

Case No: 2023-0365 Date of visit: 22/08/2023

Time spent on site: 3hrs Main Inspector: [Redacted]

Site No: FS1198 Site Name: South Cava  
Business No: FB0095 Business Name: Cooke Aquaculture Scotland Ltd

Case Types: 1 DIA 2 STI 3 4 5 6

Water Temp (°C): 14.24 Thermometer No: T308 FHI 045 completed N/A

Observations: Region: OR Water type: S CoGP MA: O-3

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:**

Stock on site from Pegal Bay and Kirk Noust. (Stofnfiskur and Aquagen stock). Site transferred fish on in Wk30 2023.

Organic site.

Hydrolicer treatment conducted in March 2023, before end of crop (previous production cycle followed wk 24). Fish transferred from Pegal via FW.

Only T.M.S used so far on site as a medicinal treatment.

Site was inspected following confirmation of BKD at Chalmer's Hope, which is within one tidal excursion for inspected site. The purpose of the inspection was to determine whether any fish were presenting with signs of clinical BKD. No fish were seen with signs of clinical BKD.

During site inspection, it was difficult to see the fish as water was dark and fish lower down in the water column. Two moribund fish were observed on the day of the inspection. These were removed and sampled for diagnostics.

Case No: **2023-0365** Site No: **FS1198**  
 Date of Visit: **22/08/2023** 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	<b>16</b>	Facilities stocked	<b>16</b>	No facilities inspected	<b>16</b>
Species	<b>SAL</b>				
Age group	<b>2022 S0</b>				
No Fish	<b>471,529</b>				
Mean Fish Wt	<b>1.59kg</b>				
Next Fallow Date (Site)	<b>End June/July 2024</b>	Next Input Date (Site)	<b>August 2024</b>		
Recent (last 4 wks) disease problems?		N	Any escapes (since last visit)?		N
If yes, detail:	<b>[REDACTED]</b>				

**Movement Records**

- 1. Movement records available for inspection?  Y
- 2. Date of last inspection: **07/02/2023**
- 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?  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)?
- If yes, is there a system in place for maintenance of transportation records?

**Mortality Records**

- 1. Mortality records available for inspection?  Y
- 2. How are mortalities disposed of? **Other (detail)**
- If other detail: **Pelagia**
- 3. Mortality records complete and correctly entered?  Y
- 4. Recent mortality (last 4 wks): **2023: Wk34, 0.14%, 670; Wk33, 0%,0; Wk32, 0.15%, 408; Wk 31, 0%, 0; Wk30, 0.14%, 393**
- 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?  N/A
- If yes, detail action: **[REDACTED]**
- 8. Have 'mortality events' been reported to FHI? If no, enter details on mortality events sheet.  N/A

**Treatments and Medicines Records**

- 1. Recent treatments (see comment)?  Y  
 If yes, detail: T.M.S,  
 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)? T.M.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?  N
- 2. If yes, are results available for inspection?  Y
- 3. Any significant results?  N  
 If yes, detail (if not detailed under recent disease problems).

Records checked between: 07/02/2023-25/08/2023

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										
	Fish nos	1	2										
	Pool Group	P1	P2										
	Species	SAL	SAL										
	Average weight	1.3kg	1.3kg										
	Sex	N/A	N/A										
	Water Type	SW	SW										
Stock Details	Stock Origin	Kirk Noust (FS0645)	Kirk Noust (FS0645)										
	Facility No	5	16										



Case no: 2023-0365

Site No: FS1198

Method of killing: Percussive

Date of visit: 22/08/2023

Inspector(s):

Sheet Relevant: Y

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

Fish Number		1	2											
Time sampled after death (if > 45 minutes)														
External Signs														
Behaviour	Moribund	M	M											
	Lethargic	M	S											
	Hanging vertical													
	Spiralling													
	Flashing													
Body	Loss of equilibrium													
	Dark		S											
	Distended abdomen													
	Anorexic													
Opercula	Scale Oedema													
	Shortened													
Haemorrhaging	Flared													
	Throat													
	Ventrum													
Eyes	Base of fins													
	Elsewhere													
	Exophthalmic													
Gills	Enophthalmic (sunken)													
	Cataract													
	Haemorrhagic													
Lesions	Pale													
	Zoned	W	M											
	Necrotic													
Vent	Flank													
	Elsewhere													
Lice Load	Inflamed													
	Trailing faeces													
Internal Signs	Estimate numbers													
	Ascites													
	Clear													
Oedema	Bloody													
	In tissues													
Liver	Heart	W												
	Pale/anaemic													
	Granulomas													
Pyloric caeca	Deformed													
	Petechial haem													
	Gross haem													
	Tissue breakdown													
Spleen	Enlarged	M	M											
	Granulomas													
	Enlarged													
Gut	Colour number(s)	4	4											
	Granulomas													
	Lesions													
Body wall	Petechial haem													
	Tubules mauve													
Swim bladder	Lack of fat													
	Enlarged	M	M											
Kidney	Granulomas													
	No food present	S	S											
	Yellow pseudo-faeces	S	S											
General	External haem													
	Internal haem													
Kidney	Haemorrhaging													
	Fluid filled													
	Swollen													
General	Grey													
	Granular													
	Liquefied													
General	Parasites present													
	Anaemia													

Case no:

Date of visit:

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>																		
	<b>Loss of equilibrium</b>																		
<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>																		
	<b>Base of fins</b>																		
	<b>Elsewhere</b>																		
<b>Eyes</b>	<b>Exophthalmic</b>																		
	<b>Enophthalmic (sunken)</b>																		
	<b>Cataract</b>																		
	<b>Haemorrhagic</b>																		
<b>Gills</b>	<b>Pale</b>																		
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	<b>Necrotic</b>																		
<b>Lesions</b>	<b>Flank</b>																		
	<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>																		
	<b>Deformed</b>																		
<b>Liver</b>	<b>Petechial haem</b>																		
	<b>Gross haem</b>																		
	<b>Tissue breakdown</b>																		
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	<b>Colour number(s)</b>																		
	<b>Granulomas</b>																		
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<b>Spleen</b>	<b>Enlarged</b>																		
	<b>Granulomas</b>																		
<b>Gut</b>	<b>No food present</b>																		
	<b>Yellow pseudo-faeces</b>																		
	<b>External haem</b>																		
	<b>Internal haem</b>																		
<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:

F2- Spleen rough texture and dry looking. See photos.





## Results

**Bacteriology:** Kidney, gill, spleen and lesion material from F1 and F2 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).

### Salmonid alphavirus (SAV)

Fish Number	Endogenous control Cp value	Cp Values			Reported Result (PCR)
F1	15.46	27.70	27.88	27.43	POSITIVE
F2	15.76	24.73	24.47	24.39	POSITIVE

### Piscine reovirus (PRV)

Fish Number	Endogenous control Cp value	Cp Values			Reported Result (PCR)
F1	-	-	-	-	Negative
F2	18.02	36.57	36.08	36.65	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), piscine myocarditis virus (PMCV) and salmon gill poxvirus (SGPV).

### **Parasitology:**

Tissue samples were tested for segments of nucleic acid indicative of the presence of the parasites specified below using real-time PCR (qPCR).

### *Paranucleospora theridion*

Fish Number	Endogenous control Cp value	Cp Values			Reported Result (PCR)
F1	18.88	25.27	25.35	25.52	POSITIVE
F2	18.74	24.29	24.53	24.42	POSITIVE

The samples tested negative for *Neoparamoeba perurans* (AGD).

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

Histopathological examination revealed the following:

Tissues from 2 Atlantic salmon were examined by light microscopy. The following histopathological changes were observed:

Gill: Filament hyperplasia, mild, multifocal, mainly at the tips (F1 & F2). Some aneurysmal dilation/telangiectasia (F1), free blood among gill filament observed in all fish (like due to persecutive stunning).

Skin & Muscle: Skeletal red muscle degeneration, moderate, multifocal (F1, F2).

Heart: Necrotising myocarditis, mild, multifocal (F1 & F2) and moderate, multifocal, peritonitis (F1 & F2).

Gut and pyloric caeca: Absence of adipose tissues observed in F1 and some peritonitis observed in both fish.

Pancreas: Moderate inflammation of the pancreatic periacinar tissue (F1).

Liver: Minor area of necrosis (F1).

Kidney: Within the normal range

Spleen: Slightly congested in all fish.

Brain: Not sampled.

Eye: Not sampled.



Signed:

Date: 04/10/2023

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



# FISH HEALTH INSPECTORATE VISIT REPORT

## SUMMARY FOR INFORMATION OF SITE OPERATOR

<b>BUSINESS No</b>	FB0095	<b>DATE OF VISIT</b>	22/08/2023
<b>SITE No</b>	FS1198	<b>SITE NAME</b>	South Cava
<b>CASE No</b>	20230365	<b>INSPECTOR</b>	

### Statutory Inspection

The above site was inspected as it is located within one tidal excursion of a site where the presence of bacterial kidney disease (BKD) has been confirmed.

All epidemiological units were inspected. No clinical signs associated with BKD were observed.

If clinical signs of BKD are observed on the site, the Inspectorate must be informed immediately.

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



Signed:

Fish Health Inspector

Date: 25/08/2023

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

Diagnostic Sampling Photos: 20230365



Figure 1 Overview of Fish 1



Figure 2 Internal view of fish 1



Figure 3 view of gills of fish 1



*Figure 4 Overview of fish 2. Eye damage due to percussive method of killing.*



*Figure 6 View of gills of fish 2*



*Figure 5 internal view of fish 2*