

Case No: 2022-0527 Date of visit: 27/10/2022

Time spent on site: 2 hours Main Inspector: [Redacted]

Site No: FS0423 Site Name: Lamlash
Business No: FB0169 Business Name: The Scottish Salmon Company

Case Types: 1 REP 2 DIA 3 4 5 6

Water Temp (°C): 11 Thermometer No: T207 FHI 045 completed

Observations: Region: ST Water type: S CoGP MA: M-48

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:

Morts transported by Billy Bowie

WK 34 (FW Treatment, 2894 (0.62%) WK35 22,048 (6.22%), WK 36 35,108, (10.56%) WK37 - 36,959 12.34%.

2 different stocks on site, mortality consistent across the site.

Main issue on site has been gill health challenges, with one health report suggesting anaemia as well. Fresh water treatments have been conducted 20/08 9/10, 5/10/2022. Mortality has dropped after these, however it has risen again shortly afterwards.

Gills show moderate pathology, comprising lamellar inflammation, epithelial proliferation and vascular disturbances. Lesions are suggestive of a combination of factors, including infectious (*Desmozoon lepeophtherii*, *Ca. Branchiomonas cysticola*) and non-infectious (environment, handling) insults. No amoebae are detected, but some of the hyperplastic lesions present may reflect previous amoebic gill disease pathology.

Mild to moderate inflammatory pathology is noted in the heart sample; changes are suggestive of a viral infection, possibly piscine reovirus (PRV).

eDNA samples are currently being processed to find out which organisms are present in the water.

Very few (1-2) moribund fish observed. Fish which appeared externally healthy were seen congregating around air diffusers. These would frighten and scatter when approached.

Case No: Site No:

Date of Visit: Inspector(s):

Registration/Authorisation Details

1. Business/site details summary checked by site representative?

2. Changes made to details?

Site Details (include cleaner fish for all sections)

| | | | | | |
|---------------------------------------|---|-------------------------------------|--------------------------------|---|---------------------------------|
| Total No facilities | <input type="text" value="14"/> | Facilities stocked | <input type="text" value="8"/> | No facilities inspected | <input type="text" value="14"/> |
| Species | <input type="text" value="SAL"/> | <input type="text" value="WRA"/> | | | |
| Age group | <input type="text" value="2022 S1"/> | <input type="text" value="Mix"/> | | | |
| No Fish | <input type="text" value="187853"/> | <input type="text" value="12,554"/> | | | |
| Mean Fish Wt | <input type="text" value="1.354 Kg"/> | <input type="text" value="Mix"/> | | | |
| Next Fallow Date (Site) | <input type="text" value="July 2023"/> | | Next Input Date (Site) | <input type="text" value="Early 2024"/> | |
| Recent (last 4 wks) disease problems? | | | <input type="text" value="Y"/> | Any escapes (since last visit)? | <input type="text" value="N"/> |
| If yes, detail: | <input type="text" value="See additional information"/> | | | | |

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?

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?

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:

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:

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: | T.M.S. | |
| 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)? | T.M.S. | |
| If other, detail: | | |
| 6. Are medicines stored appropriately? | <input type="checkbox"/> | Y |

Biosecurity Records

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

| | |
|--------------------------|-------------------------|
| Records checked between: | 11/05/2021 - 27/10/2022 |
|--------------------------|-------------------------|

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 | | | | | | | | | | | | | |
| Fish nos | F1 | | | | | | | | | | | | |
| Pool Group | | | | | | | | | | | | | |
| Species | SAL | | | | | | | | | | | | |
| Average weight | 1.35 Kg | | | | | | | | | | | | |
| Sex | N/A | | | | | | | | | | | | |
| Water Type | SW | | | | | | | | | | | | |
| Stock Details | | Landcatch | | | | | | | | | | | |
| | Stock Origin | | | | | | | | | | | | |
| | Facility No | | 12 | | | | | | | | | | |

10/2022 Additional Sample Information:

| | |
|--|--|
| | |
|--|--|

Total Tests assigned

Case no: 2022-0527

Site No: FS0423

Method of killing: Percussive

Date of visit: 27/10/2022

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 | | | | | | | | | | | | | | | | | | | |
| | Distended abdomen | | | | | | | | | | | | | | | | | | | |
| | Anorexic | | W | | | | | | | | | | | | | | | | | |
| | Scale Oedema | | | | | | | | | | | | | | | | | | | |
| Opercula | Shortened | | | | | | | | | | | | | | | | | | | |
| | Flared | | | | | | | | | | | | | | | | | | | |
| Haemorrhaging | Throat | | | | | | | | | | | | | | | | | | | |
| | Ventrum | | | | | | | | | | | | | | | | | | | |
| | Base of fins | | | | | | | | | | | | | | | | | | | |
| | Elsewhere | | | | | | | | | | | | | | | | | | | |
| Eyes | Exophthalmic | | | | | | | | | | | | | | | | | | | |
| | Enophthalmic (sunken) | | | | | | | | | | | | | | | | | | | |
| | Cataract | | | | | | | | | | | | | | | | | | | |
| | Haemorrhagic | | | | | | | | | | | | | | | | | | | |
| Gills | Pale | | S | | | | | | | | | | | | | | | | | |
| | Zoned | | M | | | | | | | | | | | | | | | | | |
| | Necrotic | | | | | | | | | | | | | | | | | | | |
| Lesions | Flank | | S | | | | | | | | | | | | | | | | | |
| | Elsewhere | | | | | | | | | | | | | | | | | | | |
| Vent | Inflamed | | | | | | | | | | | | | | | | | | | |
| | 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 | | | | | | | | | | | | | | | | | | | |
| | Granulomas | | | | | | | | | | | | | | | | | | | |
| Gut | No food present | | | | | | | | | | | | | | | | | | | |
| | Yellow pseudo-faeces | | S | | | | | | | | | | | | | | | | | |
| | External haem | | | | | | | | | | | | | | | | | | | |
| | Internal haem | | | | | | | | | | | | | | | | | | | |
| Body wall | Haemorrhaging | | | | | | | | | | | | | | | | | | | |
| Swim bladder | Haemorrhaging | | | | | | | | | | | | | | | | | | | |
| | Fluid filled | | | | | | | | | | | | | | | | | | | |
| Kidney | Swollen | | | | | | | | | | | | | | | | | | | |
| | Grey | | | | | | | | | | | | | | | | | | | |
| | Granular | | | | | | | | | | | | | | | | | | | |
| | Liquefied | | | | | | | | | | | | | | | | | | | |
| General | Parasites present | | | | | | | | | | | | | | | | | | | |
| | Anaemia | | | | | | | | | | | | | | | | | | | |

Case no:

Date of visit:

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

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

Additional comments:

| | | | |
|----------|-----------|----------------|------------|
| Case No: | 2022-0527 | Date of visit: | 27/10/2022 |
| Site No: | FS0423 | Inspector: | |

| Results Summary | Freq. | Date of Notification | | | | | | |
|-----------------|-------|----------------------|------|------------|------|------------|------|----------------------|
| | | Database | Insp | Phone | Insp | Writing | Insp | 2 nd Insp |
| VSPE | 1/1 | 07/12/2022 | | 07/12/2022 | | 14/02/2024 | | |
| CGDH | 1/1 | 07/12/2022 | | 07/12/2022 | | 14/02/2024 | | |
| GPAT | 1/1 | 07/12/2022 | | 07/12/2022 | | 14/02/2024 | | |
| HPAT | 1/1 | 07/12/2022 | | 07/12/2022 | | 14/02/2024 | | |
| LPAT | 1/1 | 07/12/2022 | | 07/12/2022 | | 14/02/2024 | | |
| IPN | 0/1 | 07/12/2022 | | 07/12/2022 | | 14/02/2024 | | |
| ISA | 0/1 | 07/12/2022 | | 07/12/2022 | | 14/02/2024 | | |
| PMCV | 0/1 | 07/12/2022 | | 07/12/2022 | | 14/02/2024 | | |
| SAV | 0/1 | 07/12/2022 | | 07/12/2022 | | 14/02/2024 | | |
| VHS | 0/1 | 07/12/2022 | | 07/12/2022 | | 14/02/2024 | | |
| PARA_THER | 1/1 | 07/12/2022 | | 07/12/2022 | | 14/02/2024 | | |
| SAL_POX | 1/1 | 07/12/2022 | | 07/12/2022 | | 14/02/2024 | | |
| AGD | 1/1 | 07/12/2022 | | 07/12/2022 | | 14/02/2024 | | |
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| Report Summary | | | |
|----------------|------------|------|----------------------|
| Case Type | Date | Insp | 2 nd Insp |
| DIA | 14/02/2024 | | |
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FISH HEALTH INSPECTORATE VISIT REPORT

SUMMARY FOR INFORMATION OF SITE OPERATOR

| | | | |
|--------------------|----------|----------------------|------------|
| BUSINESS No | FB0169 | DATE OF VISIT | 27/10/2022 |
| SITE No | FS0423 | SITE NAME | Lamlash |
| CASE No | 20220527 | INSPECTOR | ██████████ |

Section 1: Summary

The above site was inspected following reports of increased mortality by the farm operator. During the inspection all pens were inspected and one fish was captured for diagnostic sampling.

Histopathology examination revealed mild gill pathology comprising multifocal, mild, branchitis associated with complex gill issues and potentially with water insults. Several epitheliocystis were also observed. Moderate myocardial degeneration and mild, multifocal, hepatic necrosis, mild necrotizing splenitis were also observed.

Due to gill health issues observed on site, the fish was also screened for *Paranucleospora theridion* (syn, *Desmozoon lepeophtherii*), and salmon gill poxvirus (SGPV), and *Neoparamoeba perurans*, the causative agent of AGD. The sample tested positive for all three pathogens.

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 above site was inspected following reports of increased mortality by the farm operator. In the four weeks leading to the inspection the site recorded 12,338 fish (5.05%), 34,964 fish (14.95%), 2668 fish (1.35%), and 4441 fish (2.28%) mortality.

During the inspection all pens were inspected, however there were very few moribund fish observed on the surface. One fish was able to be captured.

The fish was slightly moribund, lethargic, and anorexic. The gills were mildly pale, with areas of zoning. As well as this there was a small number of lesions on the flank of the fish. Internally, there were pseudo-faeces in the gut of the fish.

Samples

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

| Fish number | Pool number | Facility number | Species | Stage | Origin |
|-------------|-------------|-----------------|-----------------|--------------------|-----------|
| F1 | P1 | 12 | Atlantic salmon | 1.35 Kg 2022 S1 | Landcatch |

Results

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

The following bacteria were isolated:

Two separate *Vibrio* spp. were identified on plates taken from a single fish. Isolate A was predominant in plates taken from kidney and lesion material, isolate B was present on plates taken from kidney, lesion and gill material. Due to the spreading of these bacteria over the surface of the plates it is not possible to comment on the relevance of the level and purity of growth in this case.

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)

| Number | Endogenous control Cp value | Cp Values | | | Reported Result (PCR) |
|--------|-----------------------------|-----------|-------|-------|-----------------------|
| F1 | 18.68 | 25.51 | 25.47 | 25.45 | POSITIVE |

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

| Number | Endogenous control Cp value | Cp Values | | | Reported Result (PCR) |
|--------|-----------------------------|-----------|-------|-------|-----------------------|
| F1 | 18.68 | 34.87 | 34.35 | 35.21 | POSITIVE |

Paranucleospora theridion

| Number | Endogenous control Cp value | Cp Values | | | Reported Result (PCR) |
|--------|-----------------------------|-----------|-------|----|-----------------------|
| F1 | 18.68 | 21.13 | 21.13 | 21 | POSITIVE |

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

Histopathological examination revealed the following:

Gill: Some filament tip bluntness and hyperplasia, filament branchitis and necrosis, mild multifocal, several basophilic epithelial inclusions (likely epitheliocystis), presence of cell debris and bacteria among gill filaments.

Skin & Muscle: Partial absence of epidermis, cellular inflammation and presence of rod-shaped bacteria on the outer layer of dermis, mild.

Heart: Musculature vacuolation, multifocal, moderate. Some endocardial thickness.

Gut and pyloric caeca: Within the normal range.

Pancreas: Within the normal range.

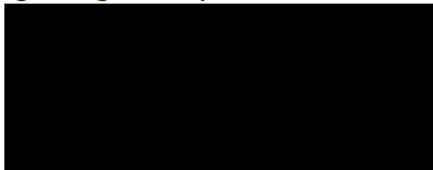
Liver: Hepatocellular necrosis, mild multifocal.

Kidney: Within the normal range.

Spleen: Foci of cellular necrosis, mild, multifocal, some cuffing.

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

Signed:



Date: 14/02/2024

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/>