

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: ST Water type: S CoGP MA: M-36

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:

Business notified FHI regarding the increased unexplained mortalities since wk 22 2023. Report of mortality noted that fish may be experiencing gill issues as a result of low DO in the loch.

During site inspection, pen 6 and 8 were noted as pens experiencing the highest mortality on site. Mortalities have only been affecting smaller fish on site; larger and passively graded fish have not been experiencing any issues. Interestingly, pens on the side closer to the shore were more affected. Only one moribund fish was observed and sampled for diagnostic testing. Fin damage on some fish were observed in pens 6, 8, 7, 10. In addition, no lesions or gross pathology was observed. Pens experiencing increased mortality have been put either on starve or partial starve to reduce stress.

Data loggers have been deployed on site to monitor temperature and DO levels. DO dropped to a minimum of 78% overnight from 06/06 to 07/06.

Two year classes stocked on site; 2021 and 2022 with fish from Rocks Lodge and Kinnaird Mill Trout, respectively. Both stocks since input have been doing well, with low mortality recorded, until wk 22 2023.

Fish removed from pen 7 for diagnostic sampling - stock origing: Kinnaird Mill Trout. Input to site on 14/4/2023.

Mortalities on site have been removed via the fover system; has been very effective. Daily removals occuring.

Case No: **2023-0247** Site No: **FS1101**

Date of Visit: **07/06/2023** 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 | 10 | Facilities stocked | 9 | No facilities inspected | 10 |
| Species | RTR | RTR | | | |
| Age group | 2021 | 2022 | | | |
| No Fish | 145,974 | 244,069 | | | |
| Mean Fish Wt | 2.6kg | 767g | | | |
| Next Fallow Date (Site) | June 2024 | | Next Input Date (Site) | July 2024 | |
| Recent (last 4 wks) disease problems? | | | Any escapes (since last visit)? | Y | |
| If yes, detail: | increased unexplained mortalities observed in smaller fish on site - see mortality records section for details; site has notified that a hole was discovered in pen 6, which has since been repaired (MSe310523RTR1). | | | | |

Movement Records

1. Movement records available for inspection? **Y**

2. Date of last inspection: **21/03/2023**

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? **Y**

Transport Records

1. Are any movements carried out by (or on behalf) of the business (not using a STB)? **[REDACTED]**

If yes, is there a system in place for maintenance of transportation records? **[REDACTED]**

Mortality Records

1. Mortality records available for inspection? **Y**

2. How are mortalities disposed of? **Biogas - Barkip**

If other detail: **whole fish is put into skip, billy bowie and then taken away (usually monthly), go to barkip biogas**

3. Mortality records complete and correctly entered? **Y**

4. Recent mortality (last 4 wks): **2023: Wk22, 12030, 2.99%; Wk21, 67, 0.02%; Wk20, 2567, 0.65%; Wk19, 375, 0.10%**

5. Evidence of recent increased/atypical mortalities? **Y**

If yes, facility nos/no mortality per facility/no stock per facility/reason: **Pens with smaller fish experiencing increased unexplained mortality - pen 8, 6 in particular**

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? **Y**

If yes, detail action: **see point 5 in mortality records and additional information**

8. Have 'mortality events' been reported to FHI? If no, enter details on mortality events sheet. **Y**

| Treatments and Medicines Records | |
|--|----------------------|
| 1. Recent treatments (see comment)? | N |
| If yes, detail: <input type="text"/> | |
| If other, detail: <input type="text"/> | |
| 2. Medicines records available for inspection? | Y |
| 3. Are records complete and correctly entered? | Y |
| 4. Are fish in a withdrawal period? | N |
| 5. If yes, what treatment(s)? | <input type="text"/> |
| If other, detail: <input type="text"/> | |
| 6. Are medicines stored appropriately? | Y |
| Biosecurity Records | |
| 1. Biosecurity records available for inspection? | <input type="text"/> |
| 2. Has the manner and frequency of mortality removal, recording and safe disposal been considered? | <input type="text"/> |
| 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="text"/> |
| 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="text"/> |
| 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="text"/> |
| 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="text"/> |
| 7. Is documentation available regarding the measures in place to maintain the physical containment of aquaculture animals held on site? | <input type="text"/> |
| 8. Have the biosecurity procedures been adequately implemented on site? | <input type="text"/> |
| If no, detail: <input type="text"/> | |
| Results of Surveillance | |
| 1. Has any animal health surveillance been carried out by, or on behalf of, the business? | Y |
| 2. If yes, are results available for inspection? | Y |
| 3. Any significant results? | N/A |
| If yes, detail (if not detailed under recent disease problems). <input type="text" value="TBD"/> | |
| Records checked between: <input type="text" value="21/03/2023-07/06/2023"/> | |

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 | | | | | | | | | | | | |
| Fish nos | 1 | | | | | | | | | | | | |
| Pool Group | P1 | | | | | | | | | | | | |
| Species | RTR | | | | | | | | | | | | |
| Average weight | 767g | | | | | | | | | | | | |
| Sex | N/A | | | | | | | | | | | | |
| Water Type | SW | | | | | | | | | | | | |
| Stock Details | Stock Origin | Kinnaird Mill Trout (FS0508) | | | | | | | | | | | |
| | Facility No | 7 | | | | | | | | | | | |

06/2023 Additional Sample Information:

Total Tests assigned

| | | | | | | | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
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Case no: 2023-0247

Site No: FS1101

Method of killing: Percussive

Date of visit: 07/06/2023

Inspector(s):

Sheet Relevant: Y

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

| | | | | | | | | | | | | | | | | | | | | |
|--|------------------------------|---|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| Fish Number | | 1 | | | | | | | | | | | | | | | | | | |
| Time sampled after death (if > 45 minutes) | | | | | | | | | | | | | | | | | | | | |
| External Signs | | | | | | | | | | | | | | | | | | | | |
| Behaviour | Moribund | W | | | | | | | | | | | | | | | | | | |
| | Lethargic | M | | | | | | | | | | | | | | | | | | |
| | Hanging vertical | | | | | | | | | | | | | | | | | | | |
| | Spiralling | | | | | | | | | | | | | | | | | | | |
| | Flashing | | | | | | | | | | | | | | | | | | | |
| | Loss of equilibrium | | | | | | | | | | | | | | | | | | | |
| Body | Dark | W | | | | | | | | | | | | | | | | | | |
| | 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 | | | | | | | | | | | | | | | | | | | |
| Vent | Inflamed | M | | | | | | | | | | | | | | | | | | |
| | Trailing faeces | | | | | | | | | | | | | | | | | | | |
| Lice Load | Estimate numbers | 0 | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| Internal Signs | | | | | | | | | | | | | | | | | | | | |
| Ascites | Clear | | | | | | | | | | | | | | | | | | | |
| | Bloody | | | | | | | | | | | | | | | | | | | |
| Oedema | In tissues | | | | | | | | | | | | | | | | | | | |
| Heart | Pale/anaemic | | | | | | | | | | | | | | | | | | | |
| | Granulomas | | | | | | | | | | | | | | | | | | | |
| | Deformed | | | | | | | | | | | | | | | | | | | |
| Liver | Petechial haem | | | | | | | | | | | | | | | | | | | |
| | Gross haem | | | | | | | | | | | | | | | | | | | |
| | Tissue breakdown | | | | | | | | | | | | | | | | | | | |
| | Enlarged | | | | | | | | | | | | | | | | | | | |
| | Colour number(s) | 4 | | | | | | | | | | | | | | | | | | |
| | Granulomas | | | | | | | | | | | | | | | | | | | |
| | Lesions | | | | | | | | | | | | | | | | | | | |
| Pyloric caeca | Petechial haem | | | | | | | | | | | | | | | | | | | |
| | Tubules mauve | | | | | | | | | | | | | | | | | | | |
| | Lack of fat | | | | | | | | | | | | | | | | | | | |
| Spleen | Enlarged | M | | | | | | | | | | | | | | | | | | |
| | Granulomas | | | | | | | | | | | | | | | | | | | |
| Gut | No food present | S | | | | | | | | | | | | | | | | | | |
| | Yellow pseudo-faeces | M | | | | | | | | | | | | | | | | | | |
| | External haem | | | | | | | | | | | | | | | | | | | |
| | Internal haem | | | | | | | | | | | | | | | | | | | |
| Body wall | Haemorrhaging | | | | | | | | | | | | | | | | | | | |
| Swim bladder | Haemorrhaging | | | | | | | | | | | | | | | | | | | |
| | Fluid filled | | | | | | | | | | | | | | | | | | | |
| Kidney | Swollen | | | | | | | | | | | | | | | | | | | |
| | Grey | | | | | | | | | | | | | | | | | | | |
| | Granular | | | | | | | | | | | | | | | | | | | |
| | Liquefied | | | | | | | | | | | | | | | | | | | |
| General | Parasites present | | | | | | | | | | | | | | | | | | | |
| | Anaemia | | | | | | | | | | | | | | | | | | | |

Additional comments:

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|---|
| Site No: FS1101 |
| Case No: 2023-0247 |
| Nature of non-compliance: |
| Action taken (FHI): |
| Non-compliance relevant to (delete): VirologyMolGen/Bacteriology/Histology/Parasitology |



Case No: **2023-0247** Date of visit: **07/06/2023**
 Site No: **FS1101** Inspector: **[REDACTED]**

| Results Summary | Freq. | Date of Notification | | | | | | |
|-----------------|-------|----------------------|------|------------|------|------------|------|----------------------|
| | | Database | Insp | Phone | Insp | Writing | Insp | 2 nd Insp |
| AGDQ | 0/1 | 13/06/2023 | | 13/06/2023 | | 12/07/2023 | | |
| IHNP | 0/1 | 13/06/2023 | | 13/06/2023 | | 12/07/2023 | | |
| IPNM | 0/1 | 13/06/2023 | | 13/06/2023 | | 12/07/2023 | | |
| ISAQ | 0/1 | 13/06/2023 | | 13/06/2023 | | 12/07/2023 | | |
| PNST | 0/1 | 13/06/2023 | | 13/06/2023 | | 12/07/2023 | | |
| PMVP | 0/1 | 13/06/2023 | | 13/06/2023 | | 12/07/2023 | | |
| SPVP | 0/1 | 13/06/2023 | | 13/06/2023 | | 12/07/2023 | | |
| SALP | 0/1 | 13/06/2023 | | 13/06/2023 | | 12/07/2023 | | |
| VHSP | 0/1 | 13/06/2023 | | 13/06/2023 | | 12/07/2023 | | |
| VSPE | 1/1 | 21/06/2023 | | 21/03/2023 | | 12/07/2023 | | |
| GPAT | 1/1 | 12/07/2023 | | 12/07/2023 | | 12/07/2023 | | |
| SKIN | 1/1 | 12/07/2023 | | 12/07/2023 | | 12/07/2023 | | |
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| Report Summary | | | |
|----------------|------------|------|----------------------|
| Case Type | Date | Insp | 2 nd Insp |
| REP, DIAG | 12/07/2023 | | |
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FISH HEALTH INSPECTORATE VISIT REPORT

SUMMARY FOR INFORMATION OF SITE OPERATOR

| | | | |
|--------------------|----------|----------------------|------------------------|
| BUSINESS No | FB0456 | DATE OF VISIT | 07/06/2023 |
| SITE No | FS1101 | SITE NAME | Etive 3 (Port na Mine) |
| CASE No | 20230247 | INSPECTOR | ██████████ |

Section 1: Summary

The above site was inspected following a report of unexplained increased mortality, observed in pens stocked with smaller fish of younger year classes. During the physical inspection, one rainbow trout was removed for diagnostic sampling.

Histopathological examination revealed mild, multifocal gill hyperplasia.

Vibrio sp. was identified on plates taken from lesion material of the single fish taken and confirmed by histology by revealing features of focal, bacterial dermatitis. The level and purity of growth would suggest it is likely the primary source of the lesion but not the primary source 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

Following a report of increased unexplained mortality observed in pens stocked with smaller rainbow trout, a site inspection was conducted. During the site inspection, pen 6 and 8 were noted as pens experiencing the highest mortality, with fish weighing on average 750g. Larger and already passively graded fish were not experiencing any increased unexplained mortalities. Only one fish was found to be moribund; this fish was removed for diagnostic sampling pen 7. Fin damage was observed in some fish in pen 6, 7, 8, 10.

A mild inflamed vent was noted on the fish removed for sampling. In addition, the spleen of the fish was observed to be mildly inflamed and yellow pseudo-faeces was present.

Samples

Samples were collected from 1 fish according to the table below:

| Fish number | Facility number | Species | Stage | Origin |
|-------------|-----------------|---------------|-----------|------------------------|
| 1 | 7 | Rainbow Trout | 767g 2022 | Kinnaird Mill (FS0508) |

Results

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

The following bacteria were isolated from one fish:

- *Vibrio* sp. found in F1 (Lesion)

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), infectious salmon anaemia virus (ISAV), salmonid alphavirus (SAV), viral haemorrhagic septicaemia virus (VHSV), salmon gill poxvirus (SGPV), and piscine myocarditis virus (PMCV).

Parasitology:

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

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

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

Histopathological examination revealed the following:

Gill: Lamellar hyperplasia, mild, multifocal and some aneurysmal dilation/telangiectasia.

Skin & Muscle: Lesion F1: Bacterial (Gram negative bacteria) dermatitis with some haemorrhage, moderate, focal.

Heart: Several thrombi nests in the two cardiac chambers. A blood clot at the atrioventricular valve.

Gut and pyloric caeca: Moderate cell sloughing (potentially associated with post-mortem artefact).

Pancreas: Reading hindered by post-mortem artefact.

Liver: Within normal range.

Kidney: Foci of interstitial cell (haemopoietic) haemorrhage.

Spleen: Within normal range.

Brain: Not sampled.

Eye: Not sampled.



Signed:

Date: 12/07/2023

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/>

Diagnostic Sampling Photos: 20230247



Figure 1 Overall view of fish sampled. NB: scalpel for scale.



Figure 2 Picture of lesion sampled, found on the fin.



Figure 3 Picture of gills from sampled fish



Figure 4 Internal view of fish sampled.