

Case No: 2021-0385 Date of visit: 13/10/2021

Time spent on site: 3 hours Main Inspector:

Site No: FS0336 Site Name: Druimyeon Bay
Business No: FB0169 Business Name: The Scottish Salmon Company

Case Types: 1 DIA 2 3 4 5 6

Water Temp (°C): 13.6 Thermometer No: T146 FHI 045 completed

Observations: Region: ST Water type: S CoGP MA M-46

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:

Lumpfish on site from Ocean matters. Salmon transferred from Gometra input March 2021 - Moved in freshwater wellboat. Cleaner fish were not transported in wellboat.

Morts - normally site boat and skipped at shore base. Due to increased morts Fergusons boat removal from site. Divers in daily to remove mort. Bakkanes - on board macerator. - numbers of fish on site will be reviewed following a fw well boat treatment.

PD runts earlier in the cycle. No SAV observed during current issues

Treatments; Salmosan treatment - June - 2 cages in wellboat. July - FW and Salmosan - all cages. hydrolicer treatment planed for this week. Hydrolicer 9/9/21.

There were a number of mortality disposal methods available for the two sites;

- Billy Bowie- whole in skips to Barkip Biogas (collection docs observed).
- Gogar – Energen Bio Gas- to Dunnswood Road, Cumbernauld (collection docs observed).
- They have a new well boat the Bakkanes - hydrolicer and macerator/Ensiler. Can hold 1000 cube of morts, current morts on-board of 200 cube. - material ensiled with formic acid. Then it will be pumped off into tankers and used as biofuel but uncertain currently of final destination. The boat was present during our visit.
- Fergusons boat for mort removal had been used but was not on site during our visit.

Collection docs were available for inspection from Billy Bowie and Gogar. Capacity for mort disposal was in my opinion adequate and staff numbers at the sites were increased to deal with the mortalities with staff being brought in from other areas. Divers were also present at the time of our visit for mortality removal.

Mort/site/wk; wk35 0.8 %, Wk36 1.5%, Wk37 1.1%, wk38 6.2%, Wk39 4.5%, Wk40 21.96%, Wk 41 7.29% - part week.

Lice is persistent at both sites treatments are giving 85-95% clearance but resettlement is fast and treating every 3-4 weeks. Seal ice peak 7.91 Caligus week 37.

No jellies observed in water samples. Upwell species were observed.

mortality started wk 38 - attributed to environmental insult and anaemia.

Paperwork - [REDACTED], Site inspection (under supervision) [REDACTED], Sample fish 1, 2 (under supervision)-[REDACTED] Sample Fish 3-5 [REDACTED]

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 Date of Visit: **13/10/2021** 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	16	Facilities stocked	16	No facilities inspected	2
Species	sal	lump			
Age group	2020So				
No Fish	362,046	50,000			
Mean Fish Wt	3.1				
Next Fallow Date (Site)	2022 Q2		Next Input Date (Site)	2022 Q3	
Recent (last 4 wks) disease problems?			Y	Any escapes (since last visit)?	N
If yes, detail:	see additional info				

Movement Records

1. Movement records available for inspection? **Y**
 2. Date of last inspection: **26/05/2021**
 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? **Whole fish - Dundas Chemicals**
 If other detail: **see additional info for further mort disposal methods**
 3. Mortality records complete and correctly entered? **Y**
 4. Recent mortality (last 4 wks): **see additional info**
 5. Evidence of recent increased/atypical mortalities? **Y**
 If yes, facility nos/no mortality per facility/no stock per facility/reason:
across site - attributed to environmental gill insult - multi factorial anaemia.
 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: **health visits undertaken and sample taken**
 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? Y

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	3kg	3kg	3kg	3kg	3kg	3kg						
Sex												
Water Type	SW	SW	SW	SW	SW	SW						
Stock Details		Gometra	Gometra	Gometra	Gometra	Gometra						
	Stock Origin											
Facility No	12	12	11	11	11	11,12						

Case no: **2021-0385** Site No: **FS0336** Method of killing: **Percussive**
 Date of visit: **13/10/2021** Inspector(s): **[REDACTED]** 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)										
External Signs										
Behaviour	Moribund	S	S	W	W	W				
	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	S	M						
	Zoned									
	Necrotic	M	M			M				
Lesions	Flank									
	Elsewhere									
Vent	Inflamed									
	Trailing faeces									
Lice Load	Estimate numbers	>30	>30	>10	>10	>10				
Internal Signs										
Ascites	Clear									
	Bloody									
Oedema	In tissues									
Heart	Pale/anaemic									
	Granulomas									
	Deformed									
Liver	Petechial haem									
	Gross haem									
	Tissue breakdown									
	Enlarged									
	Colour number(s)	1	2	6	6	6				
	Granulomas									
	Lesions									
Pyloric caeca	Petechial haem									
	Tubules mauve									
	Lack of fat									
Spleen	Enlarged									
	Granulomas									
Gut	No food present	S	S	S	S	S				
	Yellow pseudo-faeces	S	S	S	S	S				
	External haem									
	Internal haem									
Body wall	Haemorrhaging									
Swim bladder	Haemorrhaging									
	Fluid filled									
Kidney	Swollen									
	Grey									
	Granular									
	Liquefied									
General	Parasites present									
	Anaemia	S	S							

Additional comments:

F1 and F2 - gills with pin prick haemorrhages. F2 and 3 were male grilse

F1 - evidence of lice damage on head area.

Site No: FS0336
Case No: 2021-0385
Nature of non-compliance:
Action taken (FHI):
Non-compliance relevant to (delete): VirologyMolGen/Bacteriology/Histology/Parasitology



FISH HEALTH INSPECTORATE VISIT REPORT

SUMMARY FOR INFORMATION OF SITE OPERATOR

BUSINESS No	FB0169	DATE OF VISIT	13/10/2021
SITE No	FS0336	SITE NAME	Druimyeon Bay
CASE No	20210385	INSPECTOR	[REDACTED]

Section 1: Summary

Druimyeon Bay was visited for a diagnostic health inspection following reports of significant mortality at the site. Five moribund fish were removed for diagnostic examination.

Histopathological examination revealed mild multifactorial proliferative branchitis. F3 displayed an absence of pancreatic acinar cell (possibly associated with salmonid alpha virus). Mild hepatic necrosis was noted in F1 and F4. F5 displayed bacterial ulcerative dermatitis.

Due to gill health issues observed on site, samples were screened for *Neoparamoeba perurans*, salmon gill poxvirus (SPGV) and *Paranucleospora theridion* (syn. *Desmozoon lepeophtherii*) by qPCR and tested positive for all three pathogens.

Moritella viscosa and *Vibrio* sp. identified on plates taken from kidney and lesion material. *M. viscosa* is a primary fish pathogen and the level and purity of growth observed was significant.

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

Section 2: Case Detail

Observations

Druimyeon Bay was visited following reports of significantly increased mortalities starting in September 2021 and peaking at 47% mortality (148,628 fish) for the site in the week beginning 11/10/21. Mortalities had been attributed to environmental and gill health related issues.

On inspection moribund fish were observed in the pens and five were removed for diagnostic examination. Fish 1 to 3 exhibited pale gills and fish 1, 2 and 5 had necrotic gills. The gills of fish 1 and 2 also had petechial haemorrhaging. Lice numbers were in excess of 10 and all stages were present on all the fish removed for sampling and fish 1 and 2 had in excess of 30 lice. Fish 1 and 2 also appeared anaemic.

Samples

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

Fish number	Pool number	Facility number	Species	Stage	Origin
F1-2	1	12	Atlantic salmon	2020 S0 @ 3kg	Gometra
F3-5	1	11	Atlantic salmon	2020 S0 @ 3kg	Gometra

Results

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

The following bacteria were isolated:

Moritella viscosa – F1-F3 (kidney); F5 (lesion)

Vibrio sp. - F1-F2, F4-F5 (Kidney); F5 (Lesion)

Moritella viscosa is a primary fish pathogen and the level and purity of growth observed was significant particularly in the lesion material from F5.

From the tests conducted, there is evidence which may indicate some resistance to florfenicol. There is no evidence of resistance to amoxicillin, oxytetracycline or sulphamethoxazole/trimethoprim.

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	19.33	25.69	25.79	25.8	POSITIVE
F2	19.13	22.62	22.6	22.74	POSITIVE
F3	19.12	24.85	24.98	24.94	POSITIVE
F4	19.08	28.23	28.19	28.09	POSITIVE
F5	19.32	26.1	25.99	25.97	POSITIVE

Samples were screened for the presence of infectious haematopoietic necrosis virus (IHNV), infectious salmon anaemia virus (ISAV), infectious pancreatic necrosis virus (IPNV), salmonid alphavirus (SAV) and viral haemorrhagic septicemia virus (VHSV) by cell culture.

The samples tested positive for IPNV and was confirmed by PCR and sequencing as IPNV Sp with a low-moderate virulence motif.

The test results for the other pathogens were negative.

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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

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	19.33	31.05	31.01	31.08	POSITIVE
F2	19.13	29.59	29.71	29.74	POSITIVE
F3	19.12	26.09	25.97	26.08	POSITIVE
F4	19.08	28.22	28.27	27.69	POSITIVE
F5	19.32	27.97	27.9	27.87	POSITIVE

Paranucleospora theridion

Fish Number	Endogenous control Cp value	Cp Values			Reported Result (PCR)
F1	19.33	32.62	32.64	32.31	POSITIVE
F2	19.13	31.88	31.38	31.74	POSITIVE
F3	19.12	26.29	26.21	26.23	POSITIVE
F4	19.08	32.43	31.87	32.42	POSITIVE
F5	19.32	26.45	26.39	26.24	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: Mild multifocal hyperplasia and lamellar fusion, some lacunae (some filled with cell debris) observed on the hyperplastic plaques (F1 & F2). F2 and F3 also displayed some gill filament bluntness and thrombi noted in the lamellar vessels. Free blood among gill filaments (F2, F3).

Skin & Muscle: Absence of epidermal layer. Some hypodermal cellular infiltration, mainly mononuclear inflammatory cells, and Gram-negative bacteria observed in the dermal layer and hypodermal layer (F5).

Heart: Within normal range.

Gut and pyloric caeca: Within normal range.

Pancreas: Absence of acinar cell around an island Langerhans and some mononuclear inflammatory cell infiltration (F3).

Liver: Mild multifocal necrosis (F1 & F4), some apoptotic cells also observed (F4), mild diffuse hepatocyte vacuolation (F4).

Kidney: Within normal range.

Signed:



Fish Health Inspector

Date:09/12/2021

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/>

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