

| | | | | | | |
|---|--------------------------|--|--------------------|-------------------|---------|------|
| Case No: | 2022-0578 | Date of visit: | 17/11/2022 | | | |
| Time spent on site: | 7 Hours | Main Inspector: | | | | |
| Site No: | FS0805 | Site Name: | Bagh Dail Nan Cean | | | |
| Business No: | FB0119 | Business Name: | Mowi Scotland Ltd | | | |
| Case Types: | 1 DIA | 2 REP | 3 | 4 | 5 | 6 |
| Water Temp (°C): | 11.2 | Thermometer No: | Site | FHI 045 completed | | |
| Observations: | Region: | ST | Water type: | S | CoGP MA | M-40 |
| Dead/weak/abnormally behaving fish present? | <input type="checkbox"/> | If yes, see additional information/clinical score sheet. | | | | |
| Clinical signs of disease observed? | <input type="checkbox"/> | If yes, see additional information/clinical score sheet. | | | | |
| Gross pathology observed? | <input type="checkbox"/> | If yes, see additional information/clinical score sheet. | | | | |
| Diagnostic samples taken? | <input type="checkbox"/> | | | | | |

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

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

Additional Case Information:

21/10 - gill treatment started and mortality started to flare up.

Stoffinfisker and Aquagen on site, both have experienced similar levels of mortality. Recent mortalities on site have been attributed to complex gill issues, Rickettsia and Moritella. Mortality is constant across the whole site, however pens 6, 9, and 3 appear to be worst affected.

Cleaner fish mortality - LUM - 182,756 - 100% main cause has been flavovirus - 86,614 mortalities recorded. <100,000 not recorded.

Wrasse mortality - 31,484 Since input across the site. Background mortality.

Additional information on lumpfish mortalities -

During the inspection it was found that the site had suffered 100% mortalities of their lumpfish since input. Of these 86,614 were recorded with cause and around 100,000 had not been recorded. This has been referred to the Animal and Plant Health Agency, as they have responsibility for welfare. As ~100,000 mortalities of lumpfish were not recorded, these were not reported to the FHI, or the company vet.

Only 3 cages inspected on site due to timing constraints.

Site thermometer used as case inspector's was unavailable.

Paperwork conducted by [REDACTED], observed by [REDACTED], Diagnostic sampling carried out by [REDACTED], supervised by [REDACTED].

Case No: **2022-0578** Site No: **FS0805**
 Date of Visit: **17/11/2022** Inspector(s): **[REDACTED]**

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 | 12 | Facilities stocked | 10 | No facilities inspected | 3 |
| Species | SAL WRA | | | | |
| Age group | 22 Q2 Mix | | | | |
| No Fish | 620,730 68,853 | | | | |
| Mean Fish Wt | 1.755 Kg 60 - 80g | | | | |
| Next Fallow Date (Site) | Aug 2023 | Next Input Date (Site) | Apr 2024 | | |
| Recent (last 4 wks) disease problems? | | Y | Any escapes (since last visit)? | | N |
| If yes, detail: | Rickettsia, Moritella, and CGD | | | | |

Movement Records

- 1. Movement records available for inspection?
- 2. Date of last inspection: **12/11/2021**
- 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? **Whole fish - Dundas Chemicals**
- If other detail:
- 3. Mortality records complete and correctly entered?
- 4. Recent mortality (last 4 wks): **WK45 - 126650 (12.66%) WK 44 53309 (4.21%) WK 43 44046 (3.36%) WK42 48,657 (3.58%)**
- 5. Evidence of recent increased/atypical mortalities?
- If yes, facility nos/no mortality per facility/no stock per facility/reason:

See additional information

- 6. Any other peaks in mortality during period checked?
- If yes, detail: **Lumpfish mortality as described in additional information**
- 7. Have increased (unexplained) mortalities been reported to vet or FHI?
- If yes, detail action: **See additional information**
- 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)? Y

If yes, detail: Florfenicol,
H2O2,
T.M.S.

If other, detail: _____

2. Medicines records available for inspection? Y

3. Are records complete and correctly entered? Y

4. Are fish in a withdrawal period? Y

5. If yes, what treatment(s)? T.M.S

If other, detail: Florfenicol

6. Are medicines stored appropriately? Y

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? Y

2. If yes, are results available for inspection? Y

3. Any significant results? Y

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

Records checked between: 12/11/2021 - 17/11/2022

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 | 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 | | | | | | | |
| Average weight | 1.75kg | 1.75kg | 1.75kg | 1.75kg | 1.75kg | | | | | | | |
| Sex | N/A | N/A | N/A | N/A | N/A | | | | | | | |
| Water Type | SW | SW | SW | SW | SW | | | | | | | |
| Stock Details | | Inchmore | Inchmore | Inchmore | Inchmore | Loch Lochy | | | | | | |
| | Stock Origin | | | | | | | | | | | |
| Facility No | 6 | 6 | 9 | 9 | 3 | | | | | | | |

Case no: 2022-0578

Site No: FS0805

Method of killing: Percussive

Date of visit: 17/11/2022

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) | | | | 30 | 60 | 90 | | | | |
| External Signs | | | | | | | | | | |
| Behaviour | Moribund | W | W | W | W | W | | | | |
| | Lethargic | | | | | | | | | |
| | Hanging vertical | | | | | | | | | |
| | Spiralling | | | | | | | | | |
| | Flashing | | | | | | | | | |
| | Loss of equilibrium | | | | | | | | | |
| Body | Dark | | | | | | | | | |
| | Distended abdomen | | | | | | | | | |
| | Anorexic | | | | | | | | | |
| | Scale Oedema | | | | | | | | | |
| Opercula | Shortened | | | | | W | | | | |
| | Flared | | | | | | | | | |
| Haemorrhaging | Throat | | | | | | | | | |
| | Ventrum | | | | | | | | | |
| | Base of fins | | | | | | | | | |
| | Elsewhere | | | | | | | | | |
| Eyes | Exophthalmic | | | | | | | | | |
| | Enophthalmic (sunken) | | | | | | | | | |
| | Cataract | | | | | | | | | |
| | Haemorrhagic | | | | | | | | | |
| Gills | Pale | | | | | | | | | |
| | Zoned | | | | | | | | | |
| | Necrotic | | | | | | | | | |
| Lesions | Flank | | | | W | W | | | | |
| | Elsewhere | | | | | | | | | |
| Vent | Inflamed | | | | | | | | | |
| | Trailing faeces | | | | | | | | | |
| Lice Load | Estimate numbers | 1 | 0 | 0 | 0 | 0 | | | | |
| Internal Signs | | | | | | | | | | |
| Ascites | Clear | S | | | S | | | | | |
| | 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 | | M | M | | S | | | | |
| | External haem | | | | | | | | | |
| | Internal haem | | | | | | | | | |
| Body wall | Haemorrhaging | | | | | | | | | |
| Swim bladder | Haemorrhaging | | | | | | | | | |
| | Fluid filled | | | | | | | | | |
| Kidney | Swollen | | | | | | | | | |
| | Grey | | | | | | | | | |
| | Granular | | | | | | | | | |
| | Liquefied | | | | | | | | | |
| General | Parasites present | | | | | | | | | |
| | Anaemia | | | | | | | | | |

Additional comments:

Gills were all very bloody due to percussive blow

Site No: FS0805

Case No: 2022-0578

Nature of non-compliance:

Action taken (FHI):

Non-compliance relevant to (delete): VirologyMolGen/Bacteriology/Histology/Parasitology

AMENDED FISH HEALTH INSPECTORATE VISIT REPORT

SUMMARY FOR INFORMATION OF SITE OPERATOR

| | | | |
|--------------------|----------|----------------------|--------------------|
| BUSINESS No | FB0119 | DATE OF VISIT | 17/11/2022 |
| SITE No | FS0805 | SITE NAME | Bagh Dail Nan Cean |
| CASE No | 20220578 | INSPECTOR | [REDACTED] |

This report replaces the fish health report R09 issued on 30/01/2023 by [REDACTED]. The previous report should be discarded. The comments on the report have been deleted.

Section 1: Summary

The above site was inspected following reports of increased mortality by the farm operator. During the inspection of the worst affected pens, five fish were removed for diagnostic sampling.

Histopathology examination revealed moderate to marked hyperplastic branchitis. Epitheliocystis (likely *Ca. Branchiomonas cysticola*) and amoebic gill disease (AGD) were observed. Some gill lesions could also be associated with environmental factors. Mild peritonitis (potentially associated with vaccine administration) and mild, multifocal hepatic necrosis were also observed.

All five fish tested positive for salmon gill poxvirus, *Paranucleospora theridion* and *Neoparamoeba perurans* (amoebic gill disease (AGD)). F1, F2 and F5 tested positive for *Piscirickettsia salmonis* (SRS).

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 three weeks of increased mortality notifications above the reporting threshold which began at 3.36% and peaked at 12.66% in the third week, a site inspection was conducted and diagnostic samples taken for analysis.

Mortality removal had occurred in the morning before visual inspection of the site occurred. During inspection of the site very few moribund fish were observed. The vast majority of fish were seen shoaling approximately 2m below the water surface. Only slow moribund fish at the water surface or just below were able to be caught.

All fish sampled were moribund. F5 had a shortened opercula and F4 and F5 had small lesions on their flank. A *Caligus* was observed on F1 but no lice were observed on F2-F5.

R09

During internal examination, F1 and F4 contained clear ascites. Yellow pseudo-faeces was present in F2, F3 and F5.

Samples

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

| Fish number | Facility number | Species | Stage | Origin |
|-------------|-----------------|-----------------|----------------|------------------|
| 1-2 | 6 | Atlantic Salmon | 1.76kg 2022 Q2 | Inchmore Aquagen |
| 3-4 | 9 | Atlantic Salmon | 1.76kg 2022 Q2 | Inchmore Fanad |
| 5 | 3 | Atlantic Salmon | 1.76kg 2022 Q2 | Fanad |

Results

Bacteriology: Kidney and gill material from F1-5 and lesion material from F4 were inoculated onto appropriate media for the isolation of bacteria.

No growth was observed on plates taken from kidney material. The two predominant bacterial colonies observed on plates taken from gill material of all 5 fish were both identified as *Vibrio* spp. The level and purity of the growth observed would not suggest they would be implicated in morbidity and are likely to be of environmental origin.

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

Piscirickettsia salmonis (SRS)

| Fish Number | Endogenous control Cp value | Cp Values | | | Reported result |
|-------------|-----------------------------|-----------|------|-----|-----------------|
| 1 | 19.97 | >40 | >40 | >40 | POSITIVE |
| 2 | 20.15 | 38.41 | >40 | >40 | POSITIVE |
| 3 | - | - | - | - | NEGATIVE |
| 4 | - | - | - | - | NEGATIVE |
| 5 | 20.35 | 37.16 | 37.1 | 37 | 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

| Fish Number | Endogenous control Cp value | Cp Values | | | Reported result |
|-------------|-----------------------------|-----------|-------|-------|-----------------|
| 1 | 21.54 | 26.67 | 26.74 | 26.78 | POSITIVE |
| 2 | 20.93 | 31.08 | 31.17 | 30.9 | POSITIVE |
| 3 | 21.53 | 25.12 | 24.81 | 25.1 | POSITIVE |
| 4 | 20.79 | 26.82 | 26.86 | 26.76 | POSITIVE |
| 5 | 20.36 | 27.88 | 27.68 | 27.73 | POSITIVE |

R09

Tissue samples tested negative for the presence of infectious haematopoietic necrosis virus (IHNV), infectious pancreatic necrosis virus (IPNV), infectious salmon anaemia virus (ISAV), viral haemorrhagic septicaemia virus (VHSV) 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).

Neoparamoeba perurans (AGD)

| Fish Number | Endogenous control Cp value | Cp Values | | | Reported result |
|-------------|-----------------------------|-----------|-------|-------|-----------------|
| 1 | 21.54 | 28.05 | 28.25 | 28.21 | POSITIVE |
| 2 | 20.93 | 28.83 | 28.9 | 28.82 | POSITIVE |
| 3 | 21.53 | 27.67 | 27.57 | 27.35 | POSITIVE |
| 4 | 20.79 | 27.74 | 27.54 | 27.77 | POSITIVE |
| 5 | 20.36 | 25.03 | 24.92 | 25.09 | POSITIVE |

Paranucleospora theridion

| Fish Number | Endogenous control Cp value | Cp Values | | | Reported result |
|-------------|-----------------------------|-----------|-------|-------|-----------------|
| 1 | 21.54 | 26.31 | 26.37 | 26.34 | POSITIVE |
| 2 | 20.93 | 27.08 | 26.8 | 26.96 | POSITIVE |
| 3 | 21.53 | 28.58 | 28.62 | 28.65 | POSITIVE |
| 4 | 20.79 | 25.05 | 25.08 | 25.07 | POSITIVE |
| 5 | 20.36 | 20.87 | 21.11 | 21.17 | POSITIVE |

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

Histopathological examination revealed the following:

Tissues from 5 Atlantic salmon were examined by light microscopy. The following histopathological changes were observed:

Gill: Filament hyperplasia and lamellar fusion moderate to marked, multifocal, filament branchitis, mild, multifocal (F1-F5) and haemorrhage and inflammatory cell infiltration (F4, F5). Presence of several amoeboid cells resembling *Neoparamoeba perurans* observed in all fish and few basophilic epithelial inclusions (likely epitheliocystis) (F1-F5). Lamellar telangiectasia with multifocal thrombosis and free blood among gill filaments (F1-F5). F1 displayed among gill filaments some structures resembling plankton.

Skin & Muscle: Mild, multifocal dermatitis (F4, F5).

Heart: Some small foci of cell infiltration (F2, F3, F5). Mild epicarditis (F2).

Gut and pyloric caeca: Peritonitis, mild (F2, F3, F5), cell sloughing (potentially associated with post-mortem artefacts) (F4, F5).

Pancreas: Within the normal range.

R09

Liver: Hepatocellular necrosis, mild, multifocal (F1, F3, F5). Some cuffing (F2), some diffuse hepatocellular vacuolation (macrovisicules) (F2).

Kidney: Renal tubules with hyaline droplets (F2, F4 & F5).

Spleen: Peritonitis, mild (F5). Some cuffing (F4, F5), slightly congested (F2).

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

Signed:



Date: 07/02/2023

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/>