

Case No:

2023-0497

Date of visit:

08/11/2023

Time spent on site:

9 hrs

Main Inspector:

Site No:

FS0016

Site Name:

Loch Alsh (Sron)

Business No:

FB0119

Business Name:

Mowi Scotland Ltd

Case Types:

1 REP

2 DIA

3

4

5

6

Water Temp (°C):

12.56

Thermometer No:

T304

FHI 045 completed

N/A

Observations:

Region: HI

Water type: S

CoGP MA: M-21

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:

Large number of mortalities observed floating on surface of a number of pens. Site is actively removing mortalities, normal practice for mortality removal is uplift to bins and the bins are transferred to Ardintoul, the site are using the Aqua Scotia for mortality removal at present (whole fish removed from pens and transferred to tanks at pier. Mowi have also used the Bakkaneess for mortality removal with fish removed by uplift and ensiled onboard.

It was reported that the site conducted a FW treatment in mid September and followed this up with a hydrogen peroxide treatment at the beginning of October (07/10 to 10/10), the mortalities began reportedly to increase following this treatment, with pens 3,4, 7 and 8 reported to be affected initially, before all pens on site being affected. Operator has been conducting their own sampling and these results have identified CGD, they have also had Pharmaq Analytiq on site recently and the results from that visit/sampling also identified CGD, but also noted "no history of exposure to harmful phytoplankton or zooplankton despite extensive monitoring"

Site manager reported that although site has CGD, there have been no environmental issues this year. Sea lice numbers on site are extremely low with wk 44 count being 0 adult female leps, 0.01 mobile leps and 0.01 chalimus . Site currently in withdrawal for hydrogen peroxide (500 degree days) due to treatment being for gills rather than sea lice.

WRA mortality - WK42 - 1,741 (3.39%), WK 41 - 2,762 (5.11%), wk 40 - 1,830 (3.94%) and wk 39 - 1,306 (2.93%)

LUM mortality - wk 42 - 2,112 (7.13%), wk 41 - 5,793 (16.36%), wk 40 - 7,902 (18.24%) and wk 39 - 5,628% (11.50%)

Site currently conducting FW treatments using the Inter Atlantic and plan to treat the whole site by 10/11/23 (weather dependant)

Weather was very changeable during the site inspection. Fish sampled for VMD appeared healthy.

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Inspector(s):

Registration/Authorisation Details

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

Y
N

Site Details (include cleaner fish for all sections)

Total No facilities	10	Facilities stocked	9	No facilities inspected	10
Species	SAL	WRA	LUM		
Age group	2023 Q1	MIX	MIX		
No Fish	543, 917	~50,000	~27,000		
Mean Fish Wt	2.393 kg	MIX	MIX		
Next Fallow Date (Site)	July 2024	Next Input Date (Site)		2025 Q1	
Recent (last 4 wks) disease problems?		Y	Any escapes (since last visit)?		N
If yes, detail:	CGD				

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?

Y
16/05/2023
Y
Y
Y
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?
 2. How are mortalities disposed of?
 If other detail: Biogas - Energen, Cumbernauld
 3. Mortality records complete and correctly entered?
 WK 40 - 7,960 (0.97%) - All attributed to gill infection, WK 41 - 21,118 (2.6%) - 20,968 attributed to gill health, WK42 - 35,318 (4.46%) - 35,226 attributed to gill infection and WK 43 - 99,717 (13.19%) - all attributed to gill infection.
 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:
 See Q4 whole site, rather than specific pens.
 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., hydrogen peroxide

If other, detail: [redacted]

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., hydrogen peroxide

If other, detail: [redacted]

6. Are medicines stored appropriately? Y

Biosecurity Records

1. Biosecurity records available for inspection? [redacted]

2. Has the manner and frequency of mortality removal, recording and safe disposal been considered? [redacted]

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? [redacted]

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? [redacted]

5. Has the health status of aquaculture animals being stocked on the farm site been covered (equal or higher health status, certification if required)? [redacted]

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.)? [redacted]

7. Is documentation available regarding the measures in place to maintain the physical containment of aquaculture animals held on site? [redacted]

8. Have the biosecurity procedures been adequately implemented on site? [redacted]

If no, detail: [redacted]**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). CGDRecords checked between: 16/05/23 to 08/11/23

Case no:	2023-0497	Site No:	FS0016	Date of visit/ Sampling:	08/11/2023	08/		
Priority samples:	VI	BA	PA	MG	HI			
Time sampling starts/ends:	12:00:00	13:30:00		Inspector:		VMD No.		
Environmental conditions:	1 Indoors	2	3	4	5			
Summary samples	HIST	Y	BA	Y	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						
Pool Group												
Species	SAL	SAL	SAL	SAL	SAL	SAL						
Average weight	2.4 kg	2.4kg	2.4kg	2.4kg	2.4kg	2.4kg						
Sex												
Water Type	SW	SW	SW	SW	SW	SW						
Stock Details	Lochailort Recirculation Hatchery (FS1269)											
Stock Origin	10	10	6	8	8	9						
Facility No												

11/2023 Additional Sample Information:

5

Total Tests assigned 5

5

Case no: 2023-0497 Site No: FS0016 Method of killing: Percussive

Date of visit: 08/11/2023 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)		60 min	65 min	75 min	80 min	90 min				
External Signs										
Behaviour	Moribund	S	S	S	S	S				
	Lethargic									
	Hanging vertical	S	S	S	S	S				
	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				M					
Lesions	Flank									
	Elsewhere				W					
Vent	Inflamed									
	Trailing faeces									
Lice Load	Estimate numbers	0	0	0	0	0				
Internal Signs										
Ascites	Clear									
	Bloody	W	W	W						
Oedema	In tissues									
Heart	Pale/anaemic									
	Granulomas									
	Deformed									
Liver	Petechial haem									
	Gross haem									
	Tissue breakdown									
	Enlarged									
	Colour number(s)	4	3	4	5	4				
	Granulomas									
	Lesions									
Pyloric caeca	Petechial haem									
	Tubules mauve									
	Lack of fat									
Spleen	Enlarged									
	Granulomas									
Gut	No food present									
	Yellow pseudo-faeces				W	W				
	External haem									
	Internal haem									
Body wall	Haemorrhaging									
Swim bladder	Haemorrhaging									
	Fluid filled									
Kidney	Swollen									
	Grey									
	Granular									
	Liquefied									
General	Parasites present									
	Anaemia									

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Date of visit: 08/11/2023

S for strong presence; M for medium presence; W for weak presence

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								
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	Flared								
Haemorrhaging	Throat								
	Ventrum								
	Base of fins								
	Elsewhere								
Eyes	Exophthalmic								
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Gills	Pale								
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	Necrotic								
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	Elsewhere								
Vent	Inflamed								
	Trailing faeces								
Lice Load	Estimate numbers								
Internal Signs									
Ascites	Clear								
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	Granulomas								
	Deformed								
Liver	Petechial haem								
	Gross haem								
	Tissue breakdown								
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	Colour number(s)								
	Granulomas								
	Lesions								
Pyloric caeca	Petechial haem								
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Swim bladder	Haemorrhaging								
	Fluid filled								
Kidney	Swollen								
	Grey								
	Granular								
	Liquefied								
General	Parasites present								
	Anaemia								

Additional comments:

F4 lesion on ventral surface

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Nature of non-compliance:

Action taken (FHI):

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

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Site No: **FS0016**

Inspector: [REDACTED]



FISH HEALTH INSPECTORATE VISIT REPORT

SUMMARY FOR INFORMATION OF SITE OPERATOR

BUSINESS No FB0119
SITE No FS0016
CASE No 20230497

DATE OF VISIT 08/11/2023
SITE NAME Loch Alsh (Sron)
INSPECTOR [REDACTED]

Section one: summary

The above site was inspected following reports of mortalities exceeding the reporting threshold. Five fish were removed for diagnostic sampling.

Histopathological examination revealed features consistent with mild, multifocal, hyperplastic branchitis that resemble amoebic gill disease. F3 and F4 also displayed features resembling gill poxvirus-like. *Epitheliocystis* also observed. Gill samples tested by qPCR were positive for *Neoparamoeba perurans* (AGD), *Paranucleospora theridion* and salmon gill pox virus

Hepatocellular necrosis, minor to mild myocarditis (could be related to the presence of salmonid alphavirus) also observed. Minor to mild foci of lighter HE stains (F2, F5). Samples tested by qPCR were positive for salmonid alphavirus.

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 two: case detail

Observations

The site was inspected following a four week period where mortalities were above the reporting threshold, wk 41 – 21,118 (2.6%), wk 42 – 35, 318 (4.46%), wk 43 - 99,717 (13.19%) and wk 44 - 112,206 (17.10%). Mortalities on site had been attributed to complex gill disease and were reported to have began to increase following a hydrogen peroxide treatment conducted between 07/10/23 to 10/10/23. The site reported that regular water quality monitoring had been conducted and no environmental challenges had occurred on site during this input of stock.

R09



During the inspection of stock on site five moribund were removed for diagnostic sampling. All five fish were moribund and hanging vertically. F4 had necrotic gills and a lesion on the ventral surface.

Internally F1 – F3 had bloody ascites and F4 and F5 had yellow pseudo-faeces present.

Samples

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

Fish number	Facility number	Species	Stage	Origin
F1	10	Atlantic salmon	2023 Q1; 2.4 kg	Lochailort Recirculation Hatchery (FS1269)
F2	10	Atlantic salmon	2023 Q1; 2.4 kg	Lochailort Recirculation Hatchery (FS1269)
F3	6	Atlantic salmon	2023 Q1; 2.4 kg	Lochailort Recirculation Hatchery (FS1269)
F4	8	Atlantic salmon	2023 Q1; 2.4 kg	Lochailort Recirculation Hatchery (FS1269)
F5	8	Atlantic salmon	2023 Q1; 2.4 kg	Lochailort Recirculation Hatchery (FS1269)

Results

Bacteriology:

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

The following bacteria were isolated from fish F1 - F5

Vibrio Sp. (gill F1 - F5, lesion F3)

The level and purity of growth would not suggest this bacterium would be implicated in morbidity and it is likely to be of environmental origin.

Virology:

Tissue samples were tested for segments of nucleic acid indicative of the presence of the pathogens specified below using real-time PCR (qPCR).

R09



Salmonid alphavirus (SAV)

Fish Number	Endogenous control Cp value	Cp Values			Reported Result (PCR)
F1	14.99	20.48	20.10	20.03	POSITIVE
F2	14.99	28.37	28.54	28.14	POSITIVE
F3	-	-	-	-	Negative
F4	15.21	21.34	21.51	21.59	POSITIVE
F5	15.18	34.73	34.19	34.29	POSITIVE

Salmon gill poxvirus (SGPV)

Fish Number	Endogenous control Cp value	Cp Values			Reported Result (PCR)
F1	21.67	28.09	27.98	28.06	POSITIVE
F2	21.87	27.12	27.23	27.16	POSITIVE
F3	21.85	24.31	24.46	24.38	POSITIVE
F4	21.51	22.33	22.34	22.51	POSITIVE
F5	21.50	31.19	31.15	31.13	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).

R09



Neoparamoeba perurans (AGD)

Fish Number	Endogenous control Cp value	Cp Values			Reported Result (PCR)
F1	21.67	34.70	34.66	35.15	POSITIVE
F2	21.87	35.56	35.44	35.75	POSITIVE
F3	21.85	29.34	29.48	29.44	POSITIVE
F4	21.51	33.46	33.71	33.69	POSITIVE
F5	21.50	35.88	36.50	35.96	POSITIVE

Paranucleospora theridion

Fish Number	Endogenous control Cp value	Cp Values			Reported Result (PCR)
F1	21.67	30.82	30.83	30.85	POSITIVE
F2	21.87	27.13	27.18	27.20	POSITIVE
F3	21.85	28.17	28.23	28.24	POSITIVE
F4	21.51	26.68	26.64	26.65	POSITIVE
F5	21.50	28.75	28.71	28.72	POSITIVE

Histology:

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

Histopathological examination revealed the following:

Gill: Lamellar hyperplastic branchitis, minor to moderate, multifocal (F1-F5), some lamellar vascular disturbances with necrosis (F1-F5). F1 also displayed cell debris with bacteria. F3 and F4 showed few apoptotic cells shedding off potentially associated with gill poxvirus. Few basophilic epithelial inclusions (likely epitheliocystis) F1-F5. Cell debris with bacteria observed among gill filaments (F1). Aneurysmal dilation/Lamellar telangiectasia observed in F3.

Skin & Muscle: Within normal range.

R09



Heart: Minor, multifocal, myocarditis (F1, F2, F4). Some thrombi nests in ventricular chamber (F1, F3), in F3 located at the spongy-compact layer platform. Mild epericarditis (F1, F2, F3, F4). Minor to mild foci of lighter HE stains (F2, F5).

Gut and pyloric caeca: Mild peritonitis (F1, F2, F3, F4) (potentially associated with vaccine administration). Cell sloughing potentially associated with post-mortem artefact observed in F3.

Pancreas: Within the normal range.

Liver: Hepatocellular necrosis, mild, multifocal (F1-F4), hepatocellular vacuolation (macrovesicles), mild, diffuse (F1-F5). Minor cell inflammation observed in F5.

Kidney: Some renal tubule dilation (F1), some renal tubules with hyaline droplets on the lining epithelium (F4). F4 also displayed foci of reduced interstitial cell (haemopoietic).

Spleen: F5 displayed splenic necrosis. F3: Not present.

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

Signed:

Date: 29/12/25

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)

R09

2023-0497 -Loch Alsh (Sron)



Fish 1 to 5 external



Fish 1 – Gill



F2 – Gill



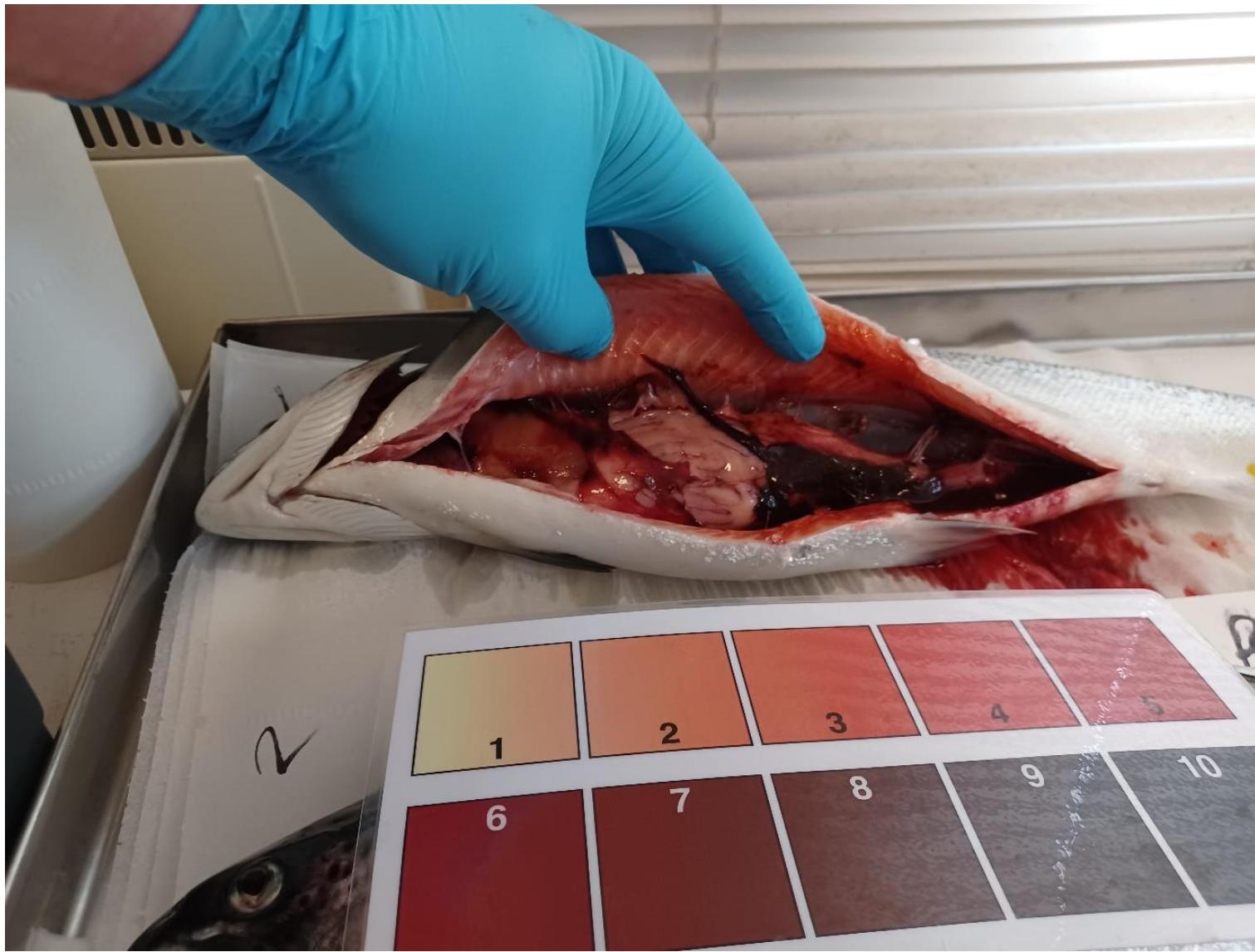
F3 – Gill



F4 – Gill



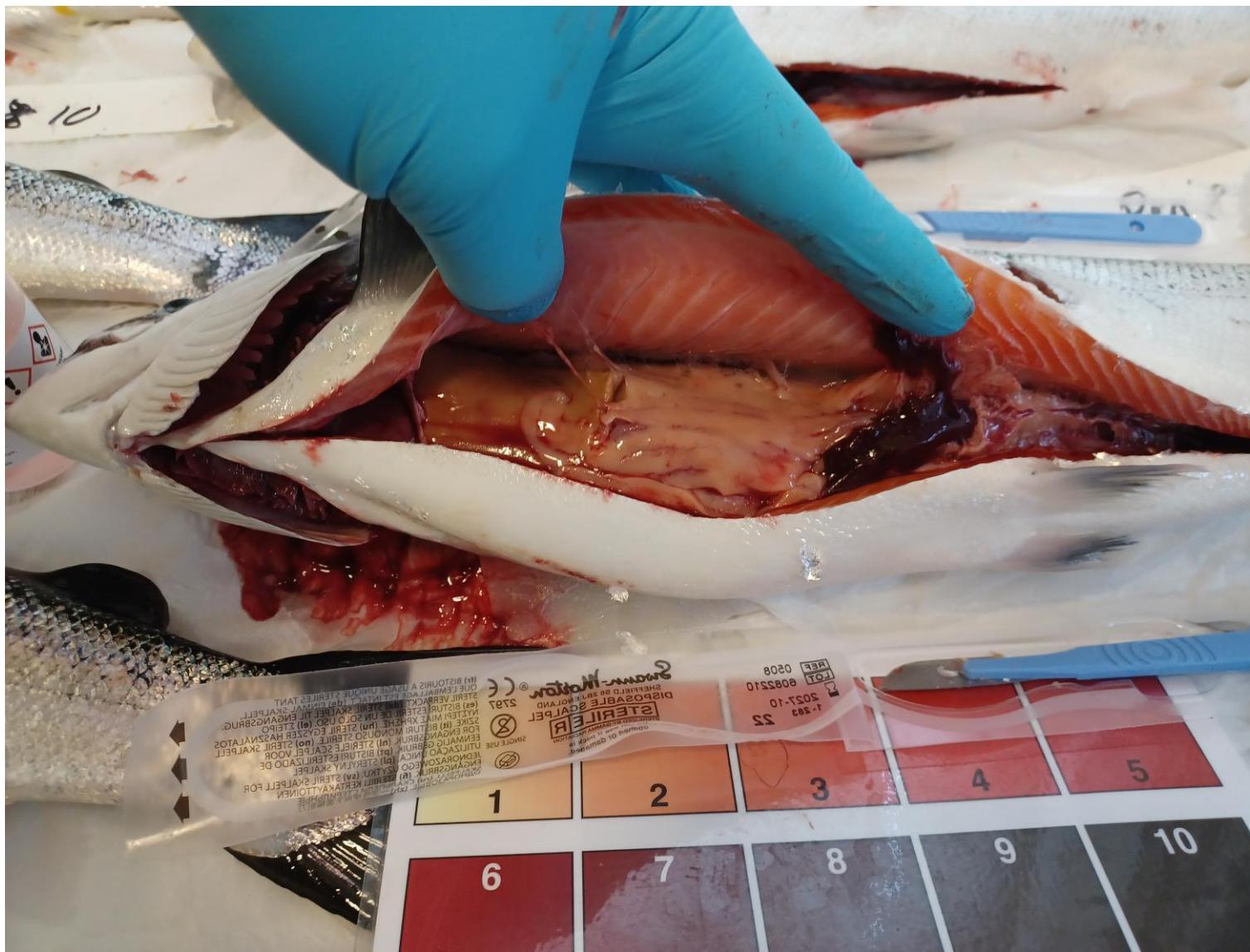
F5 – Gill



F1 – Internal



F2 - Internal



F3 - Internal



F4 - Internal