

Case No:	2024-0418	Date of visit:	06/11/2024			
Time spent on site:	3 hours	Main Inspector:				
Site No:	FS1328	Site Name:	Barcaldine Smolt Unit			
Business No:	FB0125	Business Name:	Scottish Sea Farms Ltd			
Case Types:	1 DIA	2 REP	3	4	5	6
Water Temp (°C):	12.2	Thermometer No:	T155	FHI 045 completed	N/A	
Observations:	Region:	ST	Water type:	F	CoGP MA	
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:

Additional Case Information:

Inspection lead by [REDACTED], observed by [REDACTED]

The business refers to the site (FS1328) internally as smolt unit 1 and smolt unit 2.

Inspection scheduled due to the business reporting high mortality events attributed to saprolegnia, post-vaccination and Aquacen (formalin) bath treatments. 31/10/2024 third party health report identified the presence of saprolegnia, 2/10 positive detection. Aquacen and Cress (bronopol) treatments are on going. These fish were vaccinated from 30/9/24 to 23/10/24 in the pre-smolt unit (FS1327). The current fish in pre-smolt unit have a low fungus level which is being controlled with salinity. Going forward the business is aiming to control fungus in all units with salinity rather than formalin and/or bronopol.

Stock currently held at the smolt unit is predicted to go to sea at the end of November, this will be done under veterinary advice.

Case No:

Date of Visit:

Registration/Authorisation Details

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

Site Details (include cleaner fish for all sections)

Total No facilities

Species

Age group

No Fish

Mean Fish Wt

Next Fallow Date (Site)

Recent (last 4 wks) disease problems?

If yes, detail:

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?

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:

Increased mortality across the site attributed to Saprolegnia.

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)?

If yes, detail:

If other, detail:

2. Medicines records available for inspection?

3. Are records complete and correctly entered?

4. Are fish in a withdrawal period?

5. If yes, what treatment(s)?

If other, detail:

6. Are medicines stored appropriately?

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* (*unexpl*

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 be

5. Has the health status of aquaculture animals being stocked on the farm site been covered (equal or higher health status, cert

6. Have the husbandry and biosecurity measures implemented between each epidemiological unit to minimise transmission of c

7. Is documentation available regarding the measures in place to maintain the physical containment of aquaculture animals held

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?

2. If yes, are results available for inspection?

3. Any significant results?

If yes, detail (if not detailed under recent disease problems).

2024-0418

Site No:

FS1328

06/11/2024

Inspector(s):

Y

N

	16	Facilities stocked	16	No facilities inspected	
SAL					
2024 Q4					
916,612					
78.4					
Smolt unit 1 21/11/24, smolt unit 2 4/12/24.		Next Input Date (Site)		Smolt unit 1 28/11/24, smolt unit 2 10/12/24.	
		Y		Any escapes (since last visit)?	

Saprolegnia

23/07/2024

Ensiled - on site

Ensiled material disposed of at Shieldhall WWTW via Acre.

Wk 41: 4.1 % (43644 fish) Wk 42: 4.7 % (75635 fish) Wk 43: 6.61 % (122,093 fish) Wk 44: 6.7 (103223 fish) Wk 45 (partial): 2.03 % (20713 fish)

Aquacen and Cress

on site?

23/07/2024-06/11/2024

16
N
Y
Y
Y
Y
N/A
Y
Y
6 %
Y
N
N/A
Y

	Y
	Y
	Y
	Y
	Y
	Y
	Y
	Y

Case no:

2024-0418

Site No:

FS1328

Date of visit/
Sampling:

06/11/2024

06/

Priority samples:

VI

BA

PA

MG

HI

Time sampling
starts/ends:

10:10:00

11:00:00

Inspector:

VMD No.

0

Environmental conditions:

1

Indoors

2

3

4

5

Summary samples

HIST

Y

BA

Y

MG

Y

VI

PA

Y

Total Samples

Add Fish/Pools - click

Stock Details	Pool/Fish No	F1	F2	F3	F4	F5							
	Fish nos	1	2	3	4	5							
	Pool Group	P1	P2	P3	P4	P5							
	Species	SAL	SAL	SAL	SAL	SAL							
	Average weight	0.7840	0.7840	0.7840	0.7840	0.7840							
	Sex	N/A	N/A	N/A	N/A	N/A							
	Water Type	FW	FW	FW	FW	FW							
		Barcaldine pre smolt unit (FS1327)	Barcaldine pre smolt unit (FS1327)	Barcaldine pre smolt unit (FS1327)	Barcaldine pre smolt unit (FS1327)	Barcaldine pre smolt unit (FS1327)							
	Stock Origin												
	Facility No	T7	T7	T8	T8	T8							

11/2024

11/2024 Additional Sample Information:

█████ sampled F1-2, █████ sampled F3-5. F2 and F5 vent sample taken for histology. F1-F5 lesion sample for histology.

5

Total Tests assigned

4

[illegible]

Case no:	2024-0418	Site No:	FS1328	Method of killing:	Anaesthetic
Date of visit:	06/11/2024	Inspector(s):		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	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										
	Zoned										
	Necrotic										
Lesions	Flank										
	Elsewhere	S	S	S	S	S					
Vent	Inflamed		S			S					
	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)	6	6	6	6	6					
	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:

Lesion by dorsal fin F1-F5. Extensive fungus present F1-F5. F4 and F5, ragged caudal fin. Fungus was not observed on the gills or around the vaccination area.

Case No: 2024-0418

Date of visit: 06/11/2024

Site No: FS1328

Inspector: [REDACTED]

[illegible][illegible]



FISH HEALTH INSPECTORATE VISIT REPORT

SUMMARY FOR INFORMATION OF SITE OPERATOR

BUSINESS No FB0125
SITE No FS1328
CASE No 20240418

DATE OF VISIT 06/11/2024
SITE NAME Barcaldine Smolt Unit
INSPECTOR [REDACTED]

Section 1: Summary

The business submitted notifications of mortality above the Code of Good Practice for Scottish Finfish Aquaculture reporting threshold. These mortality events were attributed to saprolegnia, post-vaccination and bath treatments. On inspection of the site, moribund and lethargic fish were observed in all tanks with extensive lesions and fungus infection. Five fish were removed for diagnostic examination.

Histopathology examination revealed features consistent with saprolegniasis, this was confirmed by the isolation of *Saprolegnia* species from lesion material of all five fish. DNA sequence analysis was performed on material from F1, F4 and F5 indicating the isolate to be *Saprolegnia parasitica* phylotype S2 (common to UK).

Infectious pancreatic necrosis virus was detected in three fish by qPCR. The significance of this result was unclear as no associated pathology was observed and the fish have been vaccinated.

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

During October, the business had submitted weekly mortality notifications of 4.1 %, 4.7 %, 6.61 % and 6.8 % for the site. These mortality events were attributed to saprolegnia, post-vaccination and bath treatments. Aquacen (formalin) and Cress (bronopol) treatments were initiated.

During the inspection of stock, moribund and lethargic fish were observed in all tanks. Many presented with extensive lesions and fungus infection. Five moribund and lethargic fish were removed for diagnostic sampling.

Externally, lesions by the dorsal fin were observed in all fish sampled. Ragged caudal fins were observed on F4 and F5. The vents of F2 and F5 were inflamed.

Internally, no gross pathology related to disease was observed.

Samples

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

R09



Fish number	Facility number	Species	Stage	Origin
F1-F2	T7	Atlantic Salmon	78.4 g Q4 2024	Barcaldine Pre Smolt Unit (FS1327)
F3-F5	T8			

Results

Microbiology: Kidney, spleen and lesion material from five fish were inoculated onto appropriate media for isolation of colonies.

The following bacteria were isolated from fish F1-F5:

- *Aeromonas sobria*: F1 and F5 (Kidney)
- *Aeromonas hydrophila*: F1-F4 (Lesion)
- *Flavobacterium* spp.: F5 (Spleen) and F1, F2 and F4 (Lesion)

Aeromonas sobria was identified in kidney material of F1 and F5. The level and purity of growth would suggest this bacterium is likely to be present as a secondary pathogen. *Aeromonas hydrophila* was identified in lesion material of F1-F4. The level and purity of growth would suggest this bacterium is likely to be present as a secondary pathogen; however, in F2 it is likely that this bacterium was the primary source of the lesion. *Flavobacterium* spp. was identified in spleen material of F5 and lesion material of F1, F2 and F4. These bacteria are not known as primary fish pathogens and are likely to be present as opportunistic pathogens.

In addition, a colony matching the characteristics of *Saprolegnia* species was observed on the plate taken from lesion material.

- *Saprolegnia* spp.: F1-F5 (Lesion)

DNA sequence analysis was performed on *Saprolegnia* spp. colony from material of F1, F4 and F5. Results showed the isolate to be *Saprolegnia parasitica* phylotype S2 (common to UK).

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)
F1	-	-	-	-	Negative
F2	-	-	-	-	Negative
F3	16.20	37.62	37.39	37.59	POSITIVE
F4	16.07	37.21	35.89	36.81	POSITIVE
F5	16.57	>40	38.40	37.96	POSITIVE



The samples tested negative for infectious haematopoietic necrosis virus (IHNV), salmonid alphavirus (SAV) and viral haemorrhagic septicemia virus (VHSV).

Parasitology: Fins were collected to determine the presence of *Gyrodactylus salaris* using light microscopy.

No *G. salaris* parasites were detected in the samples examined.

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: F1 - Minor lamellar hyperplasia (F1), some deformed cartilage and an area of presence of an hyphae mat (F5).

Skin & Muscle: Lesion: fungal-like dermatitis displaying an hyphae mat at the dermal outer layer and in dermis (F1, F2, F3, F4, F5) and observed within the musculature in F1-F5. Muscular degeneration (F1, F2, F3) and haemorrhage also observed (F1).

Heart: Within the normal range.

Gut and pyloric caeca: Peritonitis, minor-up-to mild (F2, F4).

Pancreas: Within the normal range.

Liver: Minor cuffing (F1, F2). Hepatocellular vacuolation (macrovesicles), mild, diffuse (F5).

Kidney: Interstitial necrosis, some (F1-F4). F5 displayed some hyaline droplets on the lining epithelium of few renal tubules.

Spleen: Cuffing, mild (F2, F3) and F5 slightly congested.

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

Signed:

Date: 16/12/2024

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)



Figure 1. F1 and F2 overview.



Figure 2. F1 close overview.



Figure 3. F1 lesion close to dorsal fin.



Figure 4. F1 inside view.



Figure 5. F2 close overview



Figure 6. F2 view showing lesion close to dorsal fin.



Figure 7. F2 view showing inflamed vent.



Figure 8. F2 inside view.



Figure 9. F3-F5 overview.



Figure 10. F3 close overview.







Figure x. F4 close overview showing ragged codial fin.









Figure x. F5 close overview showing ragged codial fin.



Figure x. F4 view showing inflamed vent.

