

Case No:	2023-0371	Date of visit:	23/08/2023			
Time spent on site:	4h	Main Inspector:				
Site No:	FS0134	Site Name:	Glenkens			
Business No:	FB0134	Business Name:	Kames Fish Farming Ltd			
Case Types:	1 REG	2 DIA	3 REP	4	5	6
Water Temp (°C):	16.2	Thermometer No:	T173	FHI 045 completed		
Observations:	Region:	DG	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?	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:						
water temperature too high and ECI not due until next year						

**Additional Case Information:**

Site inspected following reports of increased mortality due to PKD and RTFS. Mortalities had been relatively low since the last inspection however in week 29 mortalities became elevated and have remained high since.

Peaks in mortality: week 29 2477 (1.59%), wk 30 5709 (2.29%), wk 31 2811 (0.92%), wk 32 12768 (4.3%), wk 33 17717 (6.28%) wk 34 (to 22/8/2023) 6197 (2.29%).

Site will fallow all but one pen in May 2024. One pen used for restocking loch.

Kilcalmonell stock received for the first time and are the only stock affected by the PKD.

2023 stock treated for RTFS with florocol, this has been confirmed as effective but PKD still an issue

Site is being morted three times a day, on inspection of pens double digit mortality was observed on some pens. Numerous fish were lethargic with distended abdomens. Five fish were removed for diagnostic sampling.

The site is now being used for the supply of stock to Kames sea sites as well as to the local angling club in the loch.

Case No: 2023-0371 Site No: FS0134

Date of Visit: 23/08/2023

Inspector(s):

**Registration/Authorisation Details**

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

y
y

**Site Details (include cleaner fish for all sections)**

Total No facilities	19	Facilities stocked	10	No facilities inspected	19
Species	RTR	RTR	RTR		
Age group	2023	2022	2020		
No Fish	259,551	5,700	128		
Mean Fish Wt	50g	962g	3.7kg		
Next Fallow Date (Site)	on-going cycle		Next Input Date (Site)	no plans currently	
Recent (last 4 wks) disease problems?			y	Any escapes (since last visit)?	N
If yes, detail:	PKD and RTFS				

**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?

Y
12/10/2021
Y
N/A
N/A
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?

Y
Y

**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:

Incinerated - on site

see additional comments

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:

Kames fish health manager contacted, samples sent to Esox laboratory PKD RTFS identified,

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)?	<input type="checkbox"/>	Y
If yes, detail:	florocol	
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)?	florocol	
If other, detail:		
6. Are medicines stored appropriately?	<input type="checkbox"/>	Y

**Biosecurity Records**

1. Biosecurity records available for inspection?	<input type="checkbox"/>	Y
2. Has the manner and frequency of mortality removal, recording and safe disposal been considered?	<input type="checkbox"/>	y
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"/>	y
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"/>	y
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"/>	y
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"/>	y
7. Is documentation available regarding the measures in place to maintain the physical containment of aquaculture animals held on site?	<input type="checkbox"/>	y
8. Have the biosecurity procedures been adequately implemented on site?	<input type="checkbox"/>	y
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).	as above PKD and RTFS	

Records checked between:	12/10/2021 to 23/8/2023
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Case no: 2023-0371 Site No: FS0134 Date of visit/ Sampling: 23/08/2023 23/08/2023

Priority samples: VI BA PA MG HI

Time sampling starts/ends: 15:00:00 16:30:00 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

	Pool/Fish No	F1	F2	F3	F4	F5							
	Fish nos	1	2	3	4	5							
	Pool Group	P1	P1	P1	P1	P1							
Stock Details	Species	RTR	RTR	RTR	RTR	RTR							
	Average weight	60g	60g	60g	60g	60g							
	Sex	N/A	N/A	N/A	N/A	N/A							
	Water Type	FW	FW	FW	FW	FW							
		Kilcalmonell	Kilcalmonell	Kilcalmonell	Kilcalmonell	Kilcalmonell							
	Stock Origin												
	Facility No	14	14	14	8	8							

08/2023 Additional Sample Information:

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5

Total Tests assigned

4

[illegible]

Case no: 2023-0371

Site No: FS0134

Method of killing: Percussive

Date of visit: 23/08/2023

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	S	S	S	S	S								
	Anorexic													
	Scale Oedema													
Opercula	Shortened					W								
	Flared													
Haemorrhaging	Throat													
	Ventrum													
	Base of fins													
	Elsewhere													
Eyes	Exophthalmic	W	W	W	W	W								
	Enophthalmic (sunken)													
	Cataract													
	Haemorrhagic													
Gills	Pale	S	S	S	S	S								
	Zoned													
	Necrotic													
Lesions	Flank													
	Elsewhere													
Vent	Inflamed													
	Trailing faeces													
Lice Load	Estimate numbers													
Internal Signs														
Ascites	Clear	S	S	S	S	S								
	Bloody													
Oedema	In tissues													
Heart	Pale/anaemic	W	W	W	W	M								
	Granulomas													
	Deformed					S								
Liver	Petechial haem													
	Gross haem													
	Tissue breakdown													
	Enlarged													
	Colour number(s)													
	Granulomas													
	Lesions													
Pyloric caeca	Petechial haem													
	Tubules mauve													
	Lack of fat													
Spleen	Enlarged	W	W	W	W	W								
	Granulomas													
Gut	No food present													
	Yellow pseudo-faeces					S								
	External haem													
	Internal haem													
Body wall	Haemorrhaging													
Swim bladder	Haemorrhaging													
	Fluid filled													
Kidney	Swollen	S	S	S	S	S								
	Grey	S	S	S	S	S								
	Granular	M	M	M	M	M								
	Liquefied													
General	Parasites present													
	Anaemia													

Date of visit: 23/08/2023

Fish Number										
Time sampled after death (if > 45 minutes)										
External Signs										
Behaviour	Moribund									
	Lethargic									
	Hanging vertical									
	Spiralling									
	Flashing									
	Loss of equilibrium									
Body	Dark									
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Opercula	Shortened									
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Haemorrhaging	Throat									
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	Base of fins									
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Gills	Pale									
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Vent	Inflamed									
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Lice Load	Estimate numbers									
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Ascites	Clear									
	Bloody									
Oedema	In tissues									
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	Deformed									
Liver	Petechial haem									
	Gross haem									
	Tissue breakdown									
	Enlarged									
	Colour number(s)									
	Granulomas									
	Lesions									
Pyloric caeca	Petechial haem									
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Body wall	Haemorrhaging									
Swim bladder	Haemorrhaging									
	Fluid filled									
Kidney	Swollen									
	Grey									
	Granular									
	Liquefied									
General	Parasites present									
	Anaemia									



Additional comments:

Case Number:	2023-0371	Site No:	FS0134	Insp:	
Date of Visit	23/08/2023	No of movements/supp./dest.			Score
<b>Live fish movements</b>		<b>0</b>	<b>1-5</b>	<b>6-10</b>	<b>&gt;10</b>
Movements on (from out with GB) of susceptible species	Frequency of movements on from equivalent MS	0	5	10	14
	Frequency of movements on from equivalent zone or compartment including third country	0	9	18	26
	Number of suppliers	0	5	10	14
Movements off	Frequency of movements off	0	3	6	10
	Number of destinations	0	3	6	10
<b>Exposure via water</b>	<b>Site contacts</b>	<b>0</b>	<b>1-5</b>	<b>6-10</b>	
Water contacts with other farms (holding species susceptible to same diseases)	Farm is protected (secure water supply through disinfection or borehole)	0			
	Farm is on-line or in a coastal zone with category I farms upstream or within 1 tidal excursion	1	2	4	1
	Farm is on-line or in a coastal zone with category III farms upstream or within 1 tidal excursion	1	3	6	
	Farm is on-line or in a coastal zone with category V farms upstream or within 1 tidal excursion	1	4	8	
<b>Management practices</b>		<b>None</b>	<b>Secure</b>	<b>Unsecure</b>	
Water contacts with processors	Any processing plant discharging into adjacent waters	0	1	2	0
On farm processing within the rules of the directive	No on farm processing	0			0
	Processing own fish (re-cycling risk)	1			
	Processing fish from MS of equivalent status	2			
	Processing fish from zone or compartment of equivalent status	4			
	Processing fish from Category III farm	8			
	Processing fish from Category V farm	10			
Disposal of fish and fish by-products	Site's own waste only processed.	0			0
	Common processes with other farms	3			
	Collection point for waste from other farms	5			
Use of unpasteurised feeds	No feeding of unpasteurised feed	0			0
	Feeding unpasteurised feed	5			
<b>Biosecurity</b>	<b>Number of sites</b>	<b>1</b>	<b>2 or 3</b>	<b>≥ 4</b>	
Contacts with other sites	Sites operating from single shorebase	0	1	2	1
	Sites sharing staff and equipment	0	1	2	
Disinfection of equipment between sites, use of footbaths etc	Yes	0			0
	No	1			
<b>CoGP/Regulator</b>					
Practices in accordance with regulator or industry code of practice	Yes	0			0
	No	3			
Platform access to cages	Yes	0			0
	No	2			
				<b>Total Rank</b>	<b>15</b>
					<b>LOW</b>

Case No:

2023-0371

Site No:

FS0134

**Sea Lice Inspection (Seawater Sites Only)**

1. Has the site experienced sea lice problems in the previous 4 years? ☐
2. Is the CoGP Farm Management Area (or equivalent) fallowed synchronously on a single year class basis? ☐
3. Does the site have access to a range of licenced in-feed and bath sea lice medications (including deltamethrin, azamethiphos and emamectin benzoate) as well as access to suitable biological and/or mechanical control measures, and can these be deployed in a reasonable period of time? ☐
4. Is there a signed documented farm management agreement or statement relevant to the site and CoGP Farm Management Area (or equivalent)? ☐
5. Are sea lice count records available for inspection? (Legal SSI, CoGP Annex 6) ☐
6. Do records adequately reflect the required standard specified in the SSI and the CoGP? (Legal SSI, CoGP Annex 6) ☐
7. Are sea lice (*L. salmonis*) record levels below the suggested criteria for treatment in the CoGP during the period that records are inspected? (CoGP Annex 6) ☐
8. Have average adult female sea lice (*L. salmonis*) numbers per fish been at a level of 3 or above (prior to w/b 10/6/19) or 2 or above (from w/b 10/6/19) during the period that records are inspected? ☐
- If yes, have these been reported to the Fish Health Inspectorate? If no, FHI see comment. ☐
9. Is *C. elongatus* infestation at a level which is considered to cause significant welfare problems? (CoGP 4.3.81, 5.3.50) ☐
10. Have therapeutic treatments been administered or other actions taken when *L. salmonis* levels have exceeded the suggested criteria for treatment or where *C. elongatus* is considered to have welfare implications? (CoGP 4.3.82, 5.3.51) ☐
11. Has any other action been taken (where applicable)? ☐
12. Have therapeutic treatments or the actions taken had a significant impact upon the lice levels recorded? ☐
13. Are treatments, where conducted, carried out in cooperation between participating farms? ☐
14. Is there a harvesting strategy for the site, where fewer populations or part populations are held without treatment for sea lice? ☐
15. Is there a site specific written lice management procedure with waypoints describing set actions to deal with recognised scenarios during the escalation of a sea lice infestation? ☐
16. Do the sea lice levels observed on stocks reflect sea lice count data? If no please detail reasons. ☐

**Containment Inspection**

1. Has the site experienced equipment damage due to predators in the current or previous production cycles? ☐ N
2. Are measures in place to mitigate against the predation experienced on site? (Detail below) ☐ Y
- electric fence for otters bird nets, tensioned nets, anti predator nets (on the top two meters three panels of net)
- If other, detail below: ☐
3. Have escape incidents or events been experienced on or in the vicinity of the site since the last FHI inspection? ☐ N
- If Yes proceed with questions 4 – 9. If No skip to question 10
4. Have these been reported to Scottish Ministers? ☐
5. Have these been reported to local DSFB forthwith (where they exist)? (CoGP – 4.4.37, 5.4.17) ☐
6. Have these been reported to the SSPO and local fisheries trusts forthwith (where they exist)? (CoGP – 4.4.37, 5.4.17) ☐
7. Were methods (if any) used to recover escapees? If yes give detail ☐
8. If gill nets were deployed was this action agreed with local wild fish interests and was permission given by Scottish Ministers? (Legal, CoGP – 4.4.38, 5.4.18) ☐
9. What action was taken to prevent and minimise the risk of further escapes? (Not covered in code but could be considered under satisfactory measures of the Act) ☐
10. Is the site inspected as satisfactory with regards to containment? If no, please detail reason(s) ☐

Inspector: [REDACTED]

[illegible]




# FISH HEALTH INSPECTORATE VISIT REPORT

## SUMMARY FOR INFORMATION OF SITE OPERATOR

**BUSINESS No** FB0134  
**SITE No** FS0134  
**CASE No** 20230371

**DATE OF VISIT** 23/08/2023  
**SITE NAME** Glenkens  
**INSPECTOR** [REDACTED]

### Section 1: Summary

This site was inspected following reports of increased mortality occurring at the site, five moribund fish were removed from the pens for further examination and subsequent diagnostic sampling.

Histopathology examination revealed pathology consistent with proliferative kidney disease (PKD) which was confirmed from kidney imprints and PCR testing positive for *Tetracapsuloides bryosalmonae*.

*Pseudomonas fluorescens* was identified, the level and purity of growth would likely not suggest this bacterium would be implicated as the primary cause of morbidity.

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 site was inspected following reports from the business of significant elevated mortalities occurring, samples taken by the business had identified PKD as the cause. On inspection of the site lethargic, moribund and dead fish were observed, five fish were removed for diagnostic sampling.

Externally all fish were moribund and lethargic with distended abdomens, pale gills, with mild exophthalmia; the opercula of F5 was slightly shortened.

Internally all fish had clear ascites, splenomegaly, swollen grey granular kidneys and also pale hearts; which was also deformed in F5. Yellow pseudo faeces was also present in F5.

#### Samples

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

Fish number	Facility number	Species	Stage	Origin
1-3	14	Rainbow trout	2023 @50g	Kilcalmonell
4-5	8	Rainbow trout	2023 @50g	Kilcalmonell

## Results

**Bacteriology:** Kidney and spleen material from F1-F5 were inoculated onto appropriate media for the isolation of bacteria.

The following bacteria were isolated:

- *Pseudomonas fluorescens* (spleen F1 and F2)

Tissue samples were tested for the presence of *Renibacterium salmoninarum* (the causative agent of bacterial kidney disease (BKD)) and *Flavobacterium psychrophilum* (the causative agent of rainbow trout fry syndrome RTFS), the result of these tests were negative.

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

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.

Kidney imprints were taken to test for the presence of for *Tetracapsuloides bryosalmonae*, the causative agent of PKD. *Tetracapsuloides bryosalmonae* was identified in F1, F2, F3 and F5.

Tissue samples were tested for segments of nucleic acid indicative of the presence of the *Tetracapsuloides bryosalmonae* using real-time PCR (qPCR).

### *Tetracapsuloides bryosalmonae*

Fish Number	Endogenous control Cp value	Cp Values			Reported Result (PCR)
F1	21.30	21.38	21.62	21.53	POSITIVE
F2	20.90	18.85	18.78	18.75	POSITIVE
F3	20.83	20.25	20.26	20.17	POSITIVE
F4	20.62	18.90	18.92	18.95	POSITIVE
F5	20.10	20.54	20.78	20.51	POSITIVE

**Histology:** Tissue samples of gill, skin and skeletal muscle, heart, pyloric caeca, pancreas, hind gut, liver, spleen and were taken from F1-F5. The tissue samples were fixed in 10% neutral buffered formalin.

Histopathological examination revealed the following:

Gill: Hyperplasia lamellar branchitis, some to mild, multifocal observed in all fish. F5 displayed foci of necrosis and F4 an occasional ciliate parasite.

Skin & Muscle: Myosites, mild, multifocal with few structures consistent with *Tetracapsuloides bryosalmonae*. F3 and F4 also displayed mild to moderate epidermal spongiosis.

Heart: Some minor, multifocal myocarditis (F1, F5) with foci of necrosis (F5).

Gut and pyloric caeca: Within normal range.

Pancreas: Within normal range.

Liver: Hepatitis, mild, multifocal (F1, F3, F4, F5), hepatocellular necrosis with structures consistent with *Tetracapsuloides bryosalmonae*, mild, multifocal, (F2). Hepatocellular vacuolation (macrovesicles), diffuse, mild (F1-F5).

Kidney: Interstitial cell (haemopoietic) necrosis, severe, diffuse observed in all fish. Several structures consistent with *Tetracapsuloides bryosalmonae* also observed.

Spleen: Necrotizing splenitis, focal to diffuse, mild to moderate observed in all fish. Several structures consistent with *Tetracapsuloides bryosalmonae* also observed.

Signed:pp



Date: 03/10/2023

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 \(www.gov.scot\)](https://www.gov.scot/resources/documents/2023/03/Fish_Health_Inspectorate_Service_Charter.pdf)