Scottish Government

Animal Health and Welfare Act (Scotland) 2006

Animal & Plant Health Agency

	Initial	Date
Assessment		
US resolved		
Further Action		

Fish Farm Welfare Inspection Report

General details (Refer to Guidance at end of this report form)

1.Work Schedule number		2. Date of Visit	22/10/20
3. CPH	FFMC01 - CPH 68/167/8002		
4. Name and address (headquarters)	Scottish Sea Farms Limited, Laurel House Laurelhill Business Park Stirling Scotland, Postcode FK7 9JQ		
5. Site Location	Scallastle farm site Sound of Mull Postcode PA65 6BH		
6. Site Type (Salt or Fresh water)	Seawater	7. Type of fish	Atlantic Salmon
8. Visit Type	complaint	9. Target date	N/A- depopulated
10. Background of complaint (if applicable)	Complaint by email sent by [redacted] Please keep this report confidential and do not share my name or my organisation's name with the farm, company or anyone else. We will also not be able to tell you who filmed and sent in this footage as they do not wish to be connected to this report and so asked us to make this contact on their behalf		
11. Name and contact details of company/private veterinarian:	[redacted]		

12. Has the company veterinarian been contacted before the visit? Yes ☒ No ☐

13. Who was present at visit?

Remote on line inspection: site empty at the time of inspection.

[redacted] Scottish sea Farm.

[redacted] _Scottish Sea Farm.

[redacted], Marine Scotland_Senoior [redacted]

[redacted] : APHA [redacted]

14. Background and nature of visit

Sea water site: production of Atlantic salmon.
Licence number CAR/L/1010606/C1/V7,
Max licensed biomass on site (tonnes): 2000
Recorded in June 2020: 1259 tonnes.
Production cycle started in Feb 2019, with 425.655 Atlantic Salmon, 35.077 Ballan Wrasse introduced on wk 19 and 36.309 Lumpfish from wk 52. Site gradually depopulated since early summer 2020, and fully depopulated by October 2020.Biomass on site checked for all the production cycle: no issue detected.
APHA visits the farm quitte regularly for ABP inspection: issue related to ABP incinerator not reaching required temperature detected during routine inspection in summer 2017: minor non compliance finally rectified on 28/11/17.
APHA recived a welfare complain for the site and Spelvie site at same time:General good health was noticed at Scallastle with no major issues identified apart from detected issues with lice that were under veterinary treatment.
Analysis of picture sent:
- Sea lice infestation: by the picture provided it's not possible to make any valuation on the extent of this infestation across the farm. APHA will consider actions taken on the group (monitoring/action/outcome).
- Damaged fish: this looks the consequences of an attack from predator(s), likely a seal. This has been investigated with analysis of predator policy and records.

15. Assurance schemes

BRC Food
Label Rouge
Freedom Food (RSPCA monitored)

16. List enterprises which were inspected at this visit and record details of any non-compliance in the appropriate section overleaf.

Enterprise Type	No of fish present	No of fish inspected	No of fish on which action was taken	Overall assessment for enterprise *(compliant or non-compliant)*
Atlantic Salmon	0	0	0	c
Wrasse	0	0	0	c
lumpfish	0	0	0	c

17. Welfare Compliance Levels:

- Record further information including details of any non compliant enterprise
- Record the enterprise code and whether compliant or non-compliant for each enterprise for each issue.

Record overall compliance or non-compliance score for each issue

Enterprise Types	Atlantic salmon	Wrasse	Lumpfish					
Staffing STF	[redacted]	[redacted]	[redacted]					[redacted]
Inspection INS	[redacted]	[redacted]	[redacted]					[redacted]
Disease treatment DIS	[redacted]	[redacted]	[redacted]					[redacted]
Records REC	[redacted]	[redacted]	[redacted]					[redacted]
Housing HOU	N/A	N/A	N/A					N/A
Environment ENV	[redacted]	[redacted]	[redacted]					[redacted]
Equipment EQP	[redacted]	[redacted]	[redacted]					[redacted]
Freedom of Movement	[redacted]	[redacted]	[redacted]					[redacted]
Feed FDW	[redacted]	[redacted]	[redacted]					[redacted]
Mutilations MUT	[redacted]	[redacted]	[redacted]					[redacted]
Breeding Procedures BRE	[redacted]	[redacted]	[redacted]					[redacted]
Compliant or non-compliant	c	c	c					c

18. Findings/comments

Sea lice presence has been detected and monitored along the production cycle by the farm. PVS has referred that the site had a challenge in spring /summer 2020 as result of the elevated harmful algal bloom seen in the region. The harmful algae embedded into the gills of fish causing damage which, if not fatal, will prevent treatment action (included the one approved for sea lice), reducing oxigen level available. Action plan can only be to reduce the stocking density, and the site has been always stocking under approved capacity, splitting the pens timely and harvesting often (62 time for the 16 cages in total). This early harvesting have occurred also to mitigate a second health challenge detected: CMS suspected on clinical sign on week 35 2020, confirmed following Laboratory investigation and Histopathology. Cardiomyopathy syndrome is a severe disease affecting the heart of infected fish and characterized by prolonged periods of low-level mortalities (Brun et al. 2003). PVS has referred that lice treatment at this stage are going to be more damaging as stressful time for the fish. This is confirmed in scientific literature: during sea lice bath treatments, mortalities can be

significantly elevated and considered due to the clinical and pathological effects of the CMS as stressful events (Kongtorp et al. 2006). Several harvesting have mitigate the lack of treatment available.

Records are solid and able to show constant monitoring of the sea lice presence, with treatment action as soon as this was possible (see below) and culling when required. According to the PVS, this was a good production cycle with challenging situation due to the algal bloom, but at any time health and welfare was supervised. Weekly meeting with the farm management were in place. PVS refers that in his professional experience the farm was managing correctly the health and the welfare of the fish. Good awerage growing figures provided can confirm this: there is a constant progress noticed in the growing records (in grams): Jan to Dec 2019:: 94, 131, 196, 233, 373, 562, 692, 914, 1368, 1768, 2305, 2786. Jan to Sept 2020: 3375, 3968, 4465, 4784, 5068, 5638, 6397, 6712; in September 6681:It ha sbeen explained that the average weight of fish on site is expected to decrease at the end of a cycle as pens with larger size fish are harvested first to allow the smaller sized fish to continue to grow to their potential.

Fish health monitoring sampling history available, as records of mechanical treatment/Medicine used when possible as multisystem approach are all action taken by the farm timely: records checked and verified in line with increased mortality data recorded by fish Health Inspector (only those above 1% were required to be reported to FHI (regular levels 0.1% - 0.2%).

Week 45 2019 – 1620 (0.44%)Week 50 2019 – 2379 (0.66%)Week 05 2020 – 1801 (0.3%)Week 06 2020 – 2327 (0.67%)Week 12 2020 – 1025 (0.3%)Week 16 2020 – 1934 (0.6%)Week 17 2020 – 1441 (0.45%)Week 25 2020 – 1006 (0.52%)Week 36 2020 - 569 (1.16%)Week 37 2020 – 437 (1.04%)Week 39 2020 – 529 (2.25%)Week 40 2020 – 194 (1.17%)Week 41 2020 – 215 (1.87%)Week 42 2020 – 55 (1.2%)

Medicine treatment (whole site): Slice Vet: 25/3/19, 10/05/19, 1/7/19- Salmosan: 7/7/19 Paramove50 29/08/19 - Slice vet 17/9/19.

Mecanical treatment- specified for pen: Thermolycer 4/10/19 pen6; 4/11/19 pen 14; 9/11/19 pen 8; 20/12/19 pen 1; Hydrolicer: 19/4/20 pen 4; SFI 11/5/20 pen 4; 20/7/20 pen1; 7/8/20 pen4; 18/8/20 pen1

Attach from predators. This issue is verified and match with timing of picture sent by the informant and records provided by the farm (increaase of seal activity around the farm recorded in October 2020). Acoustic deterrent authorised in place, (REFERENCE NUMBER: 20/01057/MFF) and net tension checked for damage and tension adjusted.

19. Action

No APHA action required

Follow up with on site visit at next production cycle will be schedule.

20. Conclusions and recommendations	In general, managing fish farms has become more challenging in the past few years, with higher water temperatures and an increase in the incidences of algal blooms. This is reported into the recent scientific articles and it has occured also for other sites in Scotland this year. The site has invested in recent time into cleaner fish and mechanical treatment to remove sea lice in balance with responsible access to medicines as part of a multi-faceted strategy. All records provided are showing that appropriate action were taken to respond promptly to the challenges occurred during the production cycle in order to prevent deterioration of the welfare of the animals under care. The site staff detected fish Health issue, consulted the PVS, and took proportionated action required, included culling and treatment available (mechanical and medicine) when possible. Good records kept are able to satisfy the APHA investigation, also on the actions required related to safeguard from predators. On site visit will be request for next production site as follow up."

21. Unnecessary suffering present?	Yes ☐	No ☒	
22. Date unnecessary suffering resolved (if applicable)	N/A	How was unnecessary suffering resolved?	N/A

Inspectors Signature		Date	22/11/2020
Name in BLOCK LETTERS	[redacted]	Grade	[redacted]
APHA office	APHA Perth, Strathearn House, Broxden Business Park, Lamberkine Drive, Perth, PH1 1RX.	MF Follow Up visit (if applicable)	next production cycle-summer 2021

DATA PROTECTION
For information on how we handle personal data please go to www.gov.uk and search Animal and Plant Health Agency Personal Information Charter.

APHA is an Executive Agency of the Department for Environment, Food and Rural Affairs and also works on behalf of the Scottish Government, Welsh Government and Food Standards Agency to safeguard animal and plant health for the benefit of people, the environment and the economy.

Welfare of Farmed Fish

Completion of the Inspection Report (WF152)

The Work Schedule number can be found on Sam, work schedules for the visit will be created by the Scottish Customer Delivery Team.

Visit Type - Complaint or Routine visit

It can be helpful to speak to the vets involved in the site prior to visit as they can provide invaluable information and may wish to be present at the visit.

Background and nature of the visit - include details on the background of the site (regular numbers, cycles, fallow periods, detail cage numbers and sizes etc) as much information regarding the site as possible.

Assurance schemes - list all assurance schemes the sites belong to. It can be helpful to note dates and findings of previous inspections if known.

Enterprise type:

- detail all species of fish on the farm (including cleaner fish) and provide numbers of each species
- for Hatcheries detail numbers of each stage of fish (e.g. alevin, smolts, fry etc)
- overall assessment for enterprise – compliant or non-compliant. (See further guidance below).

Welfare Compliance Levels:

- for each enterprise type detail the compliance with each of the key standards listed
- this should be completed as compliant or non-compliant.

Findings - record all findings and anything that has been discussed at the visit.

Actions - record any actions taken by APHA, company vets or managers. Note any verbal advice given, notices served or letters produced.

Guidance

The Animal Welfare Act 2006 in England and Wales and Animal Health and Welfare (Scotland) Act 2006 applies to farmed fish on freshwater and sea sites as they are considered 'Protected animals' under the legislation.

The following document is based on the guidelines concerning fish welfare issued by the Council of Europe and the Organisation for Animal Health (OIE) and follows the requirements of WOFAR and Directive 98/58 although fish are exempt from the requirements of this legislation.

General Biological Characteristics of Fish

Fish are generally cold blood animals (poikilotherms) and their metabolic processes are dependent on the environmental temperature.

Fish obtain oxygen from water via their gills and for some species via their skin. The heart and circulatory system are adapted to this means of respiration.

The basic structure and function of muscles, liver, hormonal control mechanisms and nervous system are similar to higher vertebrates.

The skin of the fish is the first line of defence against disease and provides protection from the environment. It contains sensory receptors for touch, pressure and pain and also has respiratory, excretory and osmo-regulatory functions. The skin also contains mucus glands, which secrete a protective layer over the skin, scales.

Most fish species show maximal emergency responses under stressful conditions, such as:

- low oxygen tension in the water or the presence of certain noxious substances in the water
- when under threat or attacked
- when they are removed from water

However, in the same situations, certain species will show little behavioural reaction even though physiological stress response will be substantial.

Long lasting stressful events may result in immune-suppression and disturbance of reproduction and growth.

Key Standards:

A. Staffing

1. For the purpose of this guidance any person who owns farmed fish, or has farmed fish under their control will be referred to as ‘the stockman’, and every person engaged in the keeping of farmed fish shall, according to their responsibilities, ensure that every reasonable step is taken to safeguard the welfare, including health of such fish.

2. A substantial period of training appropriate to their responsibilities, including practical experience, as well as continued training, are considered essential for those engaged in the keeping of fish.

3. Farmed fish shall be cared for by a sufficient number of personnel with adequate training and experience of the fish and of the husbandry system used to be able to:

- recognise whether or not the fish are in good health
- understand the significance of behavioural changes, and
- appreciate the suitability of the total environment for the fishes’ welfare, including health

4. Fish should be caught and handled only by competent, trained staff, working under the supervision of the stockman.

5. The number of fish and farm units (group of enclosures such as ponds, cages, etc. situated in a same area), shall be such that, under normal circumstances, the stockman is able to ensure that animals are properly looked after to safeguard their welfare, including health.

B. Inspection

1. Enclosures containing fish should be inspected at least once a day, preferably more frequently, unless such a frequent inspection is impossible due to adverse weather or to the specific characteristics of certain extensive husbandry systems. Inspection should be made with minimal disturbance to the fish.

2. The inspection should focus on factors adversely affecting the welfare of the fish, and signs of abnormal behaviour, injury, poor health or increased mortality.

3. If fish are behaving abnormally, are injured or in poor health or if increased mortality is registered, the person responsible for their care shall act promptly to establish the cause and take remedial action, if necessary with the assistance of a veterinarian or other expert.

4. Any dead or dying fish shall be removed as soon as possible in a way that does not adversely affect the welfare of those remaining.

5. Water quality (at least turbidity, oxygen, temperature, pH and salinity) shall be assessed; visually or with an appropriate technical device according to the parameter to be considered, with a frequency appropriate to the species and the system involved in order to avoid poor welfare, including health in fish.

C. Record Keeping

1. In the interest of good management, the responsibility for keeping on-farm records shall lie with the stockman. Records should be kept of details of feeding, feeding rates, numbers and weight of fish, stocking density, growth and water quality measures, as well as the movements of fertilized eggs, gametes, fry and live fish onto or off the site, fish mortalities, diseases diagnosed, and medicines used.

D. Freedom of movement

1. Measures shall be taken to minimise stress, aggression and cannibalism. Since fish grow at different rates, where appropriate, they shall be separated according to size. When grading is carried out it shall be done with a minimum of handling and shall cause a minimum of stress.

2. Stocking density shall be adjusted in line with the following criteria:

- the biological needs of fish with regard to environmental conditions in addition to health and welfare
- the farming system used, in particular the ability to maintain water quality and the feeding technology

3. Stocking density shall be based on knowledge of the water quality parameters and other local farming conditions, the physiology of fish and animal health and welfare indicators such as:

- behaviour
- the level of stress
- injuries
- appetite
- growth
- mortality, and
- disease.

E. Buildings and accommodation

1. Professional advice on health and other aspects of welfare should be sought when new farm units for farmed fish are planned or when existing farm units are modified. In large companies this advice should be available in-house but other advisers, veterinary and otherwise, may need to be consulted.

2. New methods of husbandry, and new design of equipment and enclosures for fish should be comprehensively and objectively tested from the point of view of fish welfare and when tests are undertaken, shall not be put into commercial use unless found to be satisfactory.

3. Buildings, equipments and enclosures, shall be designed and maintained as far as possible to provide protection to the fish from predators.

F. Environment

1. The parameters affecting water quality, such as oxygen, ammonia, CO_2, pH, temperature, salinity and water flow, are interrelated. Their variation will influence the water quality and therefore affect the welfare of fish. Water quality parameters shall at all times be within the acceptable range that sustains normal activity and physiology for a given species unless certain parameters in exceptional situations cannot be managed by the farmers. Water quality parameters shall also take into account the fact that the requirements of individual species may vary between different life-stages e.g. larvae, juveniles, adults or according to physiological status e.g. metamorphosis or spawning. In recirculation systems special attention should be given to monitoring and management of water quality.

2. Fish show varying degrees of adaptability to changing water quality conditions. Some degree of acclimatisation may be necessary and this should be carried out for a period appropriate for the fish species in question. Appropriate measures shall be taken to minimise sudden changes in the different parameters affecting water quality.

3. Oxygen concentration should be appropriate to the species and the context in which they are held. It will vary depending on factors including temperature, salinity, atmospheric pressure, carbon dioxide concentration, etc. and it

is affected by management practices (feeding, handling, etc.). In pond culture, the oxygen level should be monitored closely in case of high density and warm water. In recirculation systems, the oxygen level should be monitored continuously by way of a system which accurately reflects the oxygen available to the fish, and an alarm system should be in place. Oxygen levels can be increased by different means, such as aeration, direct oxygen injection, increasing the flow rate or reducing temperature.

4. Ammonia and nitrite are very toxic to fish and accumulation to harmful levels shall be avoided. The accumulation of ammonia and nitrite can be avoided by different means according to the farming system used, such as increasing flow rate, reducing feeding, biofiltration, reducing density or temperature.

5. Carbon dioxide is produced by fish during respiration and dissolves in water to form carbonic acid thus lowering pH. The carbon dioxide level may be affected by plant and bacterial metabolism as well as by the temperature, salinity and alkalinity of the water. Accumulation of carbon dioxide to harmful levels shall be avoided, for example by using aeration systems or by chemical means, according to the farming system used.

6. pH depends on many water quality factors. Where possible, pH shall be kept stable, as all changes in pH initiate complex water quality changes which may cause harm to the fish.

7. Water flow and water exchange should ensure, according to the farming system used, appropriate water quality for fish, once other factors - such as temperature and stocking density - have been taken into account, in such a way that excretion- and metabolism-related products are kept below the toxic levels.

G. Automatic or mechanical equipment

1. Where the welfare of the fish depends on automatic or other mechanical systems, these should be checked at least daily. Where defects are discovered these shall be rectified immediately, or, if this is impractical (e.g. in very rough seas) other appropriate steps taken to safeguard the welfare, including health of the fish until the fault can be rectified.

2. Feeding equipment shall be designed, constructed, placed, and maintained in such a way that:

- contamination of the water is minimised
- all fish have sufficient access to feed to avoid undue competition between individuals
- it operates in all but severest weather conditions, and
- the amount of feed provided can be monitored

3. Equipment used for size grading, netting and the mechanical transfer on-farm of fish should be designed so that fish are not injured during their operation.

4. Where nets are used to handle fish, they shall cause as little injury as possible to the fish and the mesh size should be appropriate to the size of fish to avoid entanglement.

5. The design, construction and maintenance of enclosures, buildings and equipment for farmed fish shall be such that they:

- allow the fulfilment of essential biological requirements and the maintenance of good welfare, including health
- facilitate management of the fish
- minimise the risk of injuries and stress
- avoid sharp corners, projections and material which may be harmful to the fish
- allow a thorough inspection of the fish
- are appropriate to the weather conditions and surroundings in which they are to be used
- minimise the risk of escape of farmed fish and entry of wild fish
- allow for the prevention and treatment of disease, in particular cleaning and disinfection, or
- where possible fallowing
- allow for easy maintenance of good conditions of hygiene and water quality, including removal of waste, depending on the requirements of the fish and the systems.

H. Feed, Water and other substances

1. All fish shall have access to adequate amount of nutritious, balanced and hygienic feed according to their physiological needs. Feed should be distributed in a way which precludes excessive competition between fish.

2. Before certain management practices, transport, slaughter or for therapeutic reasons, fish shall be starved in order to reduce metabolism and excretion of waste products. The period during which fish may be deprived of food prior to certain management procedures or slaughter shall be appropriate to the species and take into account environmental conditions, in particular temperature. In any case, this period shall be kept as short as possible. It should be established if starving is being carried out for these purposes or on veterinary advice and this should be verified.

3. The feeding, especially of fry and young fish shall be monitored.

4. Sudden changes in the type or quantity of feed and feeding procedures shall be avoided except where necessary for the welfare, including health of the fish. Methods of feeding which may be detrimental to the fish or adversely affect the water quality shall not be used.

I. Mutilation

1. For the purposes of this Recommendation, 'mutilation' means a procedure carried out for other than therapeutic purposes and resulting in damage to or loss of a sensitive part of the body or the alteration of the bone structure.

2. The mutilation of fish shall be prohibited.

3. Notwithstanding point 2, marking methods may be used but only where they cause minimal damage to the fish.

J. Breeding procedures

1. In the breeding of farmed fish, the stripping and milking process shall be carried out by trained and competent persons.

2. During the monitoring of fish prior to stripping and milking, sedation may be necessary. The number of times a fish is handled and exposed to sedation shall be minimised to limit injury and stress.

3. If live fish are to be stripped or milked, anaesthesia or sedation should be used as necessary for the species concerned.

4. Where compressed air is used to assist stripping and milking in live fish they must be fully anaesthetised.

5. If gonads are removed from fish, the animal shall be killed prior to their removal.

K. Disease

1. A method for the removal of dead and moribund fish appropriate to the enclosures used shall be available.

2. Enclosures should be regularly cleaned and where possible - fallowed to reduce the risk of accumulation of agents that can harm the fish or induce diseases, and to prevent the spread of disease from one production group to another.

3. No substance other than those given for therapeutic or prophylactic purposes shall be administered to an animal unless it has been demonstrated by scientific knowledge or established experience that the effect of the substance is not detrimental to the welfare, including health, of the animals.

4. The routine use of medicines as part of a management system to compensate for poor hygienic conditions, poor management practices, or to mask signs of poor welfare such as pain and distress is not allowed.

Emergency Killing

1. If fish are ill or injured to such an extent that treatment is no longer feasible and transport would cause additional suffering, they must be killed on the spot and without delay by a person properly trained and experienced in the techniques of killing except in an emergency when such a person is not immediately available.

2. The choice of the emergency killing method to be used depends on the farming system, on the species, on the size and on the number of fish to be killed; the need for rapid killing of large batches of fish for disease control purposes should also be considered.

The methods used shall either:

- cause immediate death, or
- rapidly render the fish insensitive until death supervenes, or
- cause the death of a fish which is anaesthetised or effectively stunned

3. It is essential to monitor the effectiveness of the procedures used for emergency killing. Monitoring should be performed using reliable indicators such as the following:

- immediate and irreversible cessation of respiratory movements (rhythmic opercular activity)
- immediate and irreversible loss of eyeroll (vestibulo-ocular reflex), that is, the movement of the eye when the fish is rocked from side to side. In a dead fish the eye does not move
- If large groups of fish are to be killed, the effectiveness of the procedure should be determined on a sample

4. Except when larger numbers of fish have to be killed rapidly, to protect their welfare or for disease control, carbon dioxide shall not be used.

5. Severing the gills or gill arches without prior stunning shall not be allowed.

Annex 1: Key Standards:

Key Standards	Guidance Summary
Staffing	Appropriate number of trained and experienced staff.
Inspection	Focussed inspection at least daily - abnormal behaviour, injury, poor health or increased mortality. Removal of dead or dying fish. Water quality. Sea-lice burdens.
Disease	Ill or injured fish must be cared for appropriately without delay. Preventative measures should be implemented to prevent the spread of disease. Demonstrable evidence of vet being involved in serious disease situations.
Records	Feeding, feeding rates, numbers and weights of fish, stocking density, growth, water quality, movements, disease, medicines and mortalities. Health Plans.
Housing	Must not be harmful to the fish. No sharp edges or protrusions, protection from predators, clean and disinfectable.
Environment	Water quality (oxygen, Ammonia and Nitrite, Carbon dioxide). Temperature, Salinity, pH. Water flow.
Equipment	Automatic/mechanical - Checked at least daily. Back-up systems. Remedial action taken without delay.
Freedom of Movement	Stocking density. Minimise stress, aggression and cannibalism.
Feed	Adequate amounts of nutritious, balanced and hygienic feed. Avoid competition.
Mutilations	No mutilation (other than marking).
Breeding procedures	Carried out by trained staff. Appropriate measures employed to prevent injury or suffering.