

Case No: 2021-0056 Date of visit: 08/07/2021

Time spent on site: 4.5Hrs Main Inspector:

Site No: FS1240 Site Name: Highland
Business No: FB0544 Business Name: Scotland

Case Types: 1 DIA 2 3 4 5 6

Water Temp (°C): 15 Thermometer No: Site FHI 045 completed

Observations: Region: HI Water type: B 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? 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:

Sampling conducted following reports of red skin disease on the Berridale Water.

The Berridale Water splits in two near the A9 bridge, fish were collected from both the Berridale Water (ND118226) and the Langwell Water (ND118226). Large number of dead were observed prior to sampling and a number of moribund also observed. The moribund had varying degrees of fungus. 5 moribund were sampled, with additional samples taken for IMR from fish 1.

It was reported that of the 200 spring run fish, approximately 50% had signs of red skin disease and have been lost. It was also reported that the fish are entering the river with signs of red skin disease.

It was reported that the river had experienced issues for last few years

Site thermometer used due to T153 not working.

Contact - [REDACTED]

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	4Kg	4Kg	4Kg	4Kg	4Kg	4Kg						
Sex	N/A	N/A	N/A	N/A	N/A	N/A						
Water Type	FW	FW	FW	FW	FW	FW						
Stock Details		Langwell water	Langwell Water	Langwell Water	Berriedale Water	Langwell Water	Langwell Water / Berriedale Water					
	Stock Origin											
Facility No	N/A	N/A	N/A	N/A	N/A	N/A						

Case no: **2021-0056** Site No: **FS1240** Method of killing: **Percussive**
 Date of visit: **08/07/2021** 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)			1.5	1.5						
External Signs										
Behaviour	Moribund	S	S	S	S	S				
	Lethargic									
	Hanging vertical									
	Spiralling									
	Flashing									
	Loss of equilibrium									
Body	Dark									
	Distended abdomen									
	Anorexic									
	Scale Oedema									
Opercula	Shortened									
	Flared									
Haemorrhaging	Throat									
	Ventrum	S	M	S	S	S				
	Base of fins	S	S	S	S	M				
	Elsewhere	W	M	S		M				
Eyes	Exophthalmic									
	Enophthalmic (sunken)									
	Cataract									
	Haemorrhagic									
Gills	Pale									
	Zoned									
	Necrotic									
Lesions	Flank	M		M	M					
	Elsewhere		M							
Vent	Inflamed	S	S	S	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			W	M					
	Tissue breakdown									
	Enlarged									
	Colour number(s)	4	4	6	6	4				
	Granulomas									
	Lesions									
Pyloric caeca	Petechial haem			M						
	Tubules mauve									
	Lack of fat									
Spleen	Enlarged	W	W	W	W	W				
	Granulomas									
Gut	No food present									
	Yellow pseudo-faeces									
	External haem									
	Internal haem									
Body wall	Haemorrhaging									
Swim bladder	Haemorrhaging	W								
	Fluid filled									
Kidney	Swollen									
	Grey									
	Granular									
	Liquefied									
General	Parasites present	W								
	Anaemia									

Additional comments:

F1 Anisakis present in low numbers

F2 - Lesion on head of fish and haemorrhaging between dorsal fin and adipose fin. Damage to head

Site No: FS1240

Case No: 2021-0056

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	FB0544	DATE OF VISIT	08/07/2021
SITE No	FS1240	SITE NAME	Berridale and Langwell Water
CASE No	20210056	INSPECTOR	██████████

Section 1: Summary

An inspection was conducted at Berridale following reports of dead and moribund wild Atlantic salmon (*Salmo salar*) being observed in the Berridale Water and Langwell Water. Five fish were caught by hand net and removed for further examination and subsequent diagnostic sampling. Four fish from Berridale Water (ND118226) and one fish from Langwell Water (ND118226).

Histopathology examination revealed mixed pathology. Three fish displayed mild bacterial branchitis, few epitheliocystis in one fish and two fish exhibited apoptotic cells resembling salmon gill poxvirus lesions and two fish displayed fungal-like dermatitis (likely *Saprolegnia*). F3 had a mild, focal, myositis. Few parasites also seen within the intestinal lumen. Salmon gill pox virus was confirmed in F1 by a positive qPCR result.

F1, F2 and F4 had a moderate infestation with *Anisakis* sp., whilst F5 had a heavy infestation.

Although the bacteria identified below can be primary or secondary fish pathogens the overall mixed nature of growth does not suggest that these bacteria are primary pathogens 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

The Berridale Water (ND118226) and Langwell Water (ND118226) were inspected following reports of large numbers of deceased and moribund Atlantic salmon. All five fish were moribund in different pools along the rivers and were caught by hand net. All five fish displayed haemorrhaging along the ventral surface and base of fins. Fish one, three and four displayed various lesions along the flanks, with fish one also displaying lesions on the head. All five fish also exhibited inflamed vents.

Internally fish three and four displayed gross haemorrhaging on the liver and fish three displayed petechial haemorrhaging on the pyloric caeca. All five fish had enlarged spleens and fish one displayed haemorrhaging on the swim bladder.

Samples

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

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Fish number	Pool number	Species	Stage	Origin
F1 – F3 & F5	P1	Atlantic salmon	Wild / 4 kg	Wild – Langwell Water
F4	P1	Atlantic salmon	Wild / 4 kg	Wild – Berriedale Water

Results

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

The following bacteria were isolated from fish sampled;

Pseudomonas fluorescens was identified on plates taken from spleen material of fish 5, lesion material of fish 1 and 4, and gill of fish 2, 3, 4 and 5.

Pseudomonas putida was identified on plates taken from kidney material of fish 1, 2, 4 and 5, spleen material of fish 1 and 2 and lesion material of fish 1, 2 and 4.

These were the predominant bacteria observed on these plates.

Aeromonas sp. which most closely matched the phenotypic characteristics of *Aeromonas sobria* was identified on plates taken from kidney of all fish and lesion material of fish 1, 2 and 4.

Yersinia ruckeri was identified on plates taken from gill material of fish 1, 3, 4 and 5

Aeromonas sp. which most closely matched the phenotypic characteristics of *Aeromonas hydrophila* was identified on plates taken from lesion material of fish 1, 2 and 4.

Flavobacterium psychophilum was identified on plates taken from spleen of fish 4 and 5.

An isolate which matched the phenotypic characteristics of *Mycobacterium* sp. was identified as *Curtobacterium* sp. by sequencing, this bacterium is not known to be a fish pathogen.

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 pox virus

Fish Number	Endogenous control Cp value	Cp Values			Reported Result (PCR)
F1	18.72	24.94	25.15	25	POSITIVE

The samples tested negative for infectious haematopoietic necrosis virus (IHNV), infectious pancreatic necrosis virus (IPNV), 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.

White/cream coloured fungal mycelium consisting of non-branching, aseptate hyphae and sporangia was observed on all fins. This is consistent with *Saprolegnia* sp. Microscopically, very

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

few hyphae were branched and may represent a co-infection. A sample of mycelium was referred to molgen for further testing.

Anisakid worms, fluorescent under UV transillumination, were observed free in the musculature around the vent of all 4 fish. This is consistent with *Anisakis* sp. F1, 2, 4 had a moderate infestation while F5 had a heavy infestation.

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 following histopathological changes were observed:

Gill: Very mild multifocal hyperplasia and lamellar fusion (F1), presence of debris among gill filaments with bacteria associated (F1, F2). Presence of aggregates of Gram-negative bacteria free among the lamellae and colonizing the lamellar surface. The bacteria showed affinity to the hypertrophic chloride cells (F1, F2, F3). Presence of apoptotic cells shedding off (F2 & F3). Few small basophilic epithelial inclusions (likely epitheliocystis) (F2). F2 also exhibited two free protistan parasites (resembling *Trichodina* ciliates).

Skin & Muscle: Lesion displayed absence of epidermal layer and the upper layer of dermis exhibited a focal area with matt of hyphae (resembling Saprolegnia), dermis exhibited a minimal infiltration of inflammatory cells and the hypodermis displayed foci of infiltration of inflammatory cells and haemorrhage (F1) and a layer of dark pigmentation underneath dermal layer (F2). Mild focal inflammatory cell infiltration and few scattered hyphae-like rings (resembling Saprolegnia) noted in dermis (F1). F3 displayed a focal area of cellular inflammation on the white skeletal muscle and degeneration of several isolated myofibrils of white skeletal muscle.

Heart: Bulbus of F1 displayed high numbers of eosinophilic granular cells.

Gut and pyloric caeca: Cestode (F1) and trematode parasite (F1, F3, F4) within the intestinal lumen.

Pancreas: Within normal range.

Liver: Within normal range.

Kidney: Mild dilation of the lumen of renal tubules (F2).

Spleen: Slightly congested.

Signed:

Date: 12/12/22

Fish Health Inspector

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/>

R09

Case No: 2021-0261 Date of visit: 21/07/2021

Time spent on site: 30 Mins Main Inspector: [Redacted]

Site No: FS0802 Site Name: Kirkabister
Business No: FB0095 Business Name: Cooke Aquaculture Scotland Ltd

Case Types: 1 REG 2 [] 3 [] 4 [] 5 [] 6 []

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

Observations: Region: SH Water type: S CoGP MA: S-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:

Site fallow since previous inspection. 10 cages on site, no nets on cages. One new cage due to go to sites in Unst, with the remaining cages being older cages from Unst that are being stored on Kirkabister.

Unsure of future stocking plans for site.



FISH HEALTH INSPECTORATE VISIT REPORT

SUMMARY FOR INFORMATION OF SITE OPERATOR

BUSINESS No	FB0095	DATE OF VISIT	21/07/2021
SITE No	FS0802	SITE NAME	Kirkabister
CASE No	20210261	INSPECTOR	[REDACTED]

The above site was inspected in accordance with the Aquatic Animal Health (Scotland) Regulations 2009.

On this occasion, the site was found to be fallow. The future stocking plans for site were unknown at time of inspection. Please ensure that a biosecurity measures plan and appropriate records are maintained in accordance with the authorisation granted to operate at the site and contact us if the site is to be restocked in the future.

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

[REDACTED]

Signed:

Date: 12/12/22

Fish Health Inspector

The Fish Health Inspectorate Service Charter detailing standards of service is available on the Marine Scotland website at www.gov.scot/Topics/marine/Fish-Shellfish/FHI/charter