

Case No:	2024-0393	Date of visit:	09/10/2024			
Time spent on site:	09/10/2024	Main Inspector:				
Site No:	FS0767	Site Name:	Tarbert South			
Business No:	FB0169	Business Name:	Bakkafrost Scotland			
Case Types:	1 REP	2 DIA	3	4	5	6
Water Temp (°C):	13.8	Thermometer No:	T309	FHI 045 completed	N/A	
Observations:	Region:	ST	Water type:	S	CoGP MA:	M-42
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:**

Site was inspected following reports of increased mortality.

From the site's most recent fish health report dated 04/10/2024 Frunculosis, gill health and physical damage were the main drivers for mortality.

Mortality at the site first became elevated in week 32 2024 and has remained elevated to date, peaking in week 40 at 3.95%. Initially pens 13 and 14 were the worst affected, these fish were harvested out in week 39. At present pens 2, 3 and 10 are accounting for the largest volume in mortality. These three pens have now been placed on the harvest schedule for the coming weeks.

The site have conducted three rounds of 3 hour freshwater bath treatments since the end of July 2024, the most recent round of treatments was completed on 18/09/2024. Sea lice counts are low on site and below the CoGP suggested criteria for treatment. The site completed a round of slice treatments on 27/08/2024.

The site was inspected in a rough sea state resulting in extremely poor visibility of the stock. Only 4 pens were inspected due to these conditions, moribund and lethargic fish were observed in each pen that was inspected and 5 fish were removed for diagnostic sampling.

Frunculosis is currently present on site and the site staff reported that approximately 20% of the mortalities removed from the site exhibited lesions commonly associated with the disease. However, due to the poor conditions and lack of visibility of the stocks during the inspection of the site, no fish with lesions were observed from the pen side.

Water quality at the site is good at present, plankton checks are conducted daily and the site remains below the trigger levels intervention in relation to any harmful phytoplankton's. Around mid September 2024 the site did experience some elevated plankton levels which may have contributed to some of the gill health issues being experienced at present.

Case No: 2024-0393 Site No: FS0767

Date of Visit: 09/10/2024

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	14	Facilities stocked	12	No facilities inspected	4
Species	SAL	SAL			
Age group	2023 Q3	2023 Q4			
No Fish	46,844	188,868			
Mean Fish Wt	5.5kg	3.5kg			
Next Fallow Date (Site)	05/2025	Next Input Date (Site)	08/2025		
Recent (last 4 wks) disease problems?		Y	Any escapes (since last visit)?		N
If yes, detail:	See additional information				

**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
27/02/2024
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:  
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:

Other (detail)

Whole fish waste collected by Billy Bowie

Week 40 (10,468, 3.95%), Week 39 (10,468, 3.83%), Week 38 (5,767, 2.06%), Week 37 (5,170, 1.82%)

See additional information

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:

Optomease

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)?

Optomease

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).

Frunculosis, AGD

Records checked between:

27/02/2024 - 09/10/2024

Case no: 2024-0393 Site No: FS0767 Date of visit/ Sampling: 09/10/2024 09/

Priority samples: VI BA PA MG HI

Time sampling starts/ends: 11:26:00 12:30:00 Inspector: VMD No. 0

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							
	Fish nos	1	2	3	4	5							
	Pool Group												
Stock Details	Species	SAL	SAL	SAL	SAL	SAL							
	Average weight	4.5kg	4.5kg	4.5kg	4.5kg	4.5kg							
	Sex	N/A	N/A	N/A	N/A	N/A							
	Water Type	SW	SW	SW	SW	SW							
	Stock Origin	Glenan Bay (FS0590)	Quarry Point (FS0698)	Quarry Point (FS0698)	Quarry Point (FS0698)	Quarry Point (FS0698)							
	Facility No	10	2	1	2	2							

10/2024 Additional Sample Information:

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5

Total Tests assigned

3

[illegible]

Case no:	2024-0393	Site No:	FS0767	Method of killing:	Percussive
Date of visit:	09/10/2024	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)											
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		S								
	Zoned		W								
	Necrotic										
Lesions	Flank										
	Elsewhere										
Vent	Inflamed										
	Trailing faeces										
Lice Load	Estimate numbers										
Internal Signs											
Ascites	Clear				W						
	Bloody			M							
Oedema	In tissues										
Heart	Pale/anaemic										
	Granulomas										
	Deformed										
Liver	Petechial haem										
	Gross haem										
	Tissue breakdown										
	Enlarged										
	Colour number(s)	4	4	3	5	6					
	Granulomas										
	Lesions										
Pyloric caeca	Petechial haem				W						
	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		W	W	M	W					
	Fluid filled										
Kidney	Swollen										
	Grey										
	Granular										
	Liquefied										
General	Parasites present										
	Anaemia										

Date of visit: 09/10/2024

**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									
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:

F1 Mature fish - Male

Case No:

2024-0393

Date of visit:

09/10/2024

Site No:

FS0767

Inspector:

Results Summary	Freq.	Date of Notification						
		Database	Insp	Phone	Insp	Writing	Insp	2 <sup>nd</sup> Insp
MG_AGD	5/5	16/10/2024		16/10/2024		05/11/2024		
MG_IHNQ	0/5	16/10/2024		16/10/2024		05/11/2024		
MG_PARA_THER_Q	5/5	16/10/2024		16/10/2024		05/11/2024		
MG_SAL_POX	3/5	16/10/2024		16/10/2024		05/11/2024		
MG_SAV	3/5	16/10/2024		16/10/2024		05/11/2024		
MG_IPN	0/5	16/10/2024		16/10/2024		05/11/2024		
MG_ISA	0/5	16/10/2024		16/10/2024		05/11/2024		
MG_PMCV	1/5	16/10/2024		16/10/2024		05/11/2024		
MG_VHS	0/5	16/10/2024		16/10/2024		05/11/2024		
ASAL	2/5	28/10/2024		24/10/2024		05/11/2024		
YRUK	2/5	28/10/2024		24/10/2024		05/11/2024		
AERH	2/5	28/10/2024		24/10/2024		05/11/2024		
AMGD	1/5	28/10/2024		24/10/2024		05/11/2024		
GPAT	5/5	28/10/2024		24/10/2024		05/11/2024		
HPAT	5/5	28/10/2024		24/10/2024		05/11/2024		
LPAT	5/5	28/10/2024		24/10/2024		05/11/2024		
KPAT	1/5	28/10/2024		24/10/2024		05/11/2024		

Report Summary			
Case Type	Date	Insp	2 <sup>nd</sup> Insp
REP, DIA	05/11/2024		



# FISH HEALTH INSPECTORATE VISIT REPORT

## SUMMARY FOR INFORMATION OF SITE OPERATOR

**BUSINESS No** FB0169  
**SITE No** FS0767  
**CASE No** 20240393

**DATE OF VISIT** 09/10/2024  
**SITE NAME** Tarbert South  
**INSPECTOR** [REDACTED]

### Section 1: Summary

The site was inspected following reports of increased mortality. Site representatives had noted that stock was experiencing furunculosis and gill health issues. During the inspection a limited number of pens were inspected due to inclement weather conditions. Of the pens that were inspected a number of moribund and lethargic fish were observed in each and five fish were removed for diagnostic sampling.

Histopathology examination revealed features consistent with *Aeromonas salmonicida*, the causative agent of furunculosis, which was also isolated on the plates. The level of purity and growth would suggest this bacterium is present as the primary pathogen and would be implicated in morbidity. Mild hyperplastic branchitis with amoeboid cells was also observed during histopathology examination.

*Yersinia ruckeri* was isolated from F3 and F5. The growth levels and purity would suggest that it would be a primary pathogen.

Samples were also screened and tested positive by qPCR for *Paranucleospora theridion*, *Neoparamoeba perurans* (AGD), salmon gill poxvirus (SGPV), salmonid alphavirus (SAV) and piscine myocarditis virus (CMS).

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 reports of increased mortality. This first became elevated in week 32 of 2024 and has remained elevated to date, peaking in week 40 at 3.95% for the site for the week. This mortality was attributed to furunculosis, gill health issues and physical damage. The site had conducted three rounds of 3 hour freshwater bath treatments since the end of July 2024, the most recent round of treatments was completed on 18/09/2024. Sea lice counts were low on site and they had completed a round of slice treatments on 27/08/2024.

Due to inclement weather conditions there was poor visibility of stock. All fish that were sampled were observed to be lethargic and moribund. F1 was a mature male. F2 had pale gills which also displayed some zoning.

R09

Internally, F2 to F4 were observed to have haemorrhaging in the swim bladder. Ascites was observed in F3 and F4. F3 ascites was observed to be bloody.

### Samples

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

Fish number	Facility number	Species	Stage	Origin
F1	10	Atlantic Salmon	2023, 4.5kg	Glenan Bay (FS0590)
F2, F4, F5	2	Atlantic Salmon	2023, 4.5kg	Quarry Point (FS0698)
F3	1	Atlantic Salmon	2023, 4.5kg	Quarry Point (FS0698)

### Results

**Bacteriology:** Kidney and gill material from F1 to F5 was inoculated onto appropriate media for the isolation of bacteria.

The following bacteria were isolated:

- *Aeromonas salmonicida*: Kidney and Gill (F2 and F4),
- *Yersinia ruckeri*: Kidney (F3 and F5)

The level and purity of growth from *Aeromonas salmonicida* and *Yersinia ruckeri* would suggest that these bacteria are present as primary pathogens and would be implicated in morbidity. 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).

### Salmonid alphavirus (SAV)

Fish Number	Endogenous control Cp value	Cp Values			Reported Result (PCR)
F1	-	-	-	-	Negative
F2	15.44	34.84	34.26	34.93	<b>POSITIVE</b>
F3	15.20	28.09	28.61	28.43	<b>POSITIVE</b>
F4	-	-	-	-	Negative
F5	15.02	23.17	23.08	23.07	<b>POSITIVE</b>

R09

Salmon gill poxvirus (SGPV)

Fish Number	Endogenous control Cp value	Cp Values			Reported Result (PCR)
F1	-	-	-	-	Negative
F2	18.92	31.72	31.89	31.53	POSITIVE
F3	18.62	37.02	36.03	36.38	POSITIVE
F4	-	-	-	-	Negative
F5	19.17	26.13	26.14	26.11	POSITIVE

Piscine myocarditis virus (PMCV)

Fish Number	Endogenous control Cp value	Cp Values			Reported Result (PCR)
F1	15.22	28.63	28.55	28.43	POSITIVE
F2	-	-	-	-	Negative
F3	-	-	-	-	Negative
F4	-	-	-	-	Negative
F5	-	-	-	-	Negative

The samples tested negative for infectious haematopoietic necrosis virus (IHNV), infectious pancreatic necrosis virus (IPNV), infectious salmon anaemia virus (ISAV) 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).

*Neoparamoeba perurans* (AGD)

Fish Number	Endogenous control Cp value	Cp Values			Reported Result (PCR)
F1	18.71	33.77	33.89	33.73	POSITIVE
F2	18.92	30.88	30.82	30.91	POSITIVE
F3	18.62	35.92	36.23	35.78	POSITIVE
F4	19.55	29.61	29.45	29.80	POSITIVE
F5	19.17	32.39	32.26	32.16	POSITIVE



*Paranucleospora theridion*

Fish Number	Endogenous control Cp value	Cp Values			Reported Result (PCR)
F1	18.71	31.24	32.00	32.02	POSITIVE
F2	18.92	23.77	23.92	23.83	POSITIVE
F3	18.62	27.19	26.83	27.25	POSITIVE
F4	19.55	25.58	24.07	25.66	POSITIVE
F5	19.17	26.21	27.24	27.09	POSITIVE

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

Histopathological examination revealed the following:

Gill: Focally extended hyperplastic branchitis (F1) with few amoeboid cells resembling *Neoparamoeba perurans* (F1). Several dense aggregates of Gram-negative rod-shape bacteria observed in F2, F4. F4 also displayed lamellar haemorrhage and necrosis. Few scattered aneurysmal dilation/telangiectasia (F1, F2, F3, F4, F5) and free blood among gill filaments (F5).

Skin & Muscle: Occasional red skeletal fibre degeneration (F1).

Heart: Mild, multifocal, myocarditis (F1, F2, F3, F5). Areas with dense aggregates of Gram-negative rod-shape bacteria (F2) and F4 displayed a more extended area with necrosis and epicarditis with aggregates of Gram-negative rod-shape bacteria. F3 also displayed degeneration of compact layer.

Gut and pyloric caeca: Minor peritonitis (F1).

Pancreas: Within the normal range.

Liver: Hepatocellular necrosis, mild, multifocal (F1, F2, F5) and F2 also displayed Gram-negative rod-shape bacteria. F4 displayed a marked multifocal to coalesce necrosis with Gram-negative rod-shape bacteria. Perivascular inflammation (F1, F5). Hepatocellular vacuolation (macrovesicles), mild, diffuse (F3).

Kidney: Interstitial cell (haemopoietic) necrosis with few small aggregates of Gram-negative rod-shape bacteria (F2).

Spleen: Necrosis, mild, multifocal with aggregates of Gram-negative rod-shape bacteria (F4). Mild perivascularitis (F1). Capsulitis (F5).



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

Signed:

Date: 05/11/2024

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](https://www.gov.scot/policies/fish-health-inspectorate/)  
([www.gov.scot](https://www.gov.scot))



2024-0393

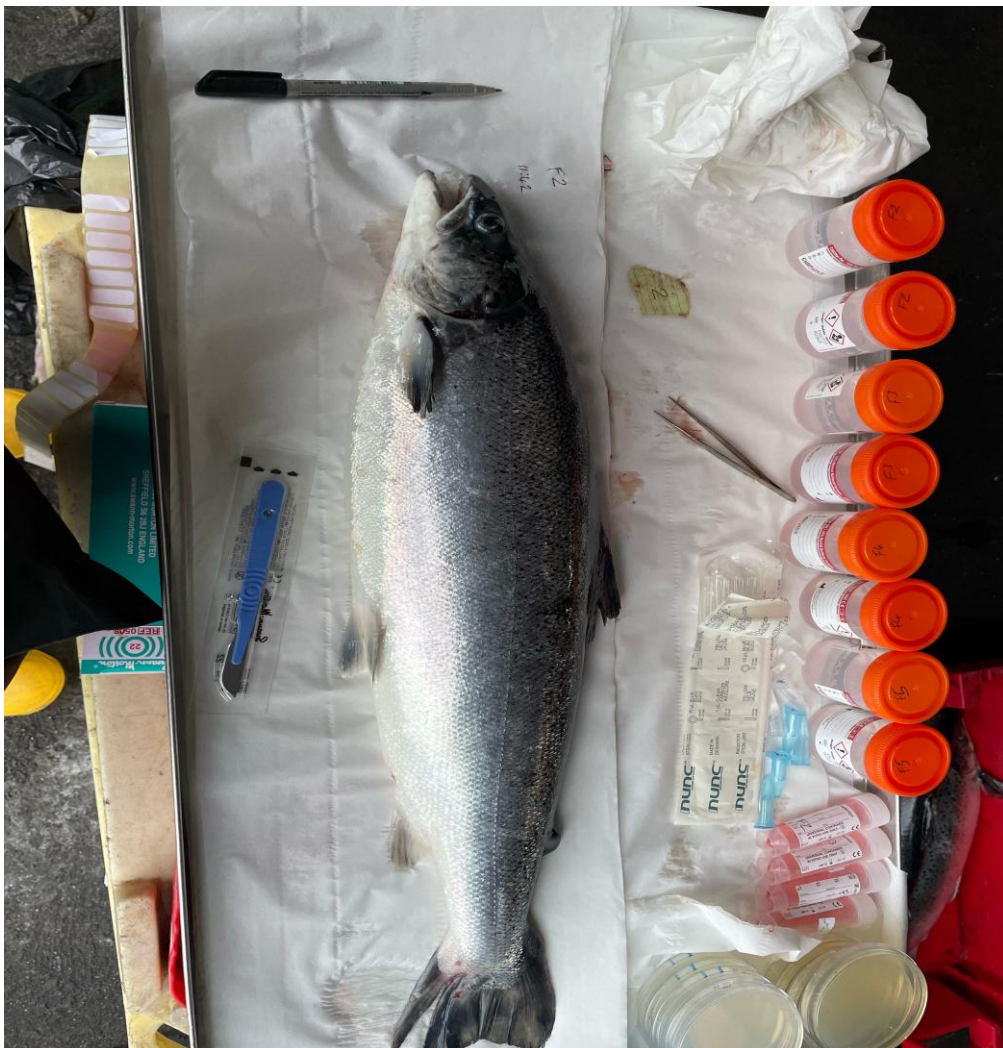
F1







F2

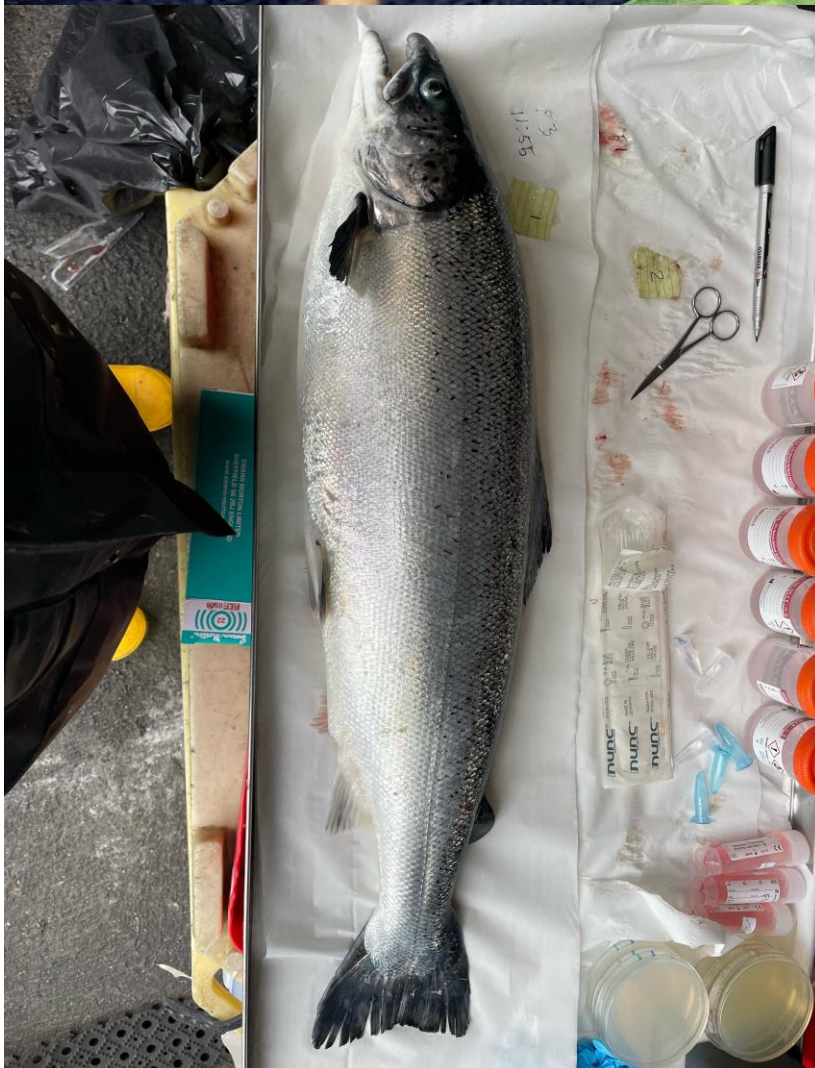








F3



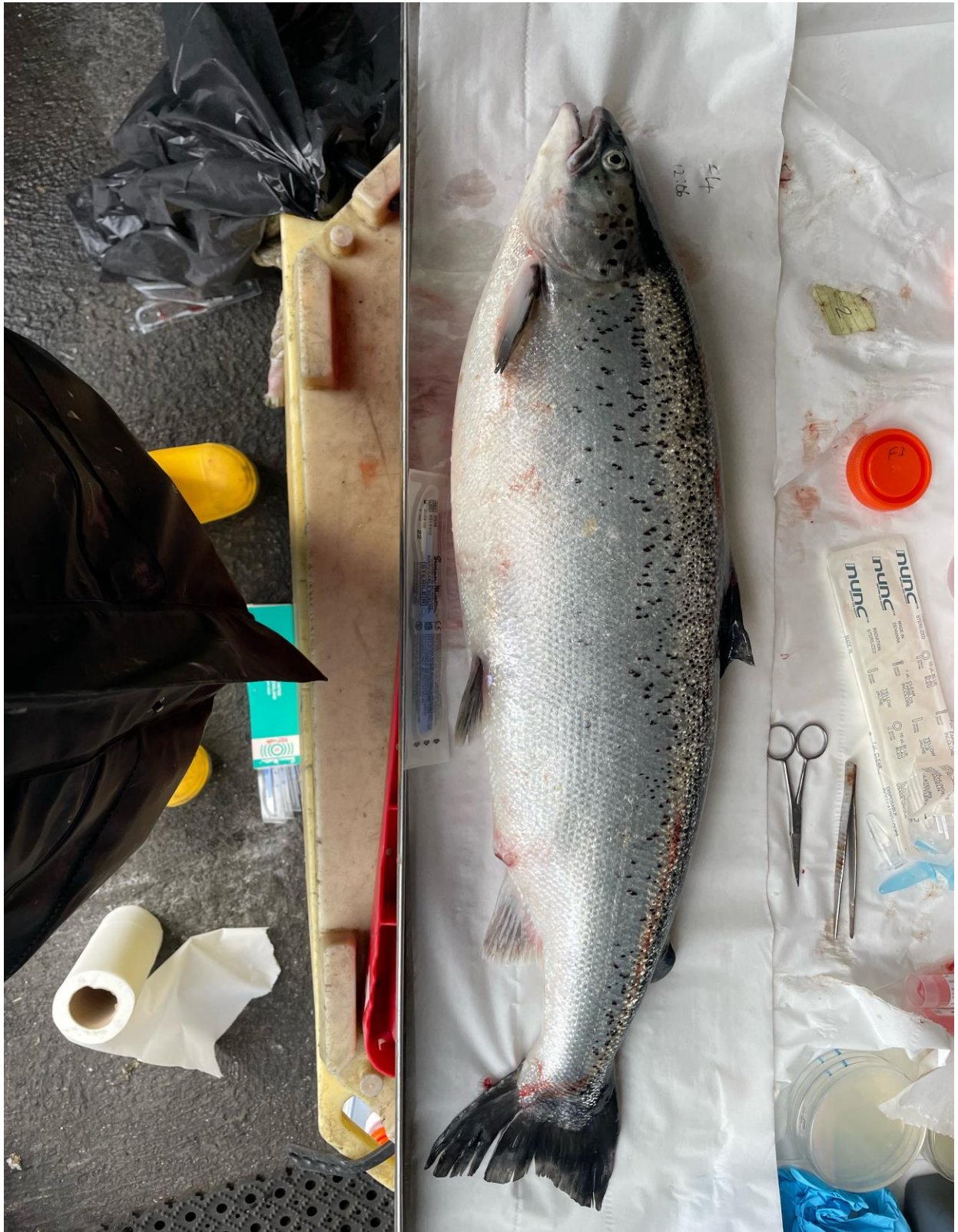




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F4











F5









