

Case No:	<input type="text" value="2022-0532"/>	Date of visit:	<input type="text" value="26/10/2022"/>			
Time spent on site:	<input type="text" value="2hrs"/>	Main Inspector:	<input type="text" value=""/>			
Site No:	<input type="text" value="FS0430"/>	Site Name:	<input type="text" value="Nevis A"/>			
Business No:	<input type="text" value="FB0125"/>	Business Name:	<input type="text" value="Scottish Sea Farms Ltd"/>			
Case Types:	1 <input type="text" value="REP"/>	2 <input type="text" value="DIA"/>	3 <input type="text" value=""/>	4 <input type="text" value=""/>	5 <input type="text" value=""/>	6 <input type="text" value=""/>
Water Temp (°C):	<input type="text" value="13.1"/>	Thermometer No:	<input type="text" value="T152"/>	FHI 045 completed	<input type="text" value=""/>	
Observations:	Region:	HI	Water type:	S	CoGP MA	M-23
Dead/weak/abnormally behaving fish present?	<input type="text" value="Y"/>	If yes, see additional information/clinical score sheet.				
Clinical signs of disease observed?	<input type="text" value="Y"/>	If yes, see additional information/clinical score sheet.				
Gross pathology observed?	<input type="text" value="Y"/>	If yes, see additional information/clinical score sheet.				
Diagnostic samples taken?	<input type="text" value="Y"/>					

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

Additional Case Information:

The site has been affected by the swarm of the hydrozoan *Muggiaea Atlantica* which has occurred throughout west coast Mainland Scotland through to W. Shetland from end of August causing progressive gill inflammation, this combined with seasonal AGD resulted in CGD with associated high mortality.

Lumpfish came on from Bantry Marine Station, wrasse on site are wildcaught in Orkney.

Mortality events since last inspection:

Wk39 22: 27,017 (6.89%)

Wk38: 19,385 (4.7%)

Wk37: 4,649 (1.1%)

Wk34 21: 75 (1.5%)

Wk31: 957 (1.3%)

Wk30: 1,022 (1.1%)

2021 mortalities attributed to handling events during final harvesting of the site. 2022 mortalities all attributed to poor gill health. Dead fish and waste are usually incinerated on site, however, due to the large volumes generated during the mortality events, mortalities were transported to Mallaig where they were uplifted by [REDACTED] and taken to Ayr for disposal.

The last treatment of the cycle was a peroxide bath completed between 6-9th October 22.

Staff have been harvesting the site which was fallow on 31/10/2022.

Bad weather warning on day of inspection. Site was visited and 5 moribunds were removed from 2 cages for diagnostic sampling. Due to high swell and high winds, only these 2 cages were inspected as unsafe to remain on site. Fish in these 2 cages were lethargic with several moribunds observed in each. Fish removed for sampling had high lice burdens and fish were observed jumping in both cages.

Case sheet was updated and diagnostic report was re-issued on 21/11/2022 due to an update to a correction in the stock origin from the business. A statement was missing from the re-issued report, so a further report was issued on 23/11/2022.

Case No: **2022-0532** Site No: **FS0430**
 Date of Visit: **26/10/2022** 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	12	Facilities stocked	5	No facilities inspected	2
Species	SAL LUM	WRA			
Age group	2021 Q4	2021	Wildcaught		
No Fish	38,728	30,979	9,943		
Mean Fish Wt	3kg	120g	95g		
Next Fallow Date (Site)	Nov 22		Next Input Date (Site)	Oct 23	
Recent (last 4 wks) disease problems?				Y	Any escapes (since last visit)? N
If yes, detail:	AGD & CGD				

Movement Records

1. Movement records available for inspection? **Y**
 2. Date of last inspection: **09/06/2021**
 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)? **[REDACTED]**
 If yes, is there a system in place for maintenance of transportation records? **[REDACTED]**

Mortality Records

1. Mortality records available for inspection? **Y**
 2. How are mortalities disposed of? **Incinerated - on site**
 If other detail: **[REDACTED]**
 3. Mortality records complete and correctly entered? **Y**
 4. Recent mortality (last 4 wks): **Wk43: 19,480 (15.42%), Wk42: 83,900 (26.56%), Wk41: 28,576 (8.3%), Wk40: 20,473 (5.61%)**
 5. Evidence of recent increased/atypical mortalities? **Y**
 If yes, facility nos/no mortality per facility/no stock per facility/reason: **Poor gill health across the site resulting in increased mortalities.**
 6. Any other peaks in mortality during period checked? **Y**
 If yes, detail: **See additional information.**
 7. Have increased (unexplained) mortalities been reported to vet or FHI? **N/A**
 If yes, detail action: **[REDACTED]**
 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:
- 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? N
- 5. If yes, what treatment(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).

Records checked between:

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	P1						
Fish nos	1	2	3	4	5	1-5						
Pool Group	P1	P1	P1	P1	P1							
Species	SAL	SAL	SAL	SAL	SAL	SAL						
Average weight												
Sex	N/A	N/A	N/A	N/A	N/A	N/A						
Water Type	SW	SW	SW	SW	SW	SW						
Stock Details	Stock Origin	Barcaldine Smolt Unit FS1328	Barcaldine Smolt Unit FS1328	Barcaldine Smolt Unit FS1328	Barcaldine Smolt Unit FS1328	Barcaldine Smolt Unit FS1328						
	Facility No	3	3	10	10	10						

Case no: 2022-0532

Site No: FS0430

Method of killing:

Date of visit: 26/10/2022

Inspector(s):

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)	45	60	65	70	75				
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			M				
	Flared								
Haemorrhaging	Throat								
	Ventrum	W	W	W	M	W			
	Base of fins		W	W	W				
	Elsewhere				M				
Eyes	Exophthalmic		M			W			
	Enophthalmic (sunken)								
	Cataract								
	Haemorrhagic								
Gills	Pale		M	M	S	S			
	Zoned	W							
	Necrotic								
Lesions	Flank								
	Elsewhere	M	M	W	S				
Vent	Inflamed			W	W	S			
	Trailing faeces								
Lice Load	Estimate numbers	16	14	25	29	35			
Internal Signs									
Ascites	Clear								
	Bloody			S	S	S			
Oedema	In tissues								
Heart	Pale/anaemic								
	Granulomas								
	Deformed								
Liver	Petechial haem	W							
	Gross haem								
	Tissue breakdown								
	Enlarged	W	W		W	W			
	Colour number(s)	3	6	2	2	2			
	Granulomas								
	Lesions								
Pyloric caeca	Petechial haem								
	Tubules mauve								
	Lack of fat			M					
Spleen	Enlarged								
	Granulomas								
Gut	No food present								
	Yellow pseudo-faeces	S	S	S	S	S			
	External haem								
	Internal haem								
Body wall	Haemorrhaging								
Swim bladder	Haemorrhaging								
	Fluid filled								
Kidney	Swollen								
	Grey	M	M	S	S	S			
	Granular								
	Liquefied	M	M	S	S	S			
General	Parasites present								
	Anaemia								

Additional comments:

Site No: FS0430

Case No: 2022-0532

Nature of non-compliance:

Action taken (FHI):

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



Case No: **2022-0532** Date of visit: **26/10/2022**
 Site No: **FS0430** Inspector: **[REDACTED]**

Results Summary	Freq.	Date of Notification						
		Database	Insp	Phone	Insp	Writing	Insp	2 nd Insp
MG_VHS	0/5	01/11/2022		01/11/2022		01/11/2022		
MG_IHN	0/5	01/11/2022		01/11/2022		01/11/2022		
MG_ISA	0/5	01/11/2022		01/11/2022		01/11/2022		
MG_SAL_POX	4/5	01/11/2022		01/11/2022		01/11/2022		
MG_AGDQ	4/5	01/11/2022		01/11/2022		01/11/2022		
MG_PARA_THER_Q	5/5	01/11/2022		01/11/2022		01/11/2022		
MG_PMCV	0/5	02/11/2022		02/11/2022		02/11/2022		
MG_SAV	0/5	02/11/2022		02/11/2022		02/11/2022		
MG_IPN	0/5	02/11/2022		02/11/2022		02/11/2022		
ASAL	3/5	14/11/2022		14/11/2022		14/11/2022		
EPIT	1/5	14/11/2022		14/11/2022		14/11/2022		
GPAT	5/5	14/11/2022		14/11/2022		14/11/2022		
CGDH	5/5	14/11/2022		14/11/2022		14/11/2022		
LPAT	3/5	14/11/2022		14/11/2022		14/11/2022		
SPAT	3/5	14/11/2022		14/11/2022		14/11/2022		
KPAT	3/5	14/11/2022		14/11/2022		14/11/2022		
PMCH	5/5	14/11/2022		14/11/2022		14/11/2022		

Report Summary			
Case Type	Date	Insp	2 nd Insp
DIA, REP	18/11/2022		
Amended report	21/11/2022		
Amended report	23/11/2022		

FISH HEALTH INSPECTORATE VISIT REPORT

SUMMARY FOR INFORMATION OF SITE OPERATOR

BUSINESS No	FB0125	DATE OF VISIT	26/10/2022
SITE No	FS0430	SITE NAME	Nevis A
CASE No	20220532	INSPECTOR	██████████

This report replaces the fish health reports R09 issued on 18/11/2022 and the 21/11/2022 by ██████████. The previous reports should be discarded.

Section 1: Summary

The site was inspected due to recent mortality reports above the reporting threshold, all attributed to gill issues. Five fish were selected for diagnostic sampling.

Histopathology examination revealed multifocal, mild, branchitis associated with complex gill issues. Epitheliocystis (likely *Brachiomonas* sp.) was observed. Very mild myocarditis and hepatic necrosis, mild necrotizing nephritis and splenitis were also observed.

Paranucleospora theridion, *Neoparamoeba perurans* (AGD) and salmon gill poxvirus were detected by qPCR.

Aeromonas salmonicida was identified. The level and purity would not suggest it is acting as a primary pathogen overall, however in fish 3 it is likely to be implicated as the primary source of morbidity.

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

Nevis A was inspected due to recent, consecutive mortality reports above the reporting criteria, all attributed to gill issues and which resulted in the loss of 229,484 fish in a 7-week period. At the time of inspection, the site was stocked with 38,728 Q4 Atlantic salmon at an average weight of 3kg originating from the Barcaldine Smolt Unit. These were stocked alongside farmed lumpfish at an average weight of ~120g and wild caught wrasse at an average weight of ~95g. Due to weather conditions at the time of inspection, only 2 of the 5 cages stocked were able to be inspected. Mortalities were observed in both and the general population was very lethargic with some physical damage noted on some fish. Five moribund fish were removed from cages 3 and 10 for diagnostic sampling.

All five fish were moribund. Externally, F3 was anorexic and the operculum on F1 and F4 were shortened. Haemorrhaging was observed on the ventrum of all five fish and at the base of the fins on F2-4. Exophthalmia was observed on F2 and F5.

R09

The gills were zoned in F1 and pale in F2-5. Lesions were noted on F1-4 and the vents were inflamed in F3-5. The lice load was high on each fish, ranging from ~14-35 of varying life stages.

Internally, bloody ascites was observed in F3-5. The liver of F1 displayed petechial haemorrhaging and was enlarged in F1, 2, 4 and 5. A lack of fat was noted on the pyloric caeca of F3 and yellow pseudo-faeces were found in the guts of all five fish. The kidney in all five fish was grey in colour and appeared liquefied to some extent.

Samples

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

Fish number	Facility number	Species	Stage	Origin
F1-F5	3	Atlantic salmon	2021 Q4; 3kg	Barcaldine Smolt Unit FS1328

Results

Bacteriology: Kidney and gill material from F1-5 and lesion material from F1 were inoculated onto appropriate media for the isolation of bacteria.

The following bacterium was isolated:

- *Aeromonas salmonicida* (Gill: 3/5 fish & Kidney: 2/5 fish)

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

Salmon gillpox virus (SGPV)

Fish Number	Endogenous control Cp value	Cp Values			Reported Result (PCR)
F1	19.89	34.86	34.27	34.09	POSITIVE
F2	-	-	-	-	Negative
F3	19.25	38.87	35.58	37.71	POSITIVE
F4	19.45	28.68	28.75	28.59	POSITIVE
F5	19.75	29.49	29.65	29.46	POSITIVE

The samples tested negative for infectious haematopoietic necrosis virus (IHNV), infectious pancreatic necrosis virus (IPNV), 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	19.89	30.19	30.22	30.18	POSITIVE
F2	-	-	-	-	Negative
F3	19.25	28.25	28.08	28.07	POSITIVE
F4	19.45	27.60	27.68	27.60	POSITIVE
F5	19.75	28.27	27.98	28.12	POSITIVE

Paranucleospora theridion

Fish Number	Endogenous control Cp value	Cp Values			Reported Result (PCR)
F1	19.89	32.24	32.08	32.51	POSITIVE
F2	19.83	33.07	32.94	33.58	POSITIVE
F3	19.25	25.41	25.24	25.34	POSITIVE
F4	19.45	28.94	28.93	28.95	POSITIVE
F5	19.75	27.64	27.67	27.65	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: F4 exhibited small foci of hyperplasia and lamellar fusion. F2 also displayed some lamellar clubbing and some bluntness of gill filament tips. Several basophilic epithelial inclusions (likely epitheliocystis) observed in F4. Lamellar telangiectasia with multifocal thrombosis and some lamellar congestion in all fish. F3 displayed a small area of mixed bacteria. F3-F5 reading hindered by some autolysis artefacts.

Skin & Muscle: Within the normal range.

Heart: Minimal, multifocal myocarditis (F1, F2, F4). Few thrombi on the compact layer vessels (ventricle chamber) (F5). Mild epicarditis (F3).

Gut and pyloric caeca: Some cell sloughing (likely associated with post-mortem artefact) (F3 & F4).

Pancreas: Within the normal range.

Liver: Hepatocellular necrosis and haemorrhage, mild multifocal (F1), foci of healing tissue (F2), hepatocellular vacuolation (macrovisicules) (F4). Capsulitis, mild (F3)

Kidney: Interstitial cell (haematopoietic) necrosis mild to moderate, multifocal and some inflammatory circulating cells (F3-F5).

Spleen: Foci of cellular necrosis, mild to moderate, multifocal (F1-F3), minor cuffing (F1, F2), slightly congested.

R09



Signed:

Date: 23/11/2022

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/>

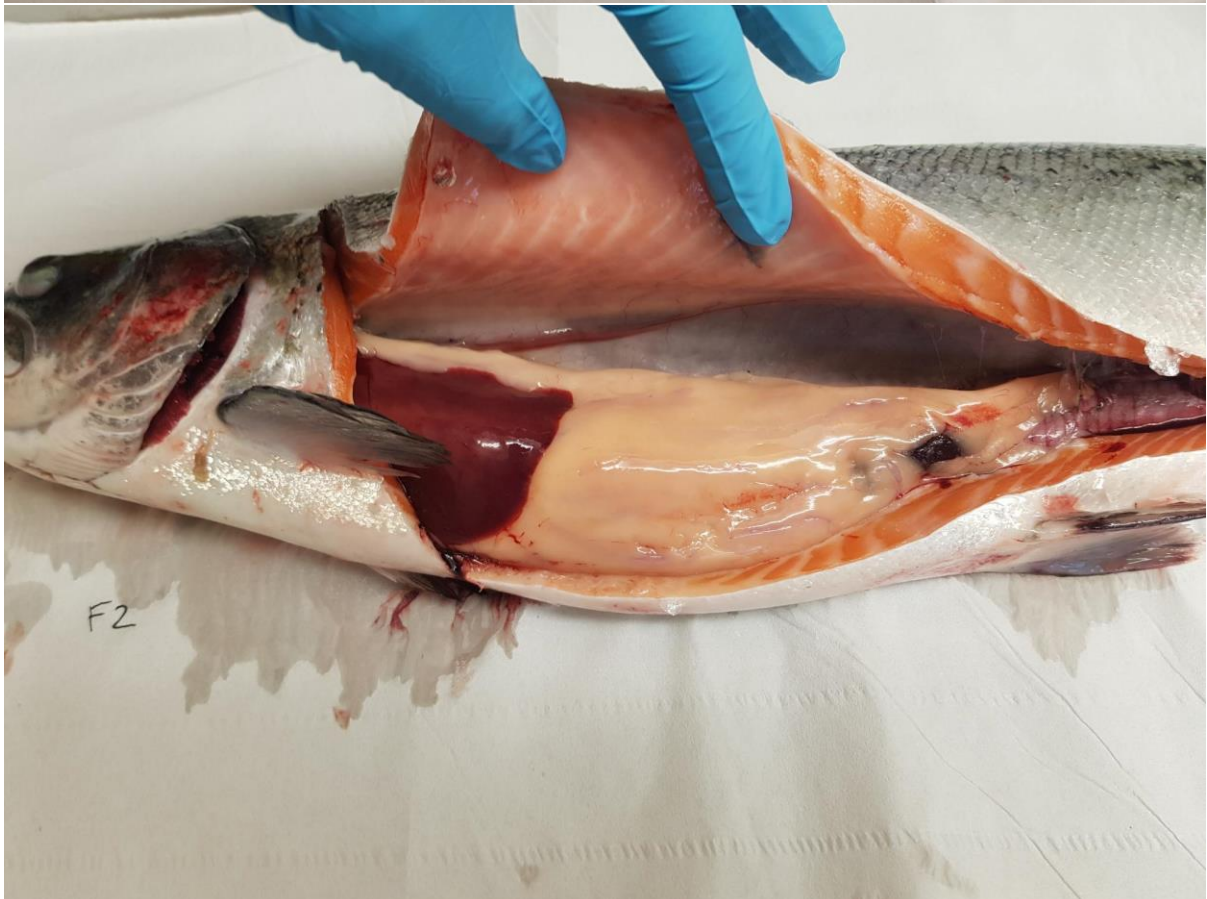
R09

F1 -



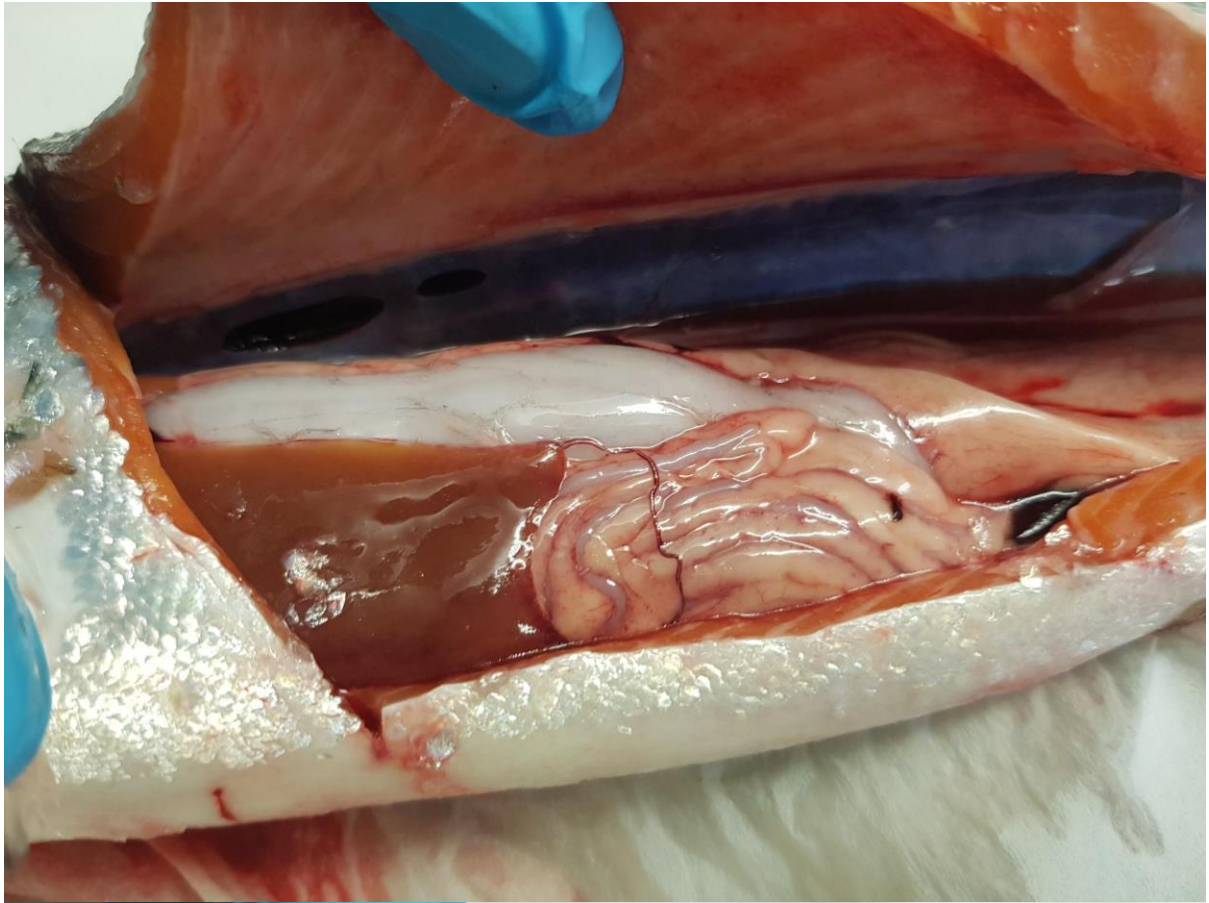


F2 -



F3 -





F4 -





F5 -



