but only two were able to be caught for sampling with such lesions. 5 fish in total were removed and sampled for diagnostic purposes; 2 fish from pen 3, 1 fish from pen 8 and 2 from pen 7.

VMD samples taken from pen 3 and pen 8. Fish sampled were observed to be in a healthy condition.

Case No: Site No:

Date of Visit: Inspector(s):

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	<input type="text" value="8"/>	Facilities stocked	<input type="text" value="7"/>	No facilities inspected	<input type="text" value="3"/>
Species	<input type="text" value="SAL"/>	<input type="text" value="WRS"/>			
Age group	<input type="text" value="2022 Q1"/>	<input type="text" value="Wildcaught"/>			
No Fish	<input type="text" value="295,595"/>	<input type="text" value="15,112"/>			
Mean Fish Wt	<input type="text" value="1.6kg"/>	<input type="text" value="MVG"/>			
Next Fallow Date (Site)	<input type="text" value="August 2023"/>		Next Input Date (Site)	<input type="text" value="Spring 2024"/>	
Recent (last 4 wks) disease problems?			Any escapes (since last visit)?	<input type="text" value="N"/>	
If yes, detail:	<input type="text" value="CGD, AGD, PGD"/>				

Movement Records

1. Movement records available for inspection?

2. Date of last inspection:

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?

If other detail:

3. Mortality records complete and correctly entered?

4. Recent mortality (last 4 wks):

5. Evidence of recent increased/atypical mortalities?

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

6. Any other peaks in mortality during period checked?

If yes, detail:

7. Have increased (unexplained) mortalities been reported to vet or FHI?

If yes, detail action:

8. Have 'mortality events' been reported to FHI? If no, enter details on mortality events sheet.

Treatments and Medicines Records

- 1. Recent treatments (see comment)? Y
 If yes, detail: T.M.S.
- 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)? T.M.S.
 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).

CGD but more specifically AGD is primary cause of issues. Winter lesions some fish but not wide spread samples are not positive. From most recent health screen conducted by vet, negative for PRV, A.salmonicida, SRS (18/01/2022).

Records checked between: 29/06/2022-08/02/2023

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	6	7					
Pool Group	P1	P2	P3	P4	P5							
Species	SAL											
Average weight	1.6kg											
Sex	N/A											
Water Type	SW											
Stock Details	Barcaldine Smolt Unit (FS1328)											
	Stock Origin											
Facility No	3	3	8	7	7	3	8					

Case no: 2023-0029

Site No: FS1354

Method of killing: Percussive

Date of visit: 08/02/2023

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

Additional comments:

Site No: FS1354
Case No: 2023-0029
Nature of non-compliance:
Action taken (FHI):
Non-compliance relevant to (delete): VirologyMolGen/Bacteriology/Histology/Parasitology

Case No: **2023-0029** Date of visit: **08/02/2023**
 Site No: **FS1354** Inspector: **[REDACTED]**

Results Summary	Freq.	Date of Notification						
		Database	Insp	Phone	Insp	Writing	Insp	2 nd Insp
AGDQ	3/5	13/02/2023		15/02/2023		10/03/2023		
IHNP	0/5	13/02/2023		15/02/2023		10/03/2023		
IPNM	3/5	13/02/2023		15/02/2023		10/03/2023		
ISAQ	0/5	13/02/2023		15/02/2023		10/03/2023		
PNST	5/5	13/02/2023		15/02/2023		10/03/2023		
PMVP	0/5	13/02/2023		15/02/2023		10/03/2023		
SPVP	5/5	13/02/2023		15/02/2023		10/03/2023		
SALP	0/5	13/02/2023		15/02/2023		10/03/2023		
VHSP	0/5	13/02/2023		15/02/2023		10/03/2023		
AMGD	5/5	24/02/2023		24/02/2023		10/03/2023		
CGDH	3/5	24/02/2023		24/02/2023		10/03/2023		
EPIT	2/5	24/02/2023		24/02/2023		10/03/2023		
SULC	2/5	24/02/2023		24/02/2023		10/03/2023		
PMCH	1/5	24/02/2023		24/02/2023		10/03/2023		
VSPE (Isolate A)	3/5	07/03/2023		07/03/2023		10/03/2023		
VSPE (Isolate B)	3/5	07/03/2023		07/03/2023		10/03/2023		
VSPE (Isolate C)	3/5	07/03/2023		07/03/2023		10/03/2023		

Report Summary			
Case Type	Date	Insp	2 nd Insp
DIAG, REP	07/03/2023		
VMD	07/03/2023		

FISH HEALTH INSPECTORATE VISIT REPORT

SUMMARY FOR INFORMATION OF SITE OPERATOR

BUSINESS No	FB0125	DATE OF VISIT	08/02/2023
SITE No	FS1354	SITE NAME	Shuna Point
CASE No	20230029	INSPECTOR	██████████

Section 1: Summary

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

Histopathology examination revealed mild, multifocal, hyperplastic branchitis. Epitheliocystis (likely *Ca. Branchiomonas cysticola*) and amoebic gill disease (AGD) were also observed. *Neoparamoeba perurans* (the causative agent of AGD) was confirmed in three tested fish by qPCR. Salmon gill poxvirus and *Paranucleospora theridion* were confirmed in all five tested fish by qPCR. Two fish displayed ulcerative dermatitis with presence of mixed Gram-negative bacteria. Mild, multifocal hepatocellular necrosis and necrotizing splenitis and some evidence of dehydration was also observed.

Three fish tested positive for infectious pancreatic necrosis virus (IPNV) by qPCR. No histopathological changes associated with infectious pancreatic necrosis (IPN) were observed.

Three *Vibrio* spp. isolates were also isolated but the level and purity of growth did not suggest they would be implicated in morbidity of the fish sampled.

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

Following reports of increased mortality above the reporting threshold, a site inspection was conducted. The three pens with the highest observed mortality were inspected and around 3-4 fish were observed around the sides of each pen. All fish removed for sampling were lethargic and moribund. In addition, some fish were noted to have white circular skin lesions on the flanks.

No lice were observed on the fish sampled. Gill condition of fish removed for sampling showed some pale gills with few white lesions observed on the tips. Open skin lesions were observed in F1 and F2 and sampled. Internally, all fish possessed yellow pseudofaeces present in the hind gut. Petechial haemorrhaging was also observed on F2 and F4.

Samples

Samples were collected from F1-F5 fish according to the table below:

Fish number	Facility number	Species	Stage	Origin
1-2	3	Atlantic Salmon	1.6kg 2022 Q1	Barcaldine Smolt Unit (FS1328)
3	8	Atlantic Salmon	1.6kg 2022 Q1	Barcaldine Smolt Unit (FS1328)
4-5	7	Atlantic Salmon	1.6kg 2022 Q1	Barcaldine Smolt Unit (FS1328)

Results

Bacteriology: Kidney and gill material from F1 to F5 were inoculated onto appropriate media for the isolation of bacteria. In addition, lesion material from F1 and F2 was inoculated onto appropriate media for the isolation of bacteria.

The following bacteria were isolated:

- *Vibrio* spp.:
 - Isolate A: F1 & F2 (Kidney, Lesion);F4 (Kidney)
 - Isolate B : F1 & F2 (Kidney, Lesion, Gill);F4 (Kidney)
 - Isolate C: F1 (Kidney);F2 (Kidney, Lesion)

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	15.66	37.08	35.67	35.47	POSITIVE
F2	15.60	21.00	21.13	21.14	POSITIVE
F3	16.31	35.07	34.69	34.95	POSITIVE
F4	-	-	-	-	Negative
F5	-	-	-	-	Negative

Salmon gill poxvirus (SGPV)

Fish Number	Endogenous control Cp value	Cp Values			Reported Result (PCR)
F1	23.26	26.30	26.50	26.52	POSITIVE
F2	23.15	26.83	27.01	26.83	POSITIVE
F3	22.71	27.68	27.70	27.78	POSITIVE
F4	22.66	26.91	26.97	26.89	POSITIVE
F5	22.58	31.94	31.82	31.94	POSITIVE

The samples tested negative for infectious haematopoietic necrosis virus (IHNV), infectious salmon anaemia virus (ISAV), salmonid alphavirus (SAV), viral haemorrhagic septicaemia 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	23.26	34.61	34.93	34.89	POSITIVE
F2	-	-	-	-	Negative
F3	-	-	-	-	Negative
F4	22.66	35.47	35.78	35.81	POSITIVE
F5	22.58	35.55	36.59	35.92	POSITIVE

Paranucleospora theridion

Fish Number	Endogenous control Cp value	Cp Values			Reported Result (PCR)
F1	23.26	26.82	26.81	26.91	POSITIVE
F2	23.15	27.70	27.76	27.81	POSITIVE
F3	22.71	30.57	30.80	30.59	POSITIVE
F4	22.66	28.61	28.65	28.72	POSITIVE
F5	22.58	29.98	29.84	29.80	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: Lamellar hyperplasia and fusion, mild to moderate, multifocal to diffuse (F1-F5) and F5 also displayed foci of lamellar necrosis with mixed Gram-negative bacteria associated. F2 also displayed filament branchitis, chronic, mild, focal. Several basophilic epithelial inclusions (likely epitheliocystis) observed in F1 and to a lesser extension in F3 and occasional amoeboid cells resembling *Neoparamoeba perurans* and occasional *Costia*-like parasites observed in F1. Lamellar telangiectasia with multifocal thrombosis and free blood among gill filaments (F3-F5). Autolysis artefact were also observed.

Skin & Muscle: F1 & F2 lesion: Absence of the epidermis, oedema of dermis and a layer of mixed Gram-negative bacteria at the dermal outer layer and within dermis (F1 & F2), mild some inflammatory cell infiltrated (F2), foci haemorrhage on the dermis and hypodermis, Gram-negative mixed bacteria present on the dermal layer.

Heart: Very minimal area of fibre degeneration (F1), foci of cellular degeneration, mild (ventricle) (F4), Mild pericarditis (F4).

R09

UKAS accredited testing laboratory No. 1964

Marine Laboratory, 375 Victoria Road, Aberdeen, AB11 9DB

Tel - 0131 244 3498 Fax - 0131 244 0944 Email - ms.fishhealth@gov.scot

Website - www.gov.scot/Topics/marine/science

Gut and pyloric caeca: Very mild peritonitis F5.

Pancreas: Within the normal range.

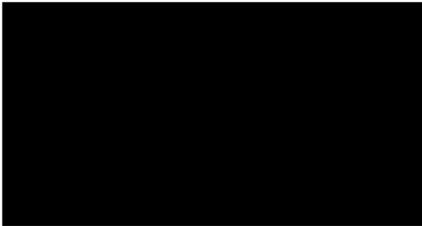
Liver: Hepatocellular necrosis, mild, multifocal (F1, F2), foci of sinusoidal haemorrhage (F3, F5) some foci hepatocellular vacuolation (macroviscules), multifocal (F1).

Kidney: Increased number of melanomacrophages (F1, F3, F5), some shrunken glomeruli (F1) and some amorphous pink material within the glomeruli vessels (F1).

Spleen: Necrotizing splenitis (F1), some peritonitis (F2).

Brain: Not sampled.

Eye: Not sampled.



Fish Health Inspector

Date: 07/03/2023

The Fish Health Inspectorate Service Charter detailing standards of service is available on the Marine Scotland website at <https://www.gov.scot/publications/fish-health-inspectorate-service-charter/>

FISH HEALTH INSPECTORATE VISIT REPORT

SUMMARY FOR INFORMATION OF SITE OPERATOR

BUSINESS No	FB0125	DATE OF VISIT	08/02/2023
SITE No	FS1354	SITE NAME	Shuna Point
CASE No	20230029	INSPECTOR	[REDACTED]

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

The above site was visited in accordance with the Animals and Animal Products (Examination for Residues and Maximum Residue Limits) (England and Scotland) Regulations 2015.

Samples were taken to be analysed for veterinary residues.

In addition, 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.

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

Signed:



Fish Health Inspector

Date: 07/03/2023

The Fish Health Inspectorate Service Charter detailing standards of service is available on the Marine Scotland website at <https://www.gov.scot/publications/fish-health-inspectorate-service-charter/>

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Diagnostic Sampling photos - 20230029:



Figure 1 Overview picture of a) fish 1, b) fish 2 and c) fish 3.

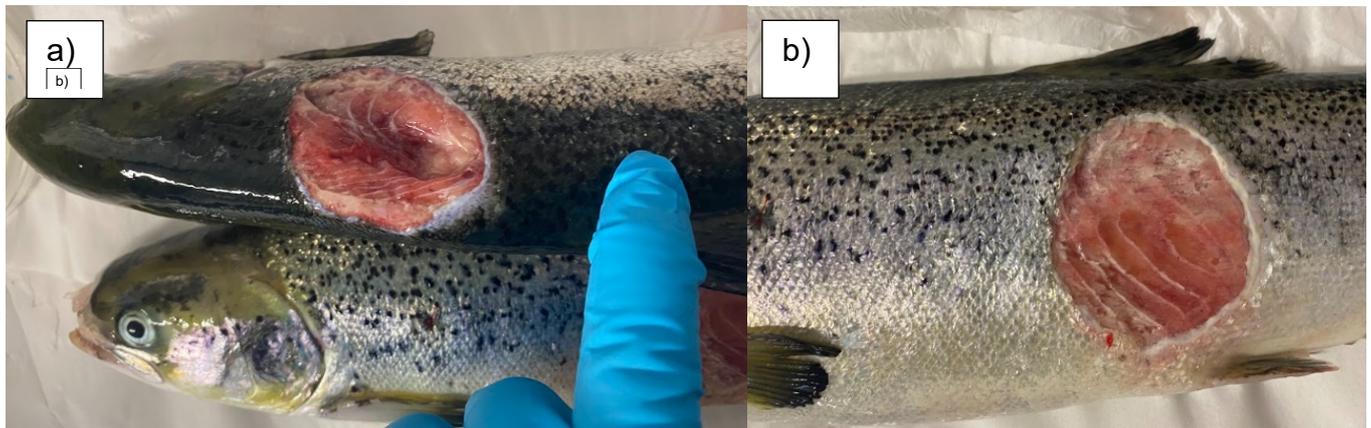


Figure 2 Pictures of lesions on a) Fish 1 and b) fish 3.

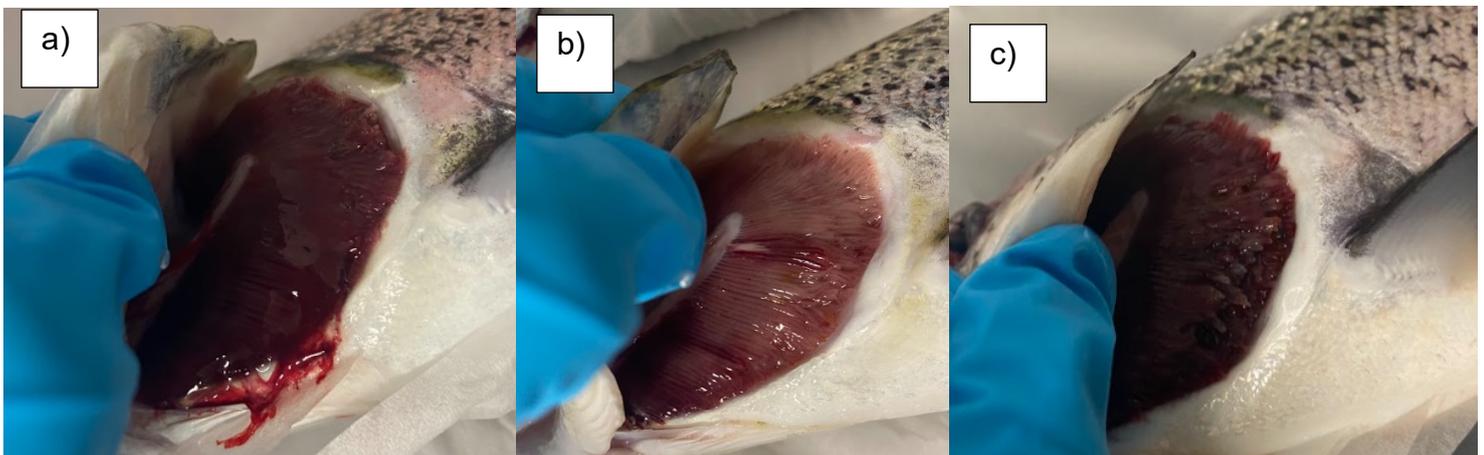


Figure 3 Pictures of gills from a) fish 1, b) fish 2 and c) fish 3.



Figure 4 Internal view of Fish 1



Figure 4 Internal view of Fish 2. Haemorrhaging on the liver can be observed.



Figure 6 Overview picture of a) fish 4 and b) fish 5.

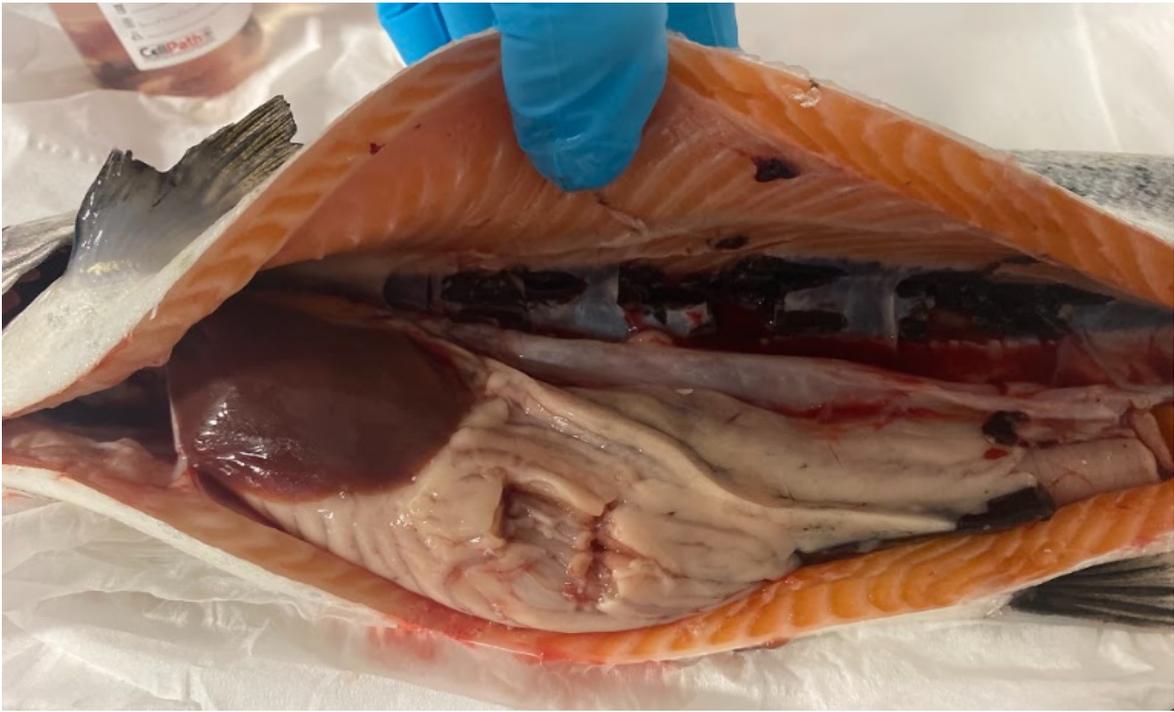


Figure 7 Internal view of Fish 4, post sampling.



Figure 8 Internal view of Fish 5. Insert picture depicts haemorrhaging on liver.