

Case No: 2023-0197 Date of visit: 18/05/2023

Time spent on site: 5 Hours Main Inspector: [Redacted]

Site No: FS1354 Site Name: Shuna Point
Business No: FB0125 Business Name: Scottish Sea Farms Ltd

Case Types: 1 REP 2 DIA 3 [] 4 [] 5 [] 6 []

Water Temp (°C): 11.02 Thermometer No: T304 FHI 045 completed []

Observations: Region: ST Water type: S CoGP MA: M-36

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:
[Redacted]

Additional Case Information:

Site inspection following third party complaint relating to welfare and mortality. Salmon stock from Barcaldine (Stofinfiskur stock) in April 2022. Wrasse are wild caught and were inputted between July and September 2022 have been reported to have grown well.

Dead fish incinerated on site. Contingency measures when excessive mortality experienced - material collected by Ferguson Transport (boat and tankers) for disposal at Barkip, Dalry - not used this method on site since last year.

Recent mortality main causes associated with CGD and bacterial lesions.

Mortality - 46% since June last year, 54% since smolt input. 20.7% mortality in wrasse since input - attributed to handling / wellboat treatment. Currently mortality in wrasse up to 88 per week for site - last 11 weeks lost just over 300 fish

Site suffered extensive mortality last year as a result of micro jelly and algal blooms. There is still some continuing impact from those events with fish suffering from CGD and undergoing regular treatments.

Ongoing FW treatment for site to end 19 May, undertaken using the Inter Caledonia. AMX treatment 13/14 April - cages 7&3. FW treatment for gills and lice

Stofinfiskur stock reported to lack tolerance to treatment / challenge and handling.

One cage (cage 4) moved to Dunstaffnage FS0299 - to free up space for treating and discharging fish following treatment.

>1% weekly mortality - week 39-42 (2022); 48-52 (2022); 1-6 (2023); 9 (2023)

Week 48 (2022) to week 02 (2023) - mortality up to 8% weekly- up to 35k fish attributed to CGD - cages 2 &4 worst up to 4k for worst week. Mortality not. cage specific and experienced across the site.

Treatments:

azasure 13/06 - 16/06 - all cages for lice. And 11 July to 12 July azasure - cages 3, 4, 5, 6, 13/08 - cage 4

amx 27 to 29 July. All cages except cage 1

Azasure and AMX for sea lice - pen 3 reported to be worst. Sea lice have increased a little over the past couple of weeks - up to 2.5 adult females per fish. Lice reported to be coming down.

Case No: 2023-0197

Site No: FS1354

Date of Visit: 18/05/2023

Inspector(s): [Redacted]

Registration/Authorisation Details

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

Site Details (include cleaner fish for all sections)

Total No facilities	8	Facilities stocked	7	No facilities inspected	8
Species	A.sal	Wrasse			
Age group	2022 Q1	2022 input			
No Fish	253,500	16,500			
Mean Fish Wt	3.1 Kg	250 g			
Next Fallow Date (Site)	September 2023		Next Input Date (Site)	Q2 - May 2024	
Recent (last 4 wks) disease problems?				Y	Any escapes (since last visit)?
If yes, detail:	Furunculosis - recent isolation. CGD on going				

Movement Records

- 1. Movement records available for inspection? Y
- 2. Date of last inspection: 08/02/2023
- 3. Are records complete and correctly entered? Y
- 4. Are movement records available for dead fish and waste? N/A
- 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)? N
- If yes, is there a system in place for maintenance of transportation records? N/A

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): 0.37 to 0.9% weekly mortality (up to 2,200 fish for week 19 - 0.9%, for site)
- 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? Y
- If yes, detail: see additional notes
- 7. Have increased (unexplained) mortalities been reported to vet or FHI? Y
- If yes, detail action: Veterinary inspections conducted every 2-3 weeks
- 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:	See notes	
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"/>	Y
5. If yes, what treatment(s)?	TMS	
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).		

CGD through gill swabs; Furunculosis isolated from cage 7?	
--	--

Records checked between: June 2022 and 18 may 2023

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								
	Fish nos	1	2	3	4								
	Pool Group												
Stock Details	Species	SAL	SAL	SAL	SAL								
	Average weight	4.0000	0.8000	0.8000	0.8000								
	Sex	N/A	N/A	N/A	N/A								
	Water Type	SW	SW	SW	SW								
	Stock Origin	Barcaldine	Barcaldine	Barcaldine	Barcaldine								
	Facility No	2	7	8	8								

Case no: 2023-0197

Site No: FS1354

Method of killing:

Date of visit: 18/05/2023

Inspector(s):

Sheet Relevant: Y

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

Fish Number		1	1	1	1				
Time sampled after death (if > 45 minutes)		1 hour	1 hour						
External Signs									
Behaviour	Moribund								
	Lethargic	W	S	W	W				
	Hanging vertical								
	Spiralling								
	Flashing								
	Loss of equilibrium								
Body	Dark								
	Distended abdomen								
	Anorexic								
	Scale Oedema								
Opercula	Shortened								
	Flared								
Haemorrhaging	Throat	W							
	Ventrum								
	Base of fins								
	Elsewhere								
Eyes	Exophthalmic								
	Enophthalmic (sunken)								
	Cataract								
	Haemorrhagic			W					
Gills	Pale	S	S		S				
	Zoned	S	S		S				
	Necrotic	S	S		W				
Lesions	Flank	S	W						
	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	4	3				
	Granulomas								
	Lesions								
Pyloric caeca	Petechial haem								
	Tubules mauve								
	Lack of fat								
Spleen	Enlarged								
	Granulomas								
Gut	No food present	w	W	W	S				
	Yellow pseudo-faeces		W	W	W				
	External haem								
	Internal haem								
Body wall	Haemorrhaging								
Swim bladder	Haemorrhaging								
	Fluid filled								
Kidney	Swollen								
	Grey	S			W				
	Granular								
	Liquefied								
General	Parasites present								
	Anaemia								

Case no: 2023-0197

Date of visit: 18/05/2023

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- some physical damage, good sized fish scrubbed sides and damage to the snout. Pale clumped and damaged gills. No obvious internal disease signs, grey coloured kidney F1, general slight to moderate anaemia

F2 - Haemorrhaging across the gills . No o obvious internal signs of disease

F4 general anaemic appearance

Site No: FS1354
Case No: 2023-0197
Nature of non-compliance:
Action taken (FHI):
Non-compliance relevant to (delete): VirologyMolGen/Bacteriology/Histology/Parasitology



Case No: **2023-0197** Date of visit: **18/05/2023**
 Site No: **FS1354** Inspector: **[REDACTED]**

Results Summary	Freq.	Date of Notification						
		Database	Insp	Phone	Insp	Writing	Insp	2 nd Insp
AGDQ	2/4	29/05/2023		26/05/2023*		20/06/2023		
IHNP	0/4	29/05/2023		26/05/2023*		20/06/2023		
IPNM	2/4	29/05/2023		26/05/2023*		20/06/2023		
ISAQ	0/4	29/05/2023		26/05/2023*		20/06/2023		
PNST	4/4	29/05/2023		26/05/2023*		20/06/2023		
PMVP	0/4	29/05/2023		26/05/2023*		20/06/2023		
SPVP	4/4	29/05/2023		26/05/2023*		20/06/2023		
SALP	0/4	29/05/2023		26/05/2023*		20/06/2023		
VHSP	0/4	29/05/2023		26/05/2023*		20/06/2023		
VSPE	2/4	09/06/2023*		09/06/2023*		20/06/2023		
AMGD	4/4	09/06/2023*		09/06/2023*		20/06/2023		
CGDH	4/4	09/06/2023*		09/06/2023*		20/06/2023		
COST	1/4	09/06/2023*		09/06/2023*		20/06/2023		
SKIN	2/4	09/06/2023*		09/06/2023*		20/06/2023		
LPAT	2/4	09/06/2023*		09/06/2023*		20/06/2023		
*email								

Report Summary			
Case Type	Date	Insp	2 nd Insp
DIA	19/06/2023		

FISH HEALTH INSPECTORATE VISIT REPORT

SUMMARY FOR INFORMATION OF SITE OPERATOR

BUSINESS No	FB0125	DATE OF VISIT	18/05/2023
SITE No	FS1354	SITE NAME	Shuna Point
CASE No	20230197	INSPECTOR	██████████

Section 1: Summary

Following a third party complaint in relation to mortality and welfare at the Shuna Point (FS1354) fish farm site, an inspection was conducted, and diagnostic samples were taken. The site had been suffering from complex gill disease (CGD) and bacterial infections, issues which were described as being related to challenges experienced in 2022 following blooms of micro jellyfish.

At the time of the inspection the site was in the process of completing a freshwater treatment in response to CGD and as part of the on-site management practice in relation to sea lice. A small number of lethargic fish were observed across the site. At the time of the inspection mortality was reported at less than 1% per week and site staff were actively removing mortalities and any sick fish where possible and where observed.

Histopathological examination revealed features consistent with mild, multifocal, hyperplastic branchitis with some cells resembling *Neoparamoeba perurans* observed, this was confirmed by QPCR. Ulcerative bacterial dermatitis mild, multifocal myocarditis, hepatocellular necrosis and some nephritis was observed. Some fish displayed some features of osmotic imbalance.

Two *Vibrio* spp. were isolated from the samples taken, the level and purity of growth would not suggest that either of these isolates are the primary cause of morbidity in this case.

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

Four lethargic fish were removed for diagnostic sampling. F1, F2 and F4 showed evidence of pale, zoned and necrotic gills, with haemorrhaging observed within F2. Haemorrhaging was present across the throat of F1 and within the eyes of F3. Lesions were present on the flank of F1 and F2, F1 showed evidence of suspected physical damage along the flank and damage to the snout. No food was present in the gut of any of the four fish sampled, with yellow faecal casts observed in F2, F3 and F4. The kidney appeared grey in colour within F1 and F4 and general anaemic was observed within F1 and F4.

Samples

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

Fish number	Facility number	Species	Stage	Origin
1	2	Atlantic salmon	~4 kg, 2022 Q1	Barcaldine
2	7	Atlantic salmon	~800g, 2022 Q1	Barcaldine
3	8	Atlantic salmon	~800g, 2022 Q1	Barcaldine
4	8	Atlantic salmon	~800g, 2022 Q1	Barcaldine

Results

Bacteriology: Kidney and gill material from all four fish, and lesion material from fish 1 and 2 was inoculated onto appropriate media for the isolation of bacteria.

- *Vibrio* sp. (Isolate A) found in fish: F1 (Kidney, Lesion); F2 (Lesion);
Vibrio sp. (Isolate B) found in fish: F2 (Lesion)

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 virus (IPNV)

Fish Number	Endogenous control Cp value	Cp Values			Reported Result (PCR)
1	14.08	17.96	17.92	17.96	Positive
2	15.26	37.03	37.09	35.82	Positive
3	15.78	-	-	-	Negative
4	15.77	-	-	-	Negative

The low Cp values associated with the IPNV test in F1 may suggest a highly virulent strain of the virus, or a situation of clinical disease, although the latter was not evident through histopathological analysis. Consequently, IPNV sequencing was performed to determine the virulence motif with respect to this result. The quality of sequence in the middle of the product was not sufficient to allow this to be determined, although confirmation of A2/Sp was achieved. The A2/Sp strain is a common European strain of the virus and is regularly isolated from samples from farmed fish in Scotland.

Salmon Gill Pox virus

Fish Number	Endogenous control Cp value	Cp Values			Reported Result (PCR)
1	20.21	28.43	28.37	28.4	Positive
2	18.72	29.94	29.79	29.98	Positive
3	19.09	26.65	27.04	26.61	Positive
4	21.3	36.23	35.57	36.8	Positive

The samples tested negative for infectious haematopoietic necrosis virus (IHNV), 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 *Neoparamoeba perurans* and *Paranucleospora theridion* using real-time PCR (qPCR). The results of these tests were positive in accordance with the tables below:

Neoparamoeba perurans (AGD)

Fish Number	Endogenous control Cp value	Cp Values			Reported Result (PCR)
1	20.21	-	-	-	Negative
2	18.35	28.79	28.4	28.76	Positive
3	19.09	26.28	26.49	26.34	Positive
4	21.3	-	-	-	Negative

Paranucleospora theridion

Fish Number	Endogenous control Cp value	Cp Values			Reported Result (PCR)
1	20.21	31.17	31.23	31.59	Positive
2	18.35	27.96	28.04	28.05	Positive
3	19.09	24.02	23.75	23.78	Positive
4	20.84	31.78	31.7	31.36	Positive

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

Histopathological examination revealed the following:

Gill: Lamellar hyperplastic branchitis, multifocal, mild (F3 & F4); few amoeboid cells resembling *Neoparamoeba perurans* observed in F3 and few Costia-like organisms observed in F2. Aneurysmal dilation/telangiectasia and lamellar congestion, some resolving (F1-F4).

Skin & Muscle: Lesion F1 & F2: Ulcerative haemorrhagic dermatitis with mixed Gram-negative bacteria. Myositis F1 & F2 also display some dermatitis and partial absence of epidermal layer.

Heart: Very mild, multifocal, myocarditis (F2, F3 & F4). F2 displayed mild cardiac degeneration on the compact layer.

Gut and pyloric caeca: Within normal range.

Pancreas: Within the normal range.

Liver: Hepatocellular necrosis, mild, multifocal (F3 & F4).

Kidney: Slight increase of melanomarcophage aggregates (F2, F3, F4). F2 also displayed foci of interstitial necrosis.

Spleen: Within the normal range.

Signed:



Fish Health Inspector

Date: 20 June 2023

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/>

Shuna Point – 2023-0197





