

Case No: 2019-0588 Date of visit: 08/10/2019

Time spent on site: Main Inspector:

Site No: FS1240 Site Name: Highland
Business No: FB0544 Business Name: Scotland

Case Types: 1 DIA 2 3 4 5 6

Water Temp (°C): n/a Thermometer No: FHI 045 completed

Observations: Region: HI Water type: B CoGP MA

Dead/weak/abnormally behaving fish present? N/A If yes, see additional information/clinical score sheet.
Clinical signs of disease observed? N/A If yes, see additional information/clinical score sheet.
Gross pathology observed? N/A If yes, see additional information/clinical score sheet.
Diagnostic samples taken? N/A

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

**Additional Case Information:**

Sampled by [REDACTED], supervised by [REDACTED]

Samples delivered to lab by [REDACTED]. Samples were from [REDACTED] for parasitology analysis

[REDACTED] - [REDACTED]

Fish two had already been cut open when samples were received

Fish were received frozen. Original communications were received by DI on 09/07/19

all fish are between 20-30 cms

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           | F6           | F7           |  |  |  |  |  |
|----------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--|--|--|--|--|
| Fish nos       | 1            | 2            | 3            | 4            | 5            | 6            | 7            |  |  |  |  |  |
| Pool Group     |              |              |              |              |              |              |              |  |  |  |  |  |
| Species        | TRO          | TRO          | TRO          | TRO          | TRO          | TRO          | TRO          |  |  |  |  |  |
| Average weight | 0.3500       | 0.3500       | 0.3500       | 0.3500       | 0.3500       | 0.3500       | 0.3500       |  |  |  |  |  |
| Sex            |              |              |              |              |              |              |              |  |  |  |  |  |
| Water Type     | FW           | FW           | FW           | FW           | FW           | FW           | FW           |  |  |  |  |  |
| Stock Origin   | Ardnamurchan | Ardnamurchan | Ardnamurchan | Ardnamurchan | Ardnamurchan | Ardnamurchan | Ardnamurchan |  |  |  |  |  |
| Facility No    |              |              |              |              |              |              |              |  |  |  |  |  |

10/2019 Additional Sample Information:

Fish two had already been cut open. All fish had visible parasites within the body cavity. Included in parasitology general and paristology storage samples are both the visable parasites along side parasites encapsulated in a cyst or growth, attached to body wall or guts of fish. Scales taken from each fish and included in scale packets.

Total Tests assigned

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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Case no: 2019-0588

Site No: FS1240

Method of killing: Unknown

Date of visit: 08/10/2019

Inspector(s):

Sheet Relevant: Y

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

| Fish Number                                |                       | 1 | 2 | 3 | 4 | 5 | 6 | 7 |  |  |
|--|-----------------------|---|---|---|---|---|---|---|--|--|
| 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          |   |   |   |   |   |   |   |  |  |
| Eyes                                       | Elsewhere             |   |   |   |   |   |   |   |  |  |
|  | Exophthalmic          |   |   |   |   |   |   |   |  |  |
|  | Enophthalmic (sunken) |   |   |   |   |   |   |   |  |  |
| Gills                                      | Cataract              |   |   |   |   |   |   |   |  |  |
|  | Haemorrhagic          |   |   |   |   |   |   |   |  |  |
|  | Pale                  |   |   |   |   |   |   |   |  |  |
| Lesions                                    | Zoned                 |   |   |   |   |   |   |   |  |  |
|  | Necrotic              |   |   |   |   |   |   |   |  |  |
|  | Flank                 |   |   |   |   |   |   |   |  |  |
| Vent                                       | Elsewhere             |   |   |   |   |   |   |   |  |  |
|  | Inflamed              |   |   |   |   |   |   |   |  |  |
| Lice Load                                  | Trailing faeces       |   |   |   |   |   |   |   |  |  |
|  | Estimate numbers      |   |   |   |   |   |   |   |  |  |
| Internal Signs                             |                       |   |   |   |   |   |   |   |  |  |
| Ascites                                    | Clear                 |   |   |   |   |   |   |   |  |  |
|  | Bloody                |   |   |   |   |   |   |   |  |  |
| Oedema                                     | In tissues            |   |   |   |   |   |   |   |  |  |
|  | Pale/anaemic          |   |   |   |   |   |   |   |  |  |
| Heart                                      | Granulomas            |   |   |   |   |   |   |   |  |  |
|  | Deformed              |   |   |   |   |   |   |   |  |  |
|  | Petechial haem        |   |   |   |   |   |   |   |  |  |
| Liver                                      | Gross haem            |   |   |   |   |   |   |   |  |  |
|  | Tissue breakdown      |   |   |   |   |   |   |   |  |  |
|  | Enlarged              |   |   |   |   |   |   |   |  |  |
|  | Colour number(s)      |   |   |   |   |   |   |   |  |  |
| Pyloric caeca                              | Granulomas            |   |   |   |   |   |   |   |  |  |
|  | Lesions               |   |   |   |   |   |   |   |  |  |
|  | Petechial haem        |   |   |   |   |   |   |   |  |  |
| Spleen                                     | Tubules mauve         |   |   |   |   |   |   |   |  |  |
|  | Lack of fat           |   |   |   |   |   |   |   |  |  |
|  | Enlarged              |   |   |   |   |   |   |   |  |  |
| Gut  | Granulomas            |   |   |   |   |   |   |   |  |  |
|  | No food present       |   |   |   |   |   |   |   |  |  |
|  | Yellow pseudo-faeces  |   |   |   |   |   |   |   |  |  |
| Body wall                                  | External haem         |   |   |   |   |   |   |   |  |  |
|  | Internal haem         |   |   |   |   |   |   |   |  |  |
|  | Haemorrhaging         |   |   |   |   |   |   |   |  |  |
| Swim bladder                               | Haemorrhaging         |   |   |   |   |   |   |   |  |  |
|  | Fluid filled          |   |   |   |   |   |   |   |  |  |
| Kidney                                     | Swollen               |   |   |   |   |   |   |   |  |  |
|  | Grey                  |   |   |   |   |   |   |   |  |  |
|  | Granular              |   |   |   |   |   |   |   |  |  |
| General                                    | Liquefied             |   |   |   |   |   |   |   |  |  |
|  | Parasites present     | S | S | S | S | S | S | S |  |  |
|  | 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:

Samples arrived at the lab frozen

Case No: 2019-0588

Date of visit: 08/10/2019

Site No: FS1240

Inspector: [Redacted]

| Results Summary        | Freq. | Date of Notification |            |       |      |            |            |                      |
|------------------------|-------|----------------------|------------|-------|------|------------|------------|----------------------|
|                        |       | Database             | Insp       | Phone | Insp | Writing    | Insp       | 2 <sup>nd</sup> Insp |
| Eustrongylites sp.     | 13/13 | 18/12/2019           | [Redacted] |       |      | 06/04/2021 | [Redacted] | [Redacted]           |
| Anisakid larvae        | 1/1   | 18/12/2019           | [Redacted] |       |      | 06/04/2021 | [Redacted] | [Redacted]           |
| Eustrongylites sp. PCR | 6/6   | 14/02/2020           | [Redacted] |       |      | 06/04/2021 | [Redacted] | [Redacted]           |
|                        |       |                      |            |       |      |            |            |                      |
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|                        |       |                      |            |       |      |            |            |                      |

| Report Summary |            |            |                      |
|----------------|------------|------------|----------------------|
| Case Type      | Date       | Insp       | 2 <sup>nd</sup> Insp |
| DIA            | 06/04/2021 | [Redacted] | [Redacted]           |
|                |            |            |                      |
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██████████  
Scotland  
████████████████████

## FISH HEALTH INSPECTORATE VISIT REPORT

### SUMMARY FOR INFORMATION OF SITE OPERATOR

|                    |                      |                      |            |
|--------------------|----------------------|----------------------|------------|
| <b>BUSINESS No</b> | FB0544               | <b>DATE OF VISIT</b> | 08/10/2019 |
| <b>SITE No</b>     | FS1240               | <b>SITE NAME</b>     | Highland   |
| <b>INSPECTORS</b>  | ████████████████████ | <b>CASE No</b>       | 20190588   |

#### Section 1: Summary

Parasites were collected from seven brown trout for identification.

Thirteen trematode larvae were inspected under dissecting microscope. The parasites appear consistent with fourth-stage larvae of *Eustrongylites* sp., however several are slightly longer than normal range described in literature. One encysted Anisakid larvae was also identified from the submitted samples.

DNA sequencing confirmed the parasites to be *Eustrongylites* sp.

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

Seven brown trout were received at the Marine Laboratory on 08/10/19 via the Freshwater Laboratory. The fish were submitted following concern regarding the numbers of parasites being observed in the body cavity of fish and also reported to be at sufficiently high burdens that they appeared to be causing mortalities. The fish had been frozen and were defrosted prior to sampling. A large quantity of parasites were observed in all fish and samples were taken for parasitology.

R09

## Samples

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

| Fish number | Species     | Origin       |
|-------------|-------------|--------------|
| 1 - 7       | Brown trout | Ardnamurchan |

## Results

### **Parasitology:**

Thirteen trematode larvae received and inspected under dissecting microscope. Parasites look consistent with fourth-stage larvae of *Eustrongylites* sp., however several are slightly longer than normal range described in literature. One encysted Anisakid larvae also identified.

DNA sequencing confirmed the parasites as *Eustrongylites* sp.



Signed:

Fish Health Inspector

Date: 06/04/21

The Fish Health Inspectorate Service Charter detailing standards of service is available on the Marine Scotland website at [www.gov.scot/Topics/marine/Fish-Shellfish/FHI/charter](http://www.gov.scot/Topics/marine/Fish-Shellfish/FHI/charter)



F1-7



F1 Internal



F3 internal



F4 Internal