

Case No: Date of visit:

Time spent on site: Main Inspector:

Site No: Site Name:

Business No: Business Name:

Case Types: 1 2 3 4 5 6

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

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

Dead/weak/abnormally behaving fish present? If yes, see additional information/clinical score sheet.

Clinical signs of disease observed? If yes, see additional information/clinical score sheet.

Gross pathology observed? If yes, see additional information/clinical score sheet.

Diagnostic samples taken?

UNI/REG only - if unable to carry out intended visit detail reason below:

Additional Case Information:

Salmon were moved from Fara West (FS1017) to Chalmers in Wk30. Mortality data is from input.

Salmon originated from Ardtaraig Hatchery (FS0648) and Yetts O' Muckart (FS0371) (mix of Stofinfisker and Aquagen). Yetts fish have been feeding and performing well. Few moribunds observed in the cages stocked with fish from Yetts (1-6). Cages stocked with fish from Ardtaraig (7-12) had high numbers of moribunds that were dark in colour, most exhibiting exophthalmia and some physical damage to flanks with visible haemorrhaging along the throat and ventrum. Fish were removed from these cages for diagnostic sampling.

Mortality events above reporting threshold:

Wks 48, 49, 51 and 52 2022 - all events attributed to poor gill health on site combined with environmental insult.

Wk4 2023 - also attributed to poor gill health and environmental insult.

Wks48 and 49 mortality events were not reported as required. Mortality notifications for these weeks were submitted retrospectively, NFA.

Last crop had a hydrolicer treatment in March/April 2022, followed by a thermolicer treatment in April 22. Current crop have only had a Salmosan treatment in July following transfer from Fara West and Tricaine for sea lice counts and sampling.

Last crop were dead haul, harvested out by 21st June 23.

Case No: **2023-0360** Site No: **FS0993**
 Date of Visit: **16/08/2023** Inspector(s): **[REDACTED]**

Registration/Authorisation Details

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

Site Details (include cleaner fish for all sections)

Total No facilities	12	Facilities stocked	12	No facilities inspected	
Species	SAL				
Age group	2022 S0				
No Fish	482,788				
Mean Fish Wt	1.6kg				
Next Fallow Date (Site)	June 24	Next Input Date (Site)	August 24		
Recent (last 4 wks) disease problems?		Y	Any escapes (since last visit)?		
If yes, detail:	Suspected BKD				

Movement Records

- 1. Movement records available for inspection?
- 2. Date of last inspection: **01/03/2022**
- 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? **Other (detail)**
 Mortalities and waste are transferred in sealed bins to Stromness before being loaded onto a and taken to Dounby Yard before being transferred to Pelagia for ensiling.
- 3. Mortality records complete and correctly entered?
- 4. Recent mortality (last 4 wks): **Wk32: 1436 (0.3%), Wk31: 2593 (0.52%), Wk30: 50 (0.01%)**
- 5. Evidence of recent increased/atypical mortalities?
 If yes, facility nos/no mortality per facility/no stock per facility/reason:
- 6. Any other peaks in mortality during period checked?
 Wk4 2023: 1.07% (4,327), Wk52 2022: 1.2% (4,990), Wk51: 1.22% (5,143), Wk49: 1.19% (2
 If yes, detail: **Wk48: 1.91% (4,432), Wk41: 2.84% (6,956)**
- 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:

TMS

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)?

TMS

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 (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?

2. If yes, are results available for inspection?

3. Any significant results?

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

Records checked between:

01/03/2022 - 16/08/23

12
N
Y
Y
Y
Y
N/A
Y
bulker lorry
Y
N
Y
,725),
N/A
N

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/Pool - click

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	1.6kg	1.6kg	1.6kg	1.6kg	1.6kg							
Sex	N/A	N/A	N/A	N/A	N/A							
Water Type	SW	SW	SW	SW	SW							
Stock Details	Stock Origin	Yetts O' Muckart FS0371	Ardtaraig Hatchery FS0648	Ardtaraig Hatchery FS0648	Ardtaraig Hatchery FS0648	Ardtaraig Hatchery FS0648						
	Facility No	5	7	8	9	12						

Case no: 2023-0360

Site No: FS0993

Method of killing: Percussive

Date of visit: 16/08/2023

Inspector(s):

Sheet Relevant: Y

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

Fish Number		F1	F2	F3	F4	F5				
Time sampled after death (if > 45 minutes)										
External Signs										
Behaviour	Moribund	S	S	S	S	S				
	Lethargic									
	Hanging vertical									
	Spiralling									
	Flashing									
Body	Loss of equilibrium									
	Dark		M	W	W	S				
	Distended abdomen	S								
	Anorexic		S	M	S	S				
Opercula	Scale Oedema	W								
	Shortened									
Haemorrhaging	Flared									
	Throat	W			W					
	Ventrum	W		W						
	Base of fins	W			W					
Eyes	Elsewhere									
	Exophthalmic	S	S	S	S	S				
	Enophthalmic (sunken)									
	Cataract			W						
Gills	Haemorrhagic				W					
	Pale	S	S	S	S	S				
	Zoned									
Lesions	Necrotic	M	W	M	S	M				
	Flank									
Vent	Elsewhere									
	Inflamed									
Lice Load	Trailing faeces									
	Estimate numbers	14	9	11	7	8				
Internal Signs										
Ascites	Clear	S			W					
	Bloody		W			W				
Oedema	In tissues									
Heart	Pale/anaemic	S	S	S	S	S				
	Granulomas									
Liver	Deformed									
	Petechial haem		W		W	M				
	Gross haem									
	Tissue breakdown									
	Enlarged		M		M	M				
Pyloric caeca	Colour number(s)				W					
	Granulomas									
	Lesions									
	Petechial haem					W				
Spleen	Tubules mauve									
	Lack of fat	S	W		W					
	Enlarged		M	M		S				
Gut	Granulomas					W				
	No food present				M					
	Yellow pseudo-faeces	M	M	M		M				
	External haem									
Body wall	Internal haem									
	Haemorrhaging									
Swim bladder	Haemorrhaging									
	Fluid filled									
Kidney	Swollen		M	M		W				
	Grey									
	Granular		M							
	Liquefied	W			W					
General	Parasites present									
	Anaemia									

Additional comments:

F1 very swollen and full of clear fluid in the body cavity.

F2 left eye had burst. White nodules very visible and widespread in kidney. White structures were noted in the heart of F2.

F4 white nodules observed on the liver and kidney.

F5 left eye had burst. White nodules observed on the spleen in addition to kidney.

Site No: FS0993
Case No: 2023-0360
Nature of non-compliance:
Action taken (FHI):
Non-compliance relevant to (delete): VirologyMolGen/Bacteriology/Histology/Parasitology

Case No: **2023-0360** Date of visit: **16/08/2023**
 Site No: **FS0993** Inspector: **[REDACTED]**

Results Summary	Freq.	Date of Notification						
		Database	Insp	Phone	Insp	Writing	Insp	2 nd Insp
MG_ISA	0/5	22/08/2023		22/08/2023		22/08/2023		
MG_IHNQ	0/5	22/08/2023		22/08/2023		22/08/2023		
MG_VHS	0/5	22/08/2023		22/08/2023		22/08/2023		
MG_BKD	4/5	22/08/2023		22/08/2023		22/08/2023		
MG_PARA_THER_Q	5/5	22/08/2023		22/08/2023		22/08/2023		
MG_AGDQ	1/5	22/08/2023		22/08/2023		22/08/2023		
MG_SAL_POX	2/5	22/08/2023		22/08/2023		22/08/2023		
MG_SAV	0/5	22/08/2023		22/08/2023		22/08/2023		
MG_IPN	1/5	22/08/2023		22/08/2023		22/08/2023		
MG_PMCV	3/5	22/08/2023		22/08/2023		22/08/2023		
MG PRV	1/1	25/08/2023		25/08/2023		25/08/2023		
Yersinia ruckeri (ERM) - YRUK	1/5	30/08/2023		30/08/2023		30/08/2023		
No significant bacteria (culture) - NSIG	2/5	30/08/2023		30/08/2023		30/08/2023		
BKD Renibacterium salmoninarum (histo) - RSBA	5/5	30/08/2023		30/08/2023		30/08/2023		
Gill pathology - GPAT	5/5	30/08/2023		30/08/2023		30/08/2023		
Heart pathology - HPAT	5/5	30/08/2023		30/08/2023		30/08/2023		
Liver pathology - LPAT	3/5	30/08/2023		30/08/2023		30/08/2023		
Kidney pathology - KPAT	5/5	30/08/2023		30/08/2023		30/08/2023		
Skin pathology - SKIN	4/4	30/08/2023		30/08/2023		30/08/2023		
Salmonid alphavirus (SAV) (histology) - SALH	5/5	30/08/2023		30/08/2023		30/08/2023		

Report Summary			
Case Type	Date	Insp	2 nd Insp
REP, STI	25/08/2023		
DIA	07/09/2023		



FISH HEALTH INSPECTORATE VISIT REPORT

SUMMARY FOR INFORMATION OF SITE OPERATOR

BUSINESS No	FB0095	DATE OF VISIT	16/08/2023
SITE No	FS0993	SITE NAME	Chalmers Hope
CASE No	20230360	INSPECTOR	[REDACTED]

Section 1: Summary

The site was inspected following notification by the business of suspicion of the presence of bacterial kidney disease (BKD). Five fish were selected for diagnostic sampling.

Histopathological examination revealed features consistent with bacterial kidney disease (BKD), confirmed by qPCR. Some features resembled the presence of cardiomyopathy syndrome (CMS), also confirmed by qPCR. Although qPCR was negative for salmonid alphavirus (SAV), some features resembling SAV were observed. Some mild hyperplastic branchitis was also observed.

Infectious pancreatic necrosis (IPN), piscine reovirus, *Neoparamoeba perurans* (AGD), *Paranucleospora theridion*, and salmon gill poxvirus were all detected by qPCR.

Yersinia ruckeri was identified on plates taken from kidney material of fish 2. Although this is a primary fish pathogen the level and purity of growth would not suggest this bacterium would be implicated as the primary source 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

Chalmers Hope was inspected following notification by the business for the suspected presence of bacterial kidney disease (BKD) on the site. At the time of inspection, the site was stocked with 482,788 S0 (2022) Atlantic salmon at an average weight of 1.6kg, originating from both Ardtaraig Hatchery (FS0648) and Yetts O' Muckart (FS0371) and no mortality events exceeding the reporting threshold had been experienced at the site. The last mortality event that exceeded the reporting threshold was at the beginning of December 2022. All cages were inspected and mortalities and moribund fish were observed across the site, but were significantly higher in cages 7-12. Five moribund fish were removed from cages 5, 7, 8, 9 and 12 for diagnostic sampling.

All five fish were moribund and 4/5 fish were dark in colour. F1 had a distended abdomen, while F2-5 were anorexic. Scale pocket oedema was noted on F1. Haemorrhaging was observed in the eyes of F4 and cataracts were observed in the eyes of F3. The eyes of F2 and F5 had burst. All five fish had pale gills that were in varying stages of necrosis.

Internally, clear ascites was observed in F1 and F4, while bloody ascites was noted in F2 and F5. The hearts of all five fish were pale/anaemic. The livers of F2, 4 and 5 exhibited petechial haemorrhaging and were enlarged, while the liver of F4 was granular in texture.

Petechial haemorrhaging was observed in the pyloric caeca (PC) of F5 and there was an obvious lack of fat on the PC of F1, 2 and 4. The spleens of F2, 3 and 5 were enlarged and granulomas were also noted on the spleen of F5. No food was present in the gut of F4 and yellow pseudo-faeces were noted in the guts of F1, 2, 3 and 5. The kidneys were swollen in F2, 3 and 5 and were liquefied in F1 and 4. Granulomas were also observed on the kidney of F2.

Samples

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

Fish number	Facility number	Species	Stage	Origin
F1	5	Atlantic salmon	2022 S0	Yetts O' Muckart (FS0371)
F2	7	Atlantic salmon	2022 S0	Ardtaraig Hatchery (FS0648)
F3	8	Atlantic salmon	2022 S0	Ardtaraig Hatchery (FS0648)
F4	9	Atlantic salmon	2022 S0	Ardtaraig Hatchery (FS0648)
F5	10	Atlantic salmon	2022 S0	Ardtaraig Hatchery (FS0648)

Results

Bacteriology: Kidney and gill material from F1-5 were inoculated onto appropriate media for the isolation of bacteria.

The following bacterium was isolated:

- *Yersinia ruckeri* (Kidney: F2)

Tissue samples were tested for segments of nucleic acid indicative of the presence of the pathogens specified below:

Renibacterium salmonarum (BKD)

Fish Number	Endogenous control Cp value	Cp Values			Reported Result (PCR)
F1	-	-	-	-	Negative
F2	21.84	24.61	24.69	24.69	POSITIVE
F3	21.28	36.14	35.94	35.63	POSITIVE
F4	21.52	31.89	31.69	31.91	POSITIVE
F5	20.85	34.11	34.53	34.84	POSITIVE

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	21.70	33.90	33.64	34.74	POSITIVE
F2	20.63	40	38.24	40	POSITIVE
F3	-	-	-	-	Negative
F4	-	-	-	-	Negative
F5	-	-	-	-	Negative

Piscine myocarditis virus (CMS)

Fish Number	Endogenous control Cp value	Cp Values			Reported Result (PCR)
F1	16.23	20.79	20.84	20.72	POSITIVE
F2	16.36	25.28	25.23	25.33	POSITIVE
F3	18.24	34.07	35.74	34.15	POSITIVE
F4	-	-	-	-	Negative
F5	-	-	-	-	Negative

Infectious pancreatic necrosis (IPN)

Fish Number	Endogenous control Cp value	Cp Values			Reported Result (PCR)
F1	16.23	35.89	34.57	36.76	POSITIVE
F2	-	-	-	-	Negative
F3	-	-	-	-	Negative
F4	-	-	-	-	Negative
F5	-	-	-	-	Negative

Piscine reovirus (HSMI)

Fish Number	Endogenous control Cp value	Cp Values			Reported Result (PCR)
F3	22.15	33.16	34.33	33.99	POSITIVE

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

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	21.70	31.94	30.78	31.59	POSITIVE
F2	-	-	-	-	Negative
F3	-	-	-	-	Negative
F4	-	-	-	-	Negative
F5	-	-	-	-	Negative

Paranucleospora theridion

Fish Number	Endogenous control Cp value	Cp Values			Reported Result (PCR)
F1	21.70	28.94	29.09	28.92	POSITIVE
F2	20.63	31.20	30.85	31.13	POSITIVE
F3	22.32	36.98	36.56	37.09	POSITIVE
F4	22.63	36.04	35.17	35.78	POSITIVE
F5	19.88	36.49	36.30	36.50	POSITIVE

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

Histopathological examination revealed the following:

Gill: Lamellar hyperplasia, mild, multifocal to diffuse (F1, F2, F3, F5) with necrosis (F2). Focal to multifocal granulomatous inflammation (F2, F4). One plankton-like structure between two filaments (F2). Clusters of basophilic nuclei at the tips of few filaments (F4). Aneurysmal dilation/telangiectasia (F1, F2) and lamellar congestion (F1).

Skin & Muscle: Skeletal red muscle myositis, mild to moderate, multifocal (F3, F4) and skeletal white muscle myositis, mild, multifocal (F3). Granuloma-like structure at the red-white muscle interface (F2, F3). F1: Skin not present.

Heart: Myocarditis, minor, multifocal (F1-F5). Granulomatous inflammation, multifocal, mild (F2, F3, F4) and foci with marked presence of Gram-positive bacteria (F2). Epicarditis (F1, F2, F3, F4). F2, F4: No atrium present.

Gut and pyloric caeca: Reduced abdominal adipose tissue (F1, F3, F4), granulomatous peritonitis (F2, F3, F4, F5).

Pancreas: Small foci of acinar necrosis (F2).

Liver: Granulomatous hepatitis, mild, multifocal (F1, F2, F4), cuffing (F1, F4).

Kidney: Interstitial cell (haemopoietic) necrosis, mild, multifocal (F1, F2, F5), granulomatous nephritis (F2, F3, F4, F5). Few renal tubules with hyaline droplets (F5).

Spleen: Capsulitis (F5).

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

Website - www.gov.scot/Topics/marine/science



Signed:

Date: 07/09/2023

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 \(www.gov.scot\)](https://www.gov.scot/resources/consultations-petitions/ip/ip-2023-0001/fish-health-inspectorate-service-charter-2023-0001.pdf)



FISH HEALTH INSPECTORATE VISIT REPORT

SUMMARY FOR INFORMATION OF SITE OPERATOR

BUSINESS No	FB0095	DATE OF VISIT	16/08/2023
SITE No	FS0993	SITE NAME	Chalmers Hope
CASE No	20230360	INSPECTOR	██████████

Statutory Inspection

The above site was inspected following notification for the suspected presence of bacterial kidney disease (BKD).

All epidemiological units were inspected and samples were taken for diagnostic purposes. A separate report will be issued detailing the results of these tests.

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



Signed:

Date: 25/08/2023

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

F1 -

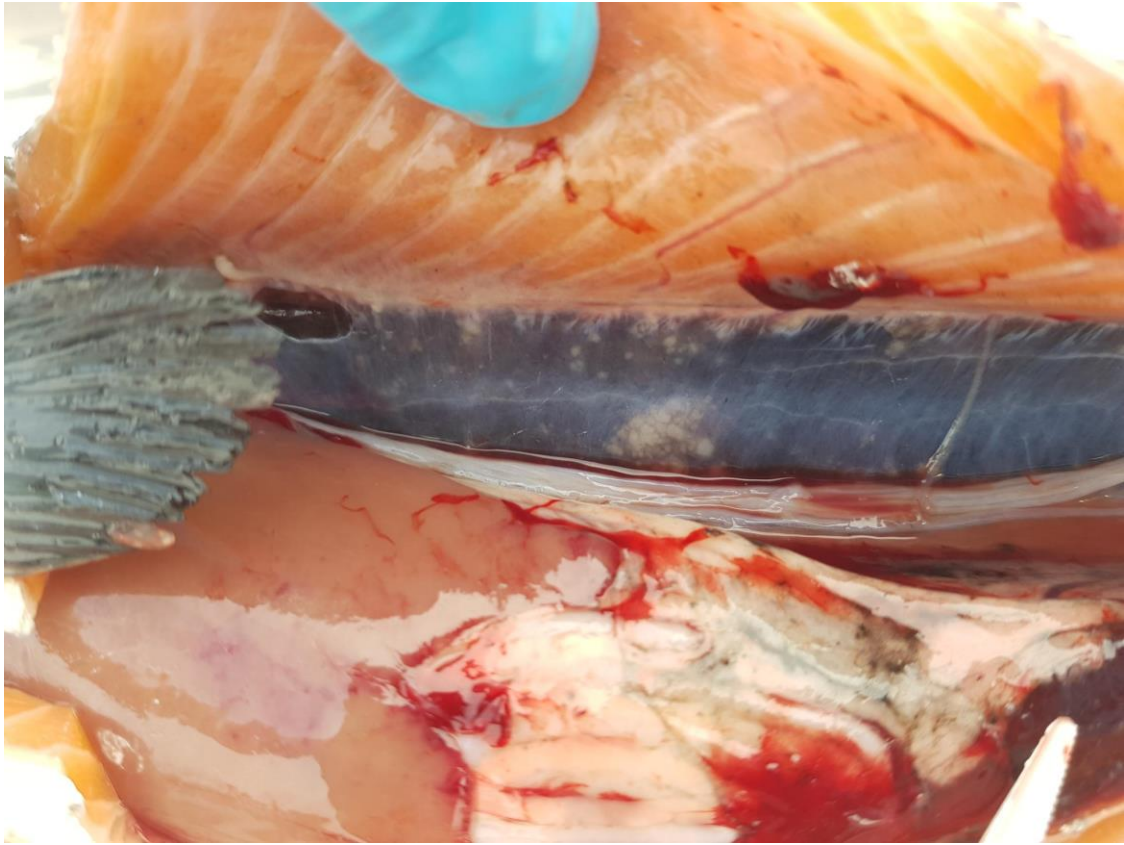




F2 -







F3 -





F4 –





F5 -



