Case No:	2021-0411	Date of visit:	20/10/2021
Time spent on site:	5hrs	Main Inspector:	[redacted]
Site No:	FS1033	Site Name:	North Shore
Business No:	FB0119	Business Name:	Mowi Scotland Ltd

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

Water Temp (°C): 12.7 Thermometer No: T152 FHI 045 completed

Observations: Region: WI Water type: S CoGP MA: W-3

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:

Fish on site were received from Loch Lochy and Glenfinnan. Stock originated from Inchmore and Loch Ailort.

234,028 Lumpfish taken on from Ocean Matters over 2 inputs in December 2020 and February 2021. 117,414 mortalities have occurred since input (49%). 63,668 wildcaught wrasse received on site in May, June, July and August 2021.

Mortalities and waste are stored in sealed bins on site until they are transferred to a common skip at the shorebase. The skip is collected by JD and taken to whiteshore cockles for landfill.

Average sea lice numbers increased in wk32 to 3.39 average adult female leps. The site responded with a Salmosan treatment which reduced the average count to 2.26 in the following week. The average number increased again in wk37 to 3.34 average adult females. A FW treatment was conducted that week, however the count increased the following week to 4.9. A thermolicer treatment was conducted but the average count the following week was still sitting at 4.38 average adult

In response to the challenges on site from sea lice and the poor clearance rate of conducted treatments, a partial harvest of the site has now been completed, leaving only 6/17 cages stocked.

A further thermolicer treatment has been scheduled to begin w/b 18/10/2021, combined with a peroxide treatment for AGD.

Site is conducting live haul harvests to Mallaig processing plant.

No moribunds were observed in the majority of the cages. Moribund fish were removed from cages 11 and 18 for diagnostic sampling. Cage 11 appeared to be the worst affected pen on the site, with 9 moribunds observed in this cage.

Fish sampled for VMD appeared healthy and demonstrated a strong feed response.

Case No:	2021-0411	Site No:	FS1033
Date of Visit:	20/10/2021	Inspector(s):	[redacted]

Registration/Authorisation Details

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

Site Details (include cleaner fish for all sections)

Total No facilities		17	Facilities stocked		6	No facilities inspected		17
Species	SAL	LUM	WRA					
Age group	2020 Q4	2020	Wildcaught					
No Fish	322,757	86,060	63,668					
Mean Fish Wt	4kg	100g	Mixed					
Next Fallow Date (Site)		Jan/Feb 22		Next Input Date (Site)		Sep/Oct 22		
Recent (last 4 wks) disease problems?			Y	Any escapes (since last visit)?				N
If yes, detail:	CMS, HSMI, Yersinia, CGD							

Movement Records

1. Movement records available for inspection?	Y
2. Date of last inspection:	25/02/2021
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)?	N
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:	Whiteshore cockles.
3. Mortality records complete and correctly entered?	Y
4. Recent mortality (last 4 wks):	Wk40: 1,514 (0.47%), Wk39: 1,409 (0.43%), Wk38: 15,926 (4.62%), Wk37:
5. Evidence of recent increased/atypical mortalities?	Y
If yes, facility nos/no mortality per facility/no stock per facility/reason:	
Wks 37 and 38 mortalities mainly attributed to gill infections combined with low DO.	
6. Any other peaks in mortality during period checked?	Y
If yes, detail:	Wk35 (1.03%), wk33 (1.36%), wk31 (2.38%) - all attributed to post-treatment.
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.
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?	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).	CGD.
Report dated: 09/10/2021	
Records checked between:	25/02/2021 - 20/10/2021

Case Number:	2021-0411		Site No:	FS1033	Insp:	
Date of Visit	20/10/2021					

		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	
	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		1
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		**20**
				Rank		**MEDIUM**

Case No: 2021-0411 Site No: FS1033

Sea Lice Inspection (Seawater Sites Only)

1. Has the site experienced sea lice problems in the previous 4 years?	Y
2. Is the CoGP Farm Management Area (or equivalent) fallowed synchronously on a single year class basis?	Y
3. Does the site have access to a range of licenced in-feed and bath sea lice medications (including deltamethrin, azamethiphos and emamectin benzoate) as well as access to suitable biological and/or mechanical control measures, and can these be deployed in a reasonable period of time?	Y
4. Is there a signed documented farm management agreement or statement relevant to the site and CoGP Farm Management Area (or equivalent)?	Y
5. Are sea lice count records available for inspection? (Legal SSI, CoGP Annex 6)	Y
6. Do records adequately reflect the required standard specified in the SSI and the CoGP? (Legal SSI, CoGP Annex 6)	Y
7. Are sea lice (*L. salmonis*) record levels below the suggested criteria for treatment in the CoGP during the period that records are inspected? (CoGP Annex 6)	N
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 above (from w/b 10/6/19) during the period that records are inspected?	Y
If yes, have these been reported to the Fish Health Inspectorate? If no, FHI see comment.	Y
9. Is *C. elongatus* infestation at a level which is considered to cause significant welfare problems? (CoGP 4.3.81, 5.3.50)	N
10. Have therapeutic treatments been administered or other actions taken when *L. salmonis levels* have exceeded the suggested criteria for treatment or where *C. elongatus* is considered to have welfare implications? (CoGP 4.3.82, 5.3.51)	Y
11. Has any other action been taken (where applicable)?	Y
12. Have therapeutic treatments or the actions taken had a significant impact upon the lice levels recorded?	N
13. Are treatments, where conducted, carried out in cooperation between participating farms?	Y
14. Is there a harvesting strategy for the site, where fewer populations or part populations are held without treatment for sea lice?	Y
15. Is there a site specific written lice management procedure with waypoints describing set actions to deal with recognised scenarios during the escalation of a sea lice infestation?	Y
16. Do the sea lice levels observed on stocks reflect sea lice count data? If no please detail reasons.	Y

Containment Inspection

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

Seal pro nets and
top nets.

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?	N
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? (Legal, CoGP – 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)	Y

Case No: 2021-0411 Site No: FS1033

Date of Visit: 20/10/2021 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?	
26. What is the version no/date of issue of the FMAg/S?	01/01/2021

Case no: 2021-0411 Site No: FS1033 Method of killing: Percussive

Date of visit: 20/10/2021 Inspector(s): [redacted] Sheet Relevant: Y

S for strong presence: **M** for medium presence: **W** for weak presence

Fish Number		F1	F2	F3	F4	F5					
Time sampled after death (if > 45 minutes)		30mins	1hr	1.5hr	2hrs	2.5hrs					
External Signs											
Behaviour	Moribund	S	S	S	S	S					
	Lethargic										
	Hanging vertical										
	Spiralling										
	Flashing										
	Loss of equilibrium										
Body	Dark										
	Distended abdomen										
	Anorexic				M						
	Scale Oedema										
Opercula	Shortened	W									
	Flared										
Haemorrhaging	Throat										
	Ventrum										
	Base of fins										
	Elsewhere										
Eyes	Exophthalmic			W							
	Enophthalmic (sunken)										
	Cataract					M					
	Haemorrhagic										
Gills	Pale	M	W	W	M	W					
	Zoned										
	Necrotic										
Lesions	Flank										
	Elsewhere										
Vent	Inflamed										
	Trailing faeces										
Lice Load	Estimate numbers	9	14	17	16	20					
Internal Signs											
Ascites	Clear										
	Bloody										
Oedema	In tissues										
Heart	Pale/anaemic	M	M	S	S	S					
	Granulomas										
	Deformed										
Liver	Petechial haem										
	Gross haem										
	Tissue breakdown										
	Enlarged				M						
	Colour number(s)	2	4	2	4	7					
	Granulomas										
	Lesions										
Pyloric caeca	Petechial haem										
	Tubules mauve										
	Lack of fat										
Spleen	Enlarged		M	M		W					
	Granulomas										
Gut	No food present				S						
	Yellow pseudo-faeces	S	W	S		M					
	External haem										
	Internal haem										
Body wall	Haemorrhaging	W									
Swim bladder	Haemorrhaging										
	Fluid filled										
Kidney	Swollen										
	Grey										
	Granular										
	Liquefied										
General	Parasites present										
	Anaemia										

Case no: 2021-0411

Date of visit: 20/10/2021

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 no:	2021-0411	Site No:	FS1033	Date of visit/ Sampling:	20/10/2021	20/1							
Priority samples:	VI		BA		PA		MG		HI				
Time sampling starts/ends:	14:00:00	16:30:00	Inspector:		VMD No.	18							
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	P1						
	Fish nos	1	2	3	4	5	1-5	6-7	8-9				
	Pool Group	P1	P1	P1	P1	P1							
Stock Details	Species	SAL	SAL	SAL	SAL	SAL	SAL	SAL	SAL				
	Average weight	4kg	4kg	4kg	4kg	4kg	4kg	4kg	4kg				
	Sex	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A				
	Water Type	SW	SW	SW	SW	SW	SW	SW	SW				
	Stock Origin	Lochailort Recirculation Hatchery FS1269	Lochailort Recirculation Hatchery FS1269	Lochailort Recirculation Hatchery FS1269	Lochailort Recirculation Hatchery FS1269	Lochailort Recirculation Hatchery FS1269		Lochailort Recirculation Hatchery FS1269	Lochailort Recirculation Hatchery FS1269				
	Facility No	11	11	11	18	18		12	18				

10/2021 Additional Sample Information:

Humanely dispatched by purcussive blow.

6 Total Tests assigned 2

Site No: FS1033

Case No: 2021-0411

Nature of non-compliance:

Action taken (FHI):

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

Case No: 2021-0411 Date of visit: 20/10/2021

Site No: FS1033 Inspector: [redacted]

Results Summary	Freq.	Date of Notification						
		Database	Insp	Phone	Insp	Writing	Insp	2nd Insp
MG_IHNQ	0/1	22/10/2021		22/10/2021		17/11/2021		
MG_IPN	1/1	22/10/2021		22/10/2021		17/11/2021		
MG_ISA	0/1	22/10/2021		22/10/2021		17/11/2021		
MG_SAV	1/1	22/10/2021		22/10/2021		17/11/2021		
MG_VHS	0/1	22/10/2021		22/10/2021		17/11/2021		
MG_PMCV	1/1	29/10/2021		29/10/2021		17/11/2021		
YRUK	4/5	08/11/2021		12/11/2021		17/11/2021		
NSIG	1/5	08/11/2021		12/11/2021		17/11/2021		
ADHE	5/5	08/11/2021		12/11/2021		17/11/2021		
AMGD	1/5	08/11/2021		12/11/2021		17/11/2021		
CGDH	4/5	08/11/2021		12/11/2021		17/11/2021		
GPAT	4/5	08/11/2021		12/11/2021		17/11/2021		
SALH	1/5	08/11/2021		12/11/2021		17/11/2021		
CMPS	2/5	08/11/2021		12/11/2021		17/11/2021		

Report Summary			
Case Type	Date	Insp	2nd Insp
ECI, CNI, SLI, VMD	27/10/2021		
DIAG	17/11/2021		

FISH HEALTH INSPECTORATE VISIT REPORT

SUMMARY FOR INFORMATION OF SITE OPERATOR

BUSINESS NO	FB0119	**DATE OF VISIT**	20/10/2021
SITE NO	FS1033	**SITE NAME**	North Shore
CASE NO	20210411	**INSPECTOR**	[redacted]

Section 1: Summary

The site was visited following continued reports of elevated mortality levels. During the inspection, a number of moribund fish were observed and five were removed for further examination and subsequent diagnostic sampling.

Histopathology examination revealed non-specific, mild proliferative branchitis. F3 displayed pathology consistent with mild amoebic gill disease (AGD). The fish also exhibited pathology consistent with cardiomyopathy syndrome (CMS) and pancreas disease (PD). This was confirmed as a sample tested positive for piscine myocarditis virus (CMS) and salmonid alphavirus (SAV) by qPCR.

Yersinia ruckeri was identified on plates taken from kidney material of 4/5 fish. *Y. ruckeri* is a primary fish pathogen and the level and purity of growth was significant.

Molecular genetic analysis revealed that a sample tested positive for the presence of infectious pancreatic necrosis virus (IPNv).

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 site was inspected following continued reports of elevated mortality levels and to carry out a routine inspection. Increased mortalities had been attributed to gill health, jellyfish/plankton blooms, AGD, a period of low dissolved oxygen and treatment losses.

Mortality levels have reduced significantly following a short period of low dissolved oxygen but several moribund fish were observed during the inspection. Five fish were removed from pens 11 and 18 for diagnostic sampling as these pens had the highest overall mortality.

All fish sampled were moribund. All gills were slightly to moderately pale in colour. The body of F4 was moderately anorexic and the opercula of F1 were shortened. F3 displayed exophthalmic eyes and F5 had a moderate cataract. Lice numbers ranged between 9-20 per individual.

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

Internally, all fish had pale/anaemic hearts. The liver in F4 and the spleen in F2, F3 and F5 were enlarged. No food was present in the gut of F4 and yellow pseudo-faeces were noted in the guts of the remaining fish. Slight haemorrhaging was also noted in the body wall of F1.

Samples

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

Fish number	Pool number	Facility number	Species	Stage	Origin
F1-3	P1	11	Atlantic salmon	2020 Q4 4kg	Lochailort Recirculation Hatchery (FS1269)
F4-5	P1	18	Atlantic salmon	2020 Q4 4kg	Lochailort Recirculation Hatchery (FS1269)

Results

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

The following bacteria were isolated:

- *Yersinia ruckeri*
  - Fish 1-4 (Kidney)

Yersinia ruckeri was identified by qPCR.

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 (IPN)

Pool Number	Endogenous control Cp value	Cp Values			Reported Result (PCR)
P1	18.49	40	37.81	40	POSITIVE

Piscine myocarditis virus (PMCV)

Pool Number	Endogenous control Cp value	Cp Values			Reported Result (PCR)
P1	16.94	20.39	20.36	20.48	POSITIVE

Salmonid alphavirus (SAV)

Pool Number	Endogenous control Cp value	Cp Values			Reported Result (PCR)
P1	18.49	24.3	24.52	24.52	POSITIVE

Salmonid alphavirus (SAV) was sequenced and matched 100% at amino acid level to previous type 5 isolates.

The samples tested negative for infectious haematopoietic necrosis virus (IHNV), infectious salmon anaemia virus (ISAV) and viral haemorrhagic septicemia virus (VHSV).

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

Histology: Tissue samples of gill, skin and skeletal muscle, heart, pyloric caeca, pancreas, hind gut, liver, spleen and kidney were taken from F1-5. The tissue samples were fixed in 10% neutral buffered formalin.

Histopathological examination revealed the following:

Gill: Mild multifocal interlamellar hyperplasia and lamellar fusion (F3, F4), occasional spaces (lacunae) some filled with cell debris and amoebic cells, (F3, F4), displacement of chloride cells and some prominent goblet cells.
Some lamellar thickness and vascular disturbance in all fish. F4 also displayed some haemorrhage and several small areas of necrosis and presence neutrophil granulocyte on the hyperplasic plaques (pustule-like).
Few amoebic cells resembling *Neoparamoeba perurans* (F3) and several of basophilic epithelial inclusions (likely epitheliocystis) (F1, F2).
Some free blood among gill filament and several aneurysmal dilation, some organized.

Skin & Muscle: Within normal range.

Heart: Both chambers displayed mild inflammatory infiltrate, mainly mononuclear cells, and myofibre degeneration. Foci of mononuclear cells are also observed at the junction of the spongy and compact layer. Mild to moderate pericarditis (F1 & F4). F3: No atrium in section.

Gut and pyloric caeca: Some haemorrhage on the adipose tissue and presence of some fibrous adhesions (potentially associated with vaccine administration).

Pancreas: F2 displayed few apoptotic cells and foci of acinar necrosis.

Liver: Focal area of basophilic cells (F4).

Kidney: Within normal range.

Spleen: Slightly congested (F4).

Signed: Date: 17/11/2021

Fish Health Inspector

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/

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

FISH HEALTH INSPECTORATE VISIT REPORT

SUMMARY FOR INFORMATION OF SITE OPERATOR

BUSINESS NO	FB0119	**DATE OF VISIT**	20/10/2021
SITE NO	FS1033	**SITE NAME**	North Shore
CASE NO	20210411	**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.

All epidemiological units were inspected. 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.

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 Scotland were available for inspection.

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

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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.

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: 27/10/2021

Fish Health Inspector

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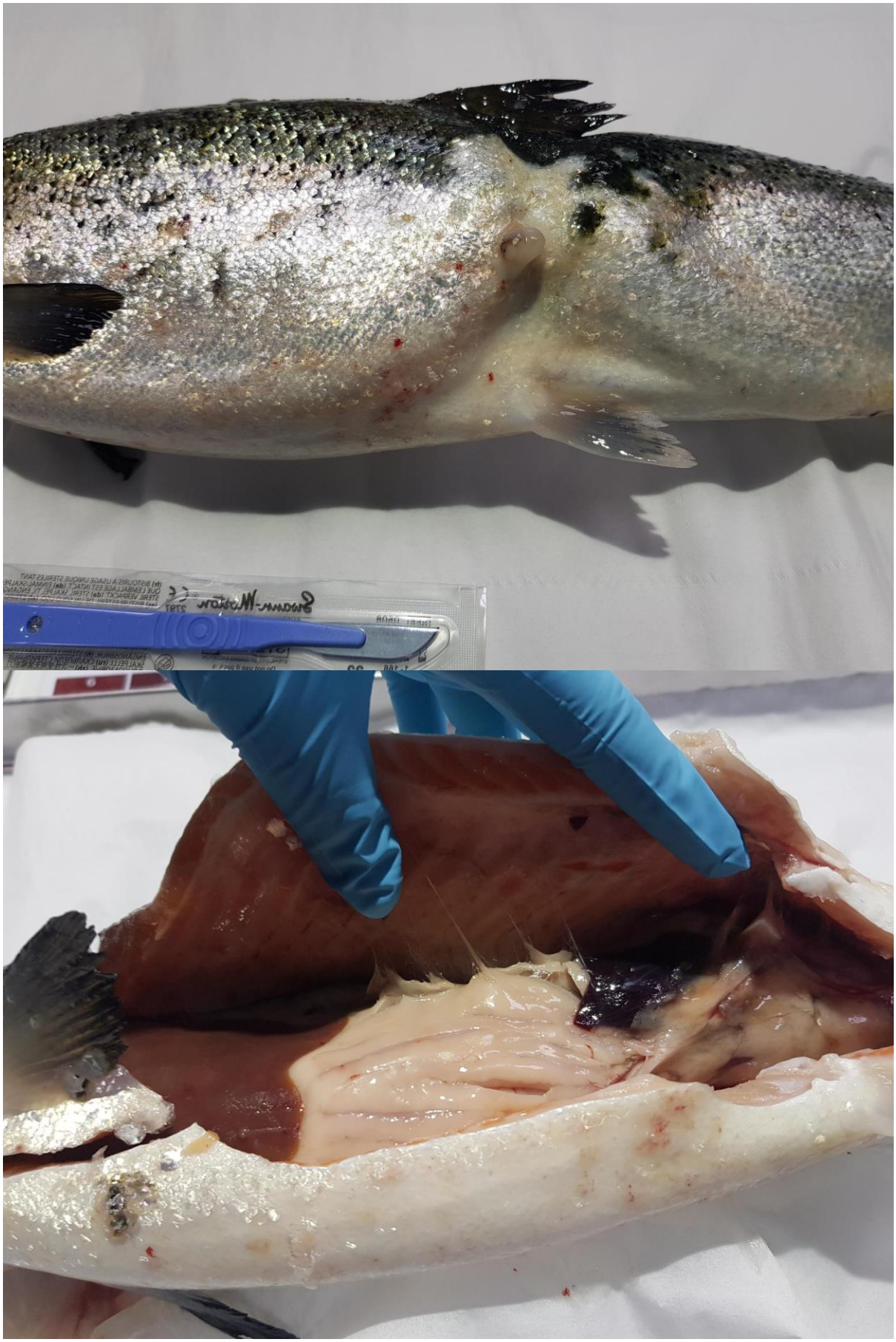
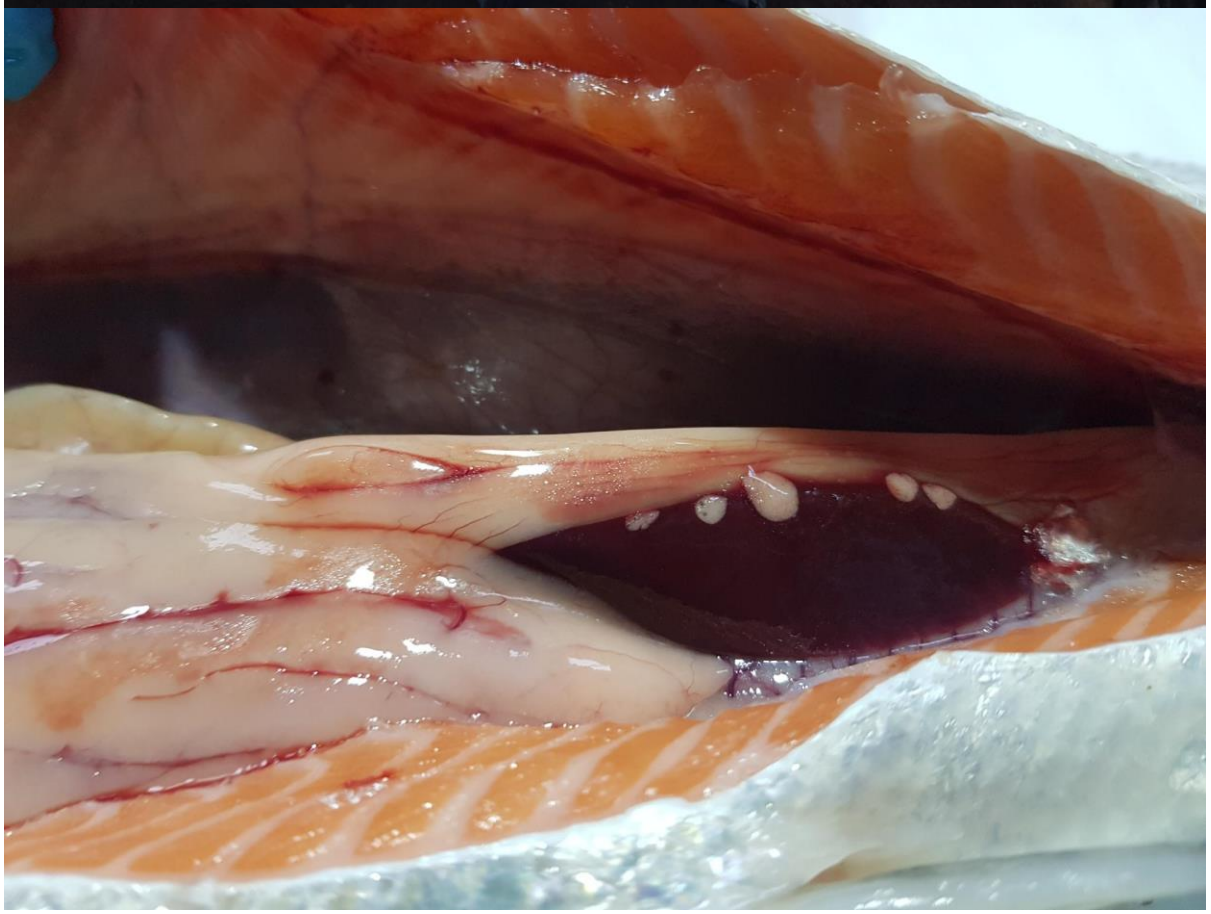
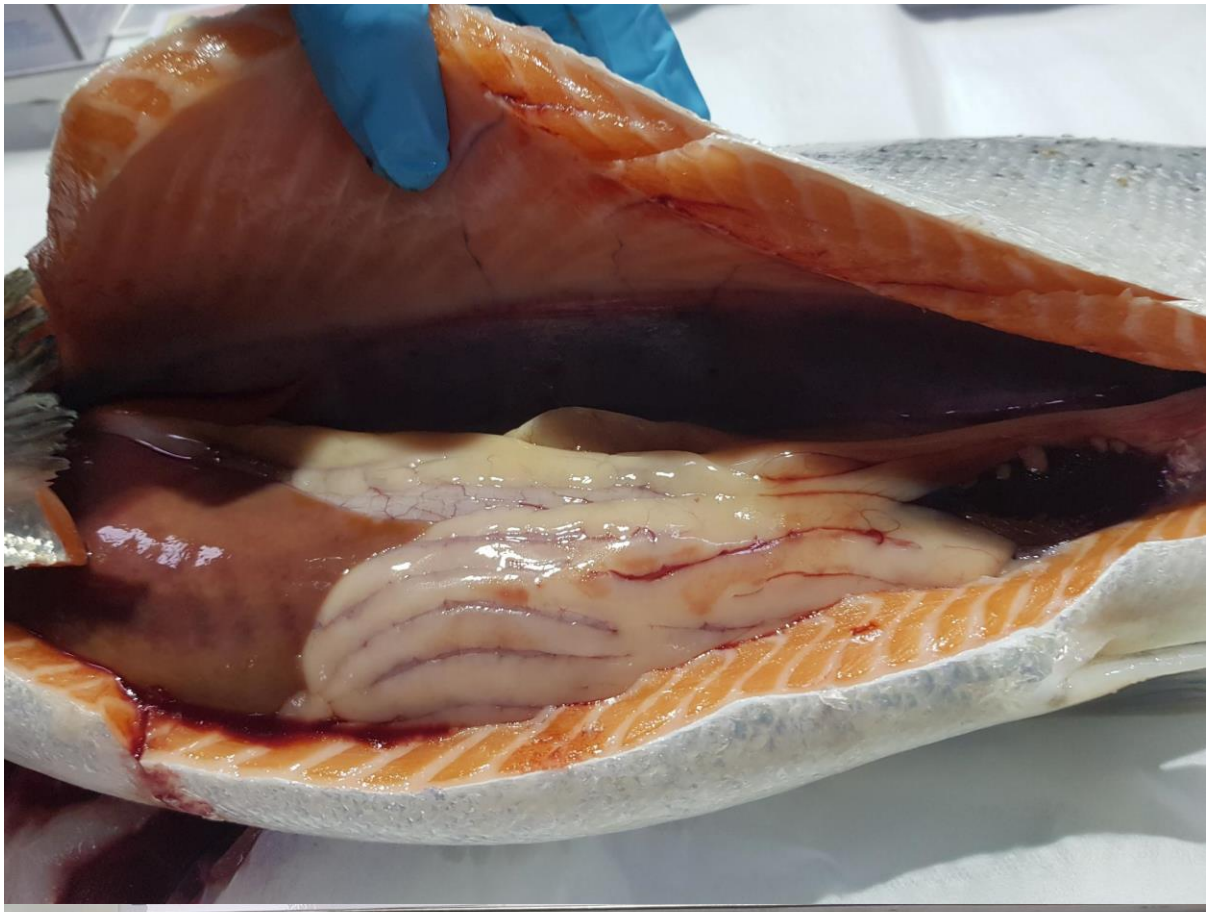
F1


F2
F2

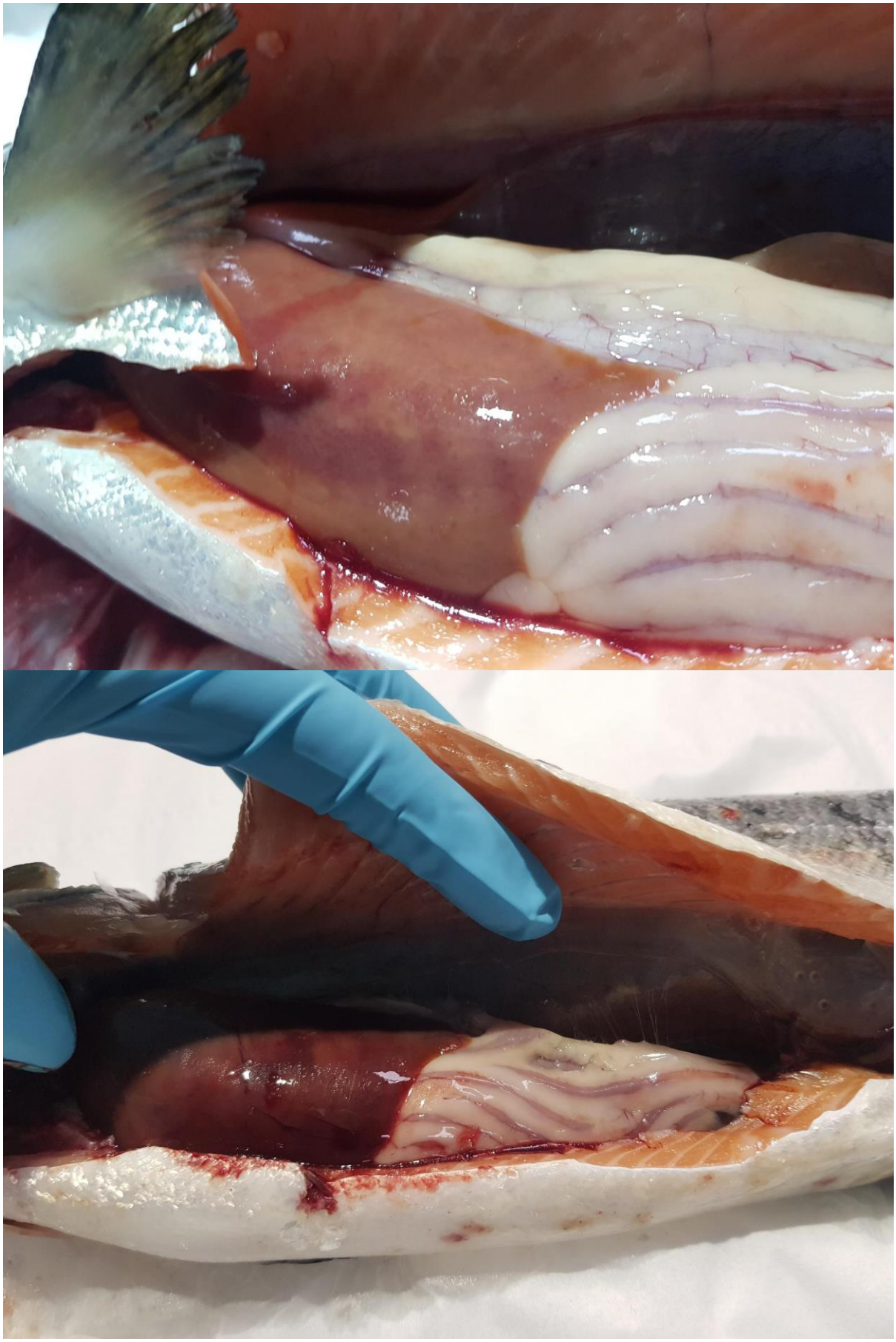



F3






F-4




F5