

Case No: 2023-0350 Date of visit: 01/08/2023

Time spent on site: 4.5 Hrs Main Inspector: [REDACTED]

Site No: FS0839 Site Name: Geasgill  
Business No: FB0169 Business Name: Bakka frost Scotland

Case Types: 1 REP 2 DIA 3 4 5 6

Water Temp (°C): 15.4 Thermometer No: T148 FHI 045 completed

Observations: Region: ST Water type: S CoGP MA: M-37

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? N 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:**

Site inspected after company reported increased mortalities wb 10/07/2023. All pens showing similar levels of mortality. No specific pens showing elevated levels from other pens. Cleanerfish mortality levels have not significantly increased as in the salmon stock on site. Site diagnosed with PD at the end of February 2023 but mortalities did not increase. AGD also recently high but did not show increased mortalities. AGD levels were reduced through FW treatment. Cause of recent mortalities is being put down to a combination of PD, jellyfish damage and AGD but with environmental factors being the main driving force. Secondary Tenacibaculum also said to be driving mortality levels from recent health reports. Neighbouring site of Geasgill also had high levels of Muggiaea on site recently.

Site currently carrying out FW treatments which had started the day prior to inspection. A 6 hour FW treatment per pen is being undertaken and expected to finish within a week. Wrasse are being separated out so are not going through the treatment process. 2 pens had been treated by the time inspector was on site and looked to have improved from the stock in the remaining pens. Fish were seen to be swimming slower with slight gasping for air but wouldn't necessarily be classed as lethargic as they were responding and diving adown when approached. 2 fish were caught for sampling but only pale gills were observed. The wrasse on site did not appear to be suffering to the same extent with no wrasse observed gasping for air.

Mortality numbers for week 31 (31/07) look to still be elevated but appear to be reducing from previous weeks.

Case No: **2023-0350** Site No: **FS0839**  
 Date of Visit: **01/08/2023** Inspector(s): **[REDACTED]**

**Registration/Authorisation Details**

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

**Site Details (include cleaner fish for all sections)**

Total No facilities	<b>14</b>	Facilities stocked	<b>11</b>	No facilities inspected	<b>14</b>
Species	<b>SAL</b>	<b>WRS</b>			
Age group	<b>2022 Q3</b>	<b>Wild</b>			
No Fish	<b>389,702</b>	<b>27,389</b>			
Mean Fish Wt	<b>2.69 kg</b>	<b>unknown</b>			
Next Fallow Date (Site)	<b>June 2024</b>		Next Input Date (Site)	<b>Aug. 2024</b>	
Recent (last 4 wks) disease problems?				<b>Y</b>	Any escapes (since last visit)?
If yes, detail:	<b>PD and AGD confirmed on site along with physical damage to the gills. Mortality levels have rapidly increased. Exact cause not verified but believed to be mainly down to environmental.</b>				

**Movement Records**

1. Movement records available for inspection? **Y**  
 2. Date of last inspection: **21/06/2023**  
 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? **N/A**  
 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? **Biogas - Barkip**  
 If other detail: **[REDACTED]**  
 3. Mortality records complete and correctly entered? **Y**  
 4. Recent mortality (last 4 wks): **Wk 27-30 - SAL - 3001 (0.41%), 20535 (2.97%), 53901 (8.02%), 85914 (14.93%); WRS - 0, 0, 110 (0.4%), 245 (0.89%)**  
 5. Evidence of recent increased/atypical mortalities? **N**  
 If yes, facility nos/no mortality per facility/no stock per facility/reason: **[REDACTED]**  
 6. Any other peaks in mortality during period checked? **N**  
 If yes, detail: **[REDACTED]**  
 7. Have increased (unexplained) mortalities been reported to vet or FHI? **Y**  
 If yes, detail action: **Reported to company vet and FHI. Samples taken by both.**  
 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)?	<input type="checkbox"/>	Y
If yes, detail:	Optomease	
If other, detail:		
2. Medicines records available for inspection?	<input type="checkbox"/>	Y
3. Are records complete and correctly entered?	<input type="checkbox"/>	Y
4. Are fish in a withdrawal period?	<input type="checkbox"/>	N
5. If yes, what treatment(s)?		
If other, detail:		
6. Are medicines stored appropriately?	<input type="checkbox"/>	Y

**Biosecurity Records**

1. Biosecurity records available for inspection?	<input type="checkbox"/>
2. Has the manner and frequency of mortality removal, recording and safe disposal been considered?	<input type="checkbox"/>
3. Has the manner and period in which the APB will notify Scottish Ministers or veterinary professional of any <i>increased (unexplained)</i> mortality at the site been included?	<input type="checkbox"/>
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 <i>how</i> and <i>when</i> that will be notified to Scottish Ministers?	<input type="checkbox"/>
5. Has the health status of aquaculture animals being stocked on the farm site been covered (equal or higher health status, certification if required)?	<input type="checkbox"/>
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.)?	<input type="checkbox"/>
7. Is documentation available regarding the measures in place to maintain the physical containment of aquaculture animals held on site?	<input type="checkbox"/>
8. Have the biosecurity procedures been adequately implemented on site?	<input type="checkbox"/>
If no, detail:	

**Results of Surveillance**

1. Has any animal health surveillance been carried out by, or on behalf of, the business?	<input type="checkbox"/>	Y
2. If yes, are results available for inspection?	<input type="checkbox"/>	Y
3. Any significant results?	<input type="checkbox"/>	Y
If yes, detail (if not detailed under recent disease problems).	see recent disease problems	

Records checked between:	21/06/2023 - 01/08/2023
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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										
	Fish nos	1	2										
	Pool Group												
Stock Details	Species	SAL	SAL										
	Average weight	2.6900	2.6900										
	Sex	N/A	N/A										
	Water Type	SW	SW										
	Stock Origin	Ormsary Smolt Unit (FS0575)	Ormsary Smolt Unit (FS0575)										
	Facility No	4	4										



Case no: 2023-0350

Site No: FS0839

Method of killing: Anaesthetic

Date of visit: 01/08/2023

Inspector(s):

Sheet Relevant: Y

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

Fish Number	F1	F2							
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	M	M							
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)	3/4	3/4							
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									

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

<b>Fish Number</b>																				
<b>Time sampled after death (if &gt; 45 minutes)</b>																				
<b>External Signs</b>																				
<b>Behaviour</b>	<b>Moribund</b>																			
	<b>Lethargic</b>																			
	<b>Hanging vertical</b>																			
	<b>Spiralling</b>																			
	<b>Flashing</b>																			
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<b>Body</b>	<b>Dark</b>																			
	<b>Distended abdomen</b>																			
	<b>Anorexic</b>																			
	<b>Scale Oedema</b>																			
<b>Opercula</b>	<b>Shortened</b>																			
	<b>Flared</b>																			
<b>Haemorrhaging</b>	<b>Throat</b>																			
	<b>Ventrum</b>																			
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	<b>Elsewhere</b>																			
<b>Vent</b>	<b>Inflamed</b>																			
	<b>Trailing faeces</b>																			
<b>Lice Load</b>	<b>Estimate numbers</b>																			
<b>Internal Signs</b>																				
<b>Ascites</b>	<b>Clear</b>																			
	<b>Bloody</b>																			
<b>Oedema</b>	<b>In tissues</b>																			
<b>Heart</b>	<b>Pale/anaemic</b>																			
	<b>Granulomas</b>																			
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	<b>Granulomas</b>																			
<b>Gut</b>	<b>No food present</b>																			
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<b>Body wall</b>	<b>Haemorrhaging</b>																			
<b>Swim bladder</b>	<b>Haemorrhaging</b>																			
	<b>Fluid filled</b>																			
<b>Kidney</b>	<b>Swollen</b>																			
	<b>Grey</b>																			
	<b>Granular</b>																			
	<b>Liquefied</b>																			
<b>General</b>	<b>Parasites present</b>																			
	<b>Anaemia</b>																			



Additional comments:





# FISH HEALTH INSPECTORATE VISIT REPORT

## SUMMARY FOR INFORMATION OF SITE OPERATOR

<b>BUSINESS No</b>	FB0169	<b>DATE OF VISIT</b>	01/08/2023
<b>SITE No</b>	FS0839	<b>SITE NAME</b>	Geasgill
<b>CASE No</b>	20230350	<b>INSPECTOR</b>	[REDACTED]

### Section 1: Summary

The above site was inspected following a report from the company of a recent increase in mortality. During the inspection several fish were observed gasping for air across the site and two fish were removed for further examination and subsequent diagnostic sampling.

Histopathology examination revealed features consistent with mild, multifocal, hyperplastic branchitis, several epitheliocystis and vascular disturbances potentially associated with environmental factors. Hepatocellular and splenic necrosis also observed. Some features on the musculature resembled presence of salmon alphavirus.

Both fish also tested positive for salmon gill poxvirus (SGPV), piscine reovirus (PRV), *Neoparamoeba perurans* (AGD) and *Paranucleospora theridion*. Fish two tested positive for Salmonid alphavirus (SAV).

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 above site was inspected following a report from the company of a recent increase in mortality. The site was stocked with 389,702 2022 Q3 Atlantic salmon at an average weight of 2.69 kg along with 27,389 locally wild caught wrasse.

Mortality levels had increased at the site from 0.41% on week 27 to 2.97% on week 28 and continued to increase to 14.93% by the end of week 30.

Salmon pancreas disease (PD) and amoebic gill disease (AGD) had been confirmed on site by the company prior to inspection along with a secondary bacterial infection of *Tenacibaculum*. The site had also undergone a freshwater treatment earlier and had just started to carry out further freshwater treatments on all pens.

Several fish were observed gasping for air across site but did not appear lethargic and were responding as expected when approached by a hand net.

Externally fish 1 and 2 had pale gills but displayed no other external signs. Internally both fish showed no gross pathology.

## Samples

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

Fish number	Facility number	Species	Stage	Origin
F1-F2	4	<i>Salmo salar</i>	22 Q3 (2.69 kg)	Ormsary Smolt Unit

## Results

**Bacteriology:** Kidney and gill material from F1 & 2 were inoculated onto appropriate media for the isolation of bacteria.

No significant bacteria were isolated.

**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 gill poxvirus (SGPV)

Fish Number	Endogenous control Cp value	Cp Values			Reported Result (PCR)
F1	21.81	26.93	26.91	26.87	POSITIVE
F2	21.69	25.83	25.77	25.72	POSITIVE

### Salmonid alphavirus (SAV)

Fish Number	Endogenous control Cp value	Cp Values			Reported Result (PCR)
F1	-	-	-	-	Negative
F2	16.23	35.30	35.10	35.65	POSITIVE

### Piscine reovirus (PRV)

Fish Number	Endogenous control Cp value	Cp Values			Reported Result (PCR)
F1	17.69	32.60	33.09	32.67	POSITIVE
F2	18.71	32.48	32.24	32.29	POSITIVE

The samples tested negative for infectious haematopoietic necrosis virus (IHNV), infectious pancreatic necrosis virus (IPNV), infectious salmon anaemia virus (ISAV), viral haemorrhagic septicemia 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	21.81	31.11	31.04	31.19	Positive
F2	21.69	32.19	32.33	32.20	Positive

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](mailto:ms.fishhealth@gov.scot)

Website - [www.gov.scot/Topics/marine/science](http://www.gov.scot/Topics/marine/science)

*Paranucleospora theridion*

Fish Number	Endogenous control Cp value	Cp Values			Reported Result (PCR)
F1	21.81	28.16	28.18	28.16	Positive
F2	21.69	36.20	35.47	35.93	Positive

**Histology:** Tissue samples of gill, skin and skeletal muscle, heart, pyloric caeca, pancreas, hind gut, liver, spleen and kidney were taken from F1 & 2. The tissue samples were fixed in 10% neutral buffered formalin.

Histopathological examination revealed the following:

Gill: Lamellar hyperplastic branchitis, diffuse, moderate (F1 & F2), lamellar necrosis and vascular disturbances (F1 & F2), several basophilic epithelial inclusions (likely epitheliocystis) observed in both fish.

Skin & Muscle: Mild myositis F1 and a very small area of inflammation F2.

Heart: Very mild to mild, multifocal, myocarditis (F1 & F2).

Gut and pyloric caeca: Some peritonitis (F2).

Pancreas: Within the normal range.

Liver: Hepatitis, mild, multifocal (F1), hepatocellular vacuolation (macrovesicles), mild, multifocal (F2).

Kidney: Within the normal range.

Spleen: Necrosis, mild, multifocal (F2).

Signed:



Fish Health Inspector

Date: 24/08/2023

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 \(www.gov.scot\)](http://www.gov.scot/Topics/marine/science)



Figure 1 - Fish 1 & 2



Figure 2 - Fish 1

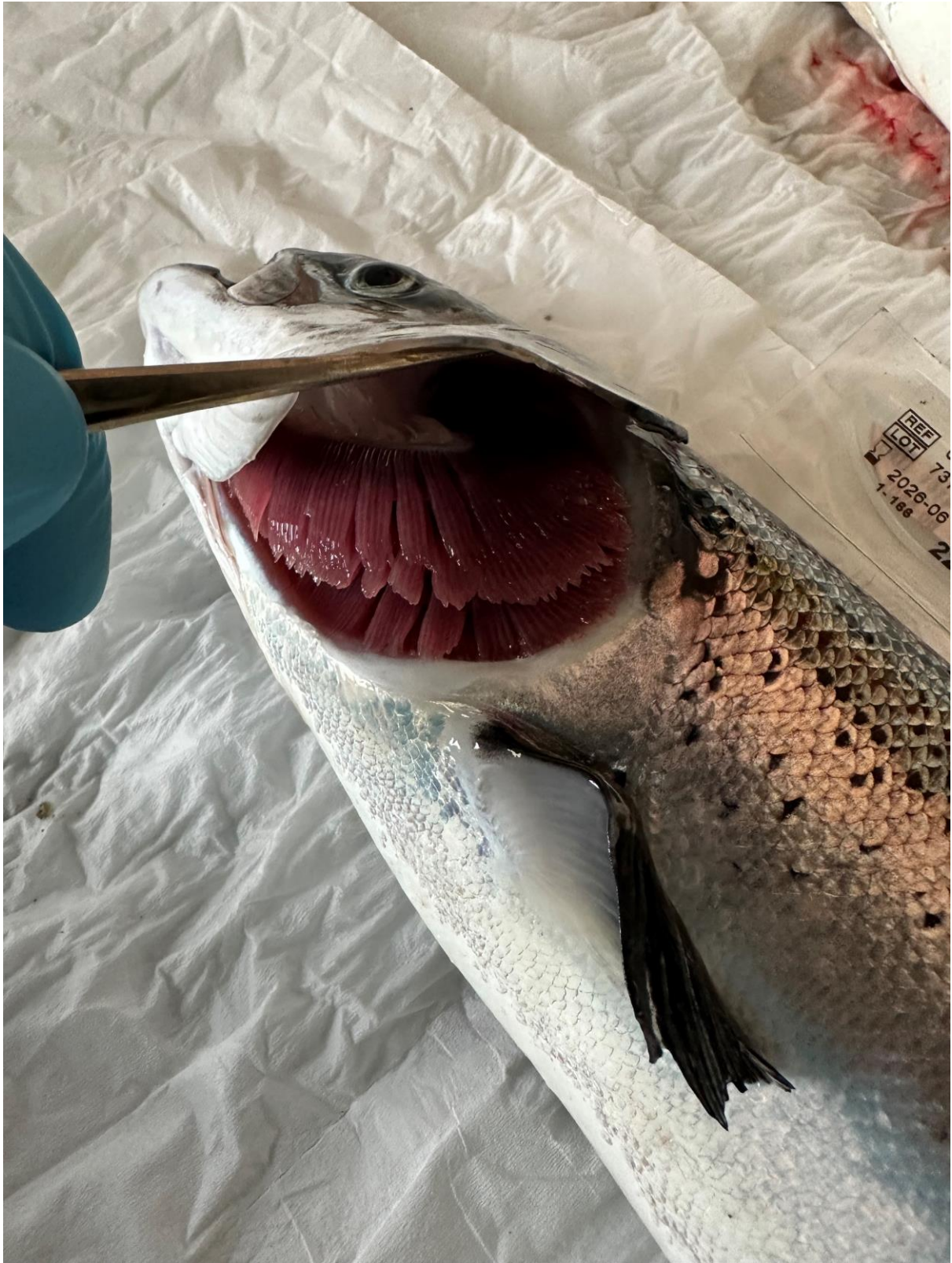


Figure 3 - Fish 2