

[REDACTED]

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**From:** [REDACTED]  
**Sent:** 20 November 2017 15:32  
**To:** [REDACTED]  
**Subject:** FW: Notification of mortality above 5%

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**From:** [REDACTED]  
**Sent:** 07 September 2015 15:25  
**To:** [REDACTED]  
**Subject:** FW: Notification of mortality above 5%

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**From:** [REDACTED]  
**Sent:** 12 February 2015 11:44  
**To:** Minister for Environment, Climate Change and Land Reform  
**Cc:** Mitchell A (Alastair); Cowan WJ (Willie); Director of Marine Scotland Mailbox; Allan C (Charles) (MARLAB); [REDACTED]  
**Subject:** Notification of mortality above 5%

PS Minister for Environment, Climate Change and Land Reform

As agreed in our submission of 17<sup>th</sup> December 2014 and with apologies for the delay in notification.

The Minister will wish to be aware of two recent reported mortality events on marine salmon farms that were above the agreed mortality reporting threshold of 5%:

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]



## 2. Sites: Scotasay and Raineach

Date of mortality: reported week beginning 5<sup>th</sup> January 2015

Percentage mortality: Between 2% and 33%

Company: Marine Harvest

Species: Atlantic Salmon

Weight: Sites now fallow (Nov – fish up to 2.4kg)

Age: Sites now fallow (2013 Q4 and 2014 Q1 previously on site)

Estimated number of fish lost: From the start of October to fallow – Scotasay = 192,000 mortalities and 123,600 culled. Raineach = 297,000 mortalities and 25,600 culled. In addition, 407,000 fish were harvested from these sites in this time period

Circumstance: Reported due to sea lice/gill damage/physical damage/treatment damage. 4 cages were culled out between 20<sup>th</sup> – 23<sup>rd</sup> Nov (3 at Scotasay and 1 at Raineach). Harvest completed on 28<sup>th</sup> January and site now fallow.

MS action: Scotasay inspected November 2014 – sites now fallow.

Happy to discuss further if required.

We have implemented changes to the notification procedure internally so that these can be notified as soon as possible after intelligence being received by Marine Scotland Science.

Thanks,



Marine Scotland – Performance, Aquaculture and Recreational Fisheries



Web: <http://www.scotland.gov.uk/marinescotland>

Mail: Scottish Government, 1B North, Victoria Quay, Edinburgh EH6 6QQ



**From:** [REDACTED]  
**Sent:** 20 November 2017 15:36  
**To:**  
**Subject:** FW: Fish Farm Mortality - ~100,000 Fish - Skye - Grieg Seafood

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**From:** [REDACTED]  
**Sent:** 28 October 2016 14:30  
**To:** Cabinet Secretary for the Rural Economy and Connectivity  
**Cc:** Cabinet Secretary for the Environment, Climate Change and Land Reform; Communications Rural Economy & Environment; Director of Marine Scotland Mailbox: Palmer MR (Mike); Mitchell A (Alastair); Higgins K (Kate); Miller D (David); [REDACTED] Allan C (Charles) (MARLAB)  
**Subject:** Fish Farm Mortality - ~100,000 Fish - Skye - Grieg Seafood

PS Cabinet Secretary for Rural Economy and Connectivity

The Minister will wish to be aware of mortalities reported at Gob Na Hoe salmon farm in Skye.

- Total: Estimated 100,000 fish @2Kg in the last three weeks (35%). Operated by Grieg Seafood.
- Cause: Complex gill issues and gill treatments
- Action: FHI will be on site next week to investigate.

#### Further Information

FHI were notified of the above mortality event by a Marine Scotland Compliance intelligence report and the company have since provided further information.

We reported a mortality event between July and August at Gob Na Hoe, Leinish and Corlarach fish farms by submission on 2 September, which were the result of algal blooms and gill damage. This is therefore the second large mortality event due to gill issues in this area.

AGD and other gill diseases, many of which are co-occurring, are affecting production in many parts of Scotland this year.

We will keep the Minister informed with any additional information or media interest.

[REDACTED]  
[REDACTED]  
Marine Scotland – Performance, Aquaculture and Recreational Fisheries  
[REDACTED]

Web: <http://www.scotland.gov.uk/marinescotland>

Mail: Scottish Government, 1B North, Victoria Quay, Edinburgh EH6 6QQ

[REDACTED]

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**From:** [REDACTED]  
**Sent:** 20 November 2017 15:32  
**To:** [REDACTED]  
**Subject:** FW: Fish Farm Mortality Report

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**From:** [REDACTED]  
**Sent:** 04 November 2015 12:06  
**To:** Minister for Environment, Climate Change and Land Reform  
**Cc:** [REDACTED], Mitchell A (Alastair); Cowan WJ (Willie); Director of Marine Scotland Mailbox; MS FishHealth; Allan C (Charles) (MARLAB)  
**Subject:** Fish Farm Mortality Report

PS Minister for Environment, Climate Change and Land Reform

The Minister will wish to be aware of a recent mortality event which reached above the agreed reporting threshold of 5%.

- Total: 5.7% mortality at Cairidh SW salmon farm in Skye on 07/10/2015 - 31, 565 fish at 3.5Kg (Marine Harvest)
- Cause: Mortalities occurred the day after sea lice treatment. Amoebic gill disease (AGD) present on site.
- Action: Mortalities have decreased. The site is harvesting and will be empty in January. No further action.

#### Background

AGD causes thickening of the gills and comprises gill function. Mortalities often occur following treatment of fish due to the increased demand placed on the gills.

Further mortality reports may be expected due to recent algal blooms, reports of AGD on several farms and sea lice treatments.

We will keep the Minister informed with any additional relevant information and/ or media interest.

Happy to discuss further if required.

Thanks,

[REDACTED]  
[REDACTED]  
Marine Scotland – Performance, Aquaculture and Recreational Fisheries  
[REDACTED]

[REDACTED]

---

**From:** [REDACTED]  
**Sent:** 20 November 2017 15:32  
**To:** [REDACTED]  
**Subject:** FW: Fish Farm Mortality Report - 12%

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**From:** [REDACTED]  
**Sent:** 07 December 2015 09:51  
**To:** Minister for Environment, Climate Change and Land Reform  
**Cc:** [REDACTED] Mitchell A (Alastair); Cowan WJ (Willie); Director of Marine Scotland Mailbox; MS FishHealth; Allan C (Charles) (MARLAB)  
**Subject:** Fish Farm Mortality Report - 12%

PS Minister for Environment, Climate Change and Land Reform

The Minister will wish to be aware of a recent mortality event which reached above the agreed reporting threshold of 5%.

- Total: 12% mortality at Sgian Dubh SW salmon farm in Loch Striven, near Dunoon, on 21/11/2015 – 97, 000 fish at 1.5 Kg (The Scottish Salmon Company)
- Cause: Mortalities occurred the day after sea lice treatment. Gill pathology identified on site by the fish vet group but was not thought severe enough to prevent treatment.
- Action: Treatment halted as soon as mortalities were observed in cages 1-6. Cages 7-10 remain to be treated. Mortalities have decreased to pre-treatment levels. The site will conduct full gill screening before any further treatment. The fish health inspectorate are considering whether to attend site.

#### Background

Gill pathologies can result in mortalities during treatment due to increased demand placed on the gills.

Further mortalities may result if the company take the decision to treat cages 7-10.

We will keep the Minister informed with any additional relevant information and/ or media interest.

Happy to discuss further if required.

Thanks,

[REDACTED]  
Marine Scotland – Performance, Aquaculture and Recreational Fisheries

E-mail: [REDACTED]

[REDACTED]

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**From:** [REDACTED]  
**Sent:** 20 November 2017 15:36  
**To:** [REDACTED]  
**Subject:** FW: Fish Farm Mortality - Shetland, 67 000 fish (12%) - gill disease treatment

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**From:** [REDACTED]  
**Sent:** 14 November 2016 10:13  
**To:** Cabinet Secretary for the Rural Economy and Connectivity  
**Cc:** Cabinet Secretary for the Environment, Climate Change and Land Reform; Director of Marine Scotland Mailbox; Mitchell A (Alastair); [REDACTED] Higgins K (Kate); Miller D (David); Campbell K (Kerrie); Gibbons J (Jeff); [REDACTED]  
**Subject:** Fish Farm Mortality - Shetland, 67 000 fish (12%) - gill disease treatment

**PS Cabinet Secretary for Rural Economy and Connectivity**

The Minister will wish to be aware of mortalities reported at Cole Deep fish farm in Shetland, operated by Grieg Seafood.

- Total: 67, 317 salmon (12%) @ 600g – week beginning 31<sup>st</sup> October.
- Cause: gill damage + treatment for Amoebic Gill Disease (AGD)
- Action: FHI attended site this week. Remaining fish appeared healthy - no follow up action required.

Further information

Increased algae has been observed in water samples since the transfer of smolts to sea at Cole Deep. Mortalities occurred following a hydrogen peroxide treatment for AGD. Mortalities are thought to have occurred because of gill damage resulting from a combination of increased algae and Amoebic Gill Disease.

We will keep the Minister informed with any additional relevant information and/ or media interest.

[REDACTED]  
Aquaculture Policy Advisor  
Marine Scotland – Performance, Aquaculture and Recreational Fisheries  
Tel: [REDACTED]  
E-mail: [REDACTED]  
Web: <http://www.scotland.gov.uk/marinescotland>  
Mail: Scottish Government, 1B North, Victoria Quay, Edinburgh EH6 6QQ

(6)

**From:** [Redacted]  
**Sent:** 20 November 2017 15:34  
**To:** [Redacted]  
**Subject:** FW: Notification of Fish Farm Mortality - Loch Torridon, NW Highlands

**From:** [Redacted]  
**Sent:** 19 August 2016 16:40  
**To:** Cabinet Secretary for the Rural Economy and Connectivity  
**Cc:** Cabinet Secretary for the Environment, Climate Change and Land Reform; Communications Rural Economy & Environment; Director of Marine Scotland Mailbox; Cowan WJ (Willie); Mitchell A (Alastair); [Redacted]; Higgins K (Kate); Miller D (David); [Redacted]  
**Subject:** Notification of Fish Farm Mortality - Loch Torridon, NW Highlands

PS Cabinet Secretary for Rural Economy and Connectivity

Please find attached a submission detailing recent fish farm mortality events in Loch Torridon and the internal mortality reporting system.



Notification of Algal Bloom an...    FW: Notification of Fish Farm ...

Best Regards,

[Redacted]  
Marine Scotland – Performance, Aquaculture and Recreational Fisheries  
Tel: [Redacted]  
E-mail: [Redacted]  
Web: <http://www.scotland.gov.uk/marinescotland>  
Mail: Scottish Government, 1B North, Victoria Quay, Edinburgh EH6 6QQ



Scottish Government

Aquaculture Europe - Edinburgh  
Food For Thought  
20-23 September 2016

[REDACTED]

19 August 2016

Cabinet Secretary for Rural Economy and Connectivity

**NOTIFICATION OF FISH FARM MORTALITY EVENTS AND REPORTING REQUIREMENTS**

**Purpose**

1. To notify the Cabinet Secretary of significant mortality events at fish farms operated by The Scottish Salmon Company in Loch Torridon, North West Highlands as the result of algal blooms in the area.

[REDACTED]

**Priority**

3. **Routine.**

**Mortality Notification**

4. The Scottish Salmon Company have reported mortalities at [REDACTED] and Kenmore Loch Torridon fish farms which can be summarised as follows;

- [REDACTED]
- Kenmore, Loch Torridon: Week beginning 15 August - 42% site mortality [~60,000 fish @ 800g] – caused by presence of algal bloom, amoebic gill disease (AGD) and associated chemical treatment complications.

5. Algal Blooms are a naturally occurring phenomenon which can cause fish mortality by damaging gill tissues in fish, as well as depleting oxygen levels in the water column.

6. The fish in Kenmore began to show signs of AGD in July, however treatment could not be performed due to the algal bloom in the area which had already caused gill problems. AGD progressed and the site carried out a treatment with hydrogen peroxide on 15<sup>th</sup> August. Mortalities often occur following treatment of fish due to the increased demand placed on the gills, especially those with progressed AGD, where gills are already compromised.

**Next Steps**

7. Mortality levels are reported to have reduced to normal. Marine Scotland's Fish Health Inspectorate are currently scheduling visits to both sites.



## **Fish Farm Mortality Reporting Requirements**

8. The Code of Good Practice for Scottish Finfish Aquaculture, in line with a recommendation from the Ministerial Group on Sustainable Aquaculture's predecessor Healthier Fish working group, requires that marine fish farms notify Marine Scotland of mortalities above the level of 1% of the total fish on site (for fish over 750g) and above 1.5% of the total fish (for fish under 750g) on site in any one week. Reporting levels for freshwater farms are also described based on development stage. This reporting is required in order for the Fish Health Inspectorate to monitor any emerging disease issues.

9. It was agreed during the previous administration that fish farm mortality of greater than 5% of the total site in any one week should be notified to the Minister as a matter of course. Having reviewed the Ministerial reporting requirements we recommend using the existing 5% mortality as a guideline trigger, advising Ministers where experience suggests there is a likelihood the incident will attract attention and/or become newsworthy.

### **Mortality Reporting**

10. If the Cabinet Secretary agrees to this approach, relevant mortality notifications will be provided in template form, similar to those provided in the case of a significant fish escape. The information will detail site name, site operator, location, and the level of mortality experienced as well as the reported reason for the mortality (if known). We will also provide additional background detail and handling guidance where appropriate. An example notification, using the current mortality incident information has been provided.

### **Communications**

11. We will keep the Cabinet Secretary informed with any additional relevant information and media interest.

### **Recommendation**

12. The Cabinet Secretary is invited to note this submission and confirm if content with the proposed mortality reporting system.

[REDACTED]  
[REDACTED]  
[REDACTED]  
Marine Scotland  
[REDACTED]

19 August 2016

**From:** [redacted]  
**Sent:** 19 August 2016 16:39  
**To:** [redacted]  
**Subject:** FW: Notification of Fish Farm Mortality - Loch Torridon, NW highlands

**From:** [redacted]  
**Sent:** 19 August 2016 15:08  
**To:** [redacted]  
**Subject:** Notification of Fish Farm Mortality - Loch Torridon, NW highlands

PS Cabinet Secretary for Rural Economy and Connectivity,

The minister will wish to be aware of recent mortality events in Loch Torridon, NW Highlands

[redacted]

Kenmore, Loch Torridon (The Scottish Salmon Company)

- Total: 42% mortality – week beginning 8 August. Estimated 60,000 fish @ 800g average
- Cause: Algal bloom, Amoebic Gill Disease (AGD) + associated treatment.
- Action: Mortalities have decreased to background levels. Fish Health Inspectorate site visit being arranged.

Background

Algal Blooms are a naturally occurring phenomenon which can cause fish mortality by damaging gill tissues in fish, as well as depleting oxygen levels in the water column.

AGD causes thickening of the gills and comprises gill function. AGD treatment at Kenmore was delayed due to the algal bloom present in the Loch. This led to further gill deterioration. Mortalities often occur following treatment of fish due to the increased demand placed on the gills, particularly in cases where gills are already compromised.

We will keep the Ministers' informed with any additional relevant information and/ or media interest.

Happy to discuss further if required.

[redacted]  
[redacted]  
Marine Scotland – Performance, Aquaculture and Recreational Fisheries  
[redacted]  
E-mail [redacted]

[REDACTED]

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**From:** [REDACTED]  
**Sent:** 20 November 2017 15:35  
**To:** [REDACTED]  
**Subject:** FW: Fish Farm Mortality - Marine Harvest Western Isles - 25% - 250,000 salmon

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**From:** [REDACTED]  
**Sent:** 05 October 2016 09:55  
**To:** Cabinet Secretary for the Rural Economy and Connectivity  
**Cc:** Cabinet Secretary for the Environment, Climate Change and Land Reform; Director of Marine Scotland Mailbox; Palmer MR (Mike); Mitchell A (Alastair); [REDACTED] MS FishHealth; [REDACTED] Higgins K (Kate); Miller D (David); [REDACTED] Campbell K (Kerrie); Gibbons J (Jeff)  
**Subject:** Fish Farm Mortality - Marine Harvest Western Isles - 25% - 250,000 salmon

PS Cabinet Secretary for Rural Economy and Connectivity

The Minister will wish to be aware of mortalities reported at Raineach and Scotasay marine fish farms in Harris, Western Isles (Marine Harvest).

- Total: Estimated 250,000 fish @ 2.5 - 3 Kg – cumulative mortalities throughout August and September (~ 675T, ~25%)
- Cause: Amoebic Gill Disease (AGD) and associated treatments
- Action: A fish health inspector is on site this week conducting investigations.

#### Further information

Raineach and Scotasay fish farms are formed of two cage groups separated by a feed barge and can be considered as one site in terms of fish health. This incident is related to the submission of 26 September which gave details of a 60,000 fish mortality at Soay fish farm in Harris, also operated by Marine Harvest.

AGD causes thickening of the gills and comprises gill function. Mortalities can occur following treatment due to the increased demand placed on the gills.

#### Media and/ or public interest

The local DSFB informed the FHI of a large volume of mortalities being transported off the island. The Stornoway Gazette ran a report on 30 September titled ' Marine Harvest has 'serious AGD issues'' and have asked for comment from the Scottish Government for a follow up report. We have also received an FOI request relating to all information held on Marine Harvest disease events this year.

We will keep the Minister informed with any additional relevant information and/ or media interest.

Happy to discuss further if required

[REDACTED]

[REDACTED]

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**From:** [REDACTED]  
**Sent:** 20 November 2017 15:35  
**To:** [REDACTED]  
**Subject:** FW: Fish Farm Mortality ~ 115,000 4Kg fish - sea lice treatment - Skye

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**From:** [REDACTED]  
**Sent:** 12 September 2016 16:55  
**To:** Cabinet Secretary for the Rural Economy and Connectivity  
**Cc:** Cabinet Secretary for the Environment, Climate Change and Land Reform; Communications Rural Economy & Environment; Director of Marine Scotland Mailbox; Cowan WJ (Willie); Mitchell A (Alastair); [REDACTED] Allan C (Charles) (MARLAB); [REDACTED] Higgins K (Kate); Miller D (David); [REDACTED]  
**Subject:** Fish Farm Mortality ~ 115,000 4Kg fish - sea lice treatment - Skye

PS Cabinet Secretary for Rural Economy and Connectivity

The Minister will wish to be aware of mortalities reported at Greshornish salmon farm in Skye (Marine Harvest).

- Total: 115, 283 fish @ 4Kg fish lost since July [est. 460T]
- Cause: Failed sea lice treatments - 95,400 mortalities occurred during weeks of 31/07 and 07/08 following operational issues using a thermolicer.
- Action: Mortality levels have returned to 'background' levels. Accelerated harvest at site – to be fallow by end of September. FHI to remain updated with weekly mortality on site.

#### Further information

The Skye and Loch Torridon area suffered algal blooms in July [linked to mortality reports of 19 Aug and 2 September] which led to delayed sea lice treatments across the area. Greshornish fish farm has reported having a sea lice issue since February 2016. They have been treating ineffectively on a monthly basis since.

The site made the decision to treat with a new thermolicer (a recent £4million investment by Scottish Sea Farms rented by Marine Harvest) - the device works by shocking lice with a sudden temperature change - which gave 95% lice clearance but also caused significant mortalities. As such, the treatment was stopped.

This report highlights the ongoing difficulties and costs (we estimate the financial loss of this mortality event was over £2.7 million) faced by industry with regards to sea lice management.

A fish health inspector is in the area this week. We will keep the Minister informed with any additional relevant information and/ or media interest.

[REDACTED]

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**From:** [REDACTED]  
**Sent:** 20 November 2017 15:34  
**To:** [REDACTED]  
**Subject:** FW: Notification of Fish Farm Mortality - Loch Torridon, NW Highlands

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**From:** [REDACTED]  
**Sent:** 02 September 2016 16:48  
**To:** Cabinet Secretary for the Rural Economy and Connectivity  
**Cc:** Cabinet Secretary for the Environment, Climate Change and Land Reform; Communications Rural Economy & Environment; Director of Marine Scotland Mailbox; Cowan WJ (Willie); Mitchell A (Alastair); [REDACTED]  
[REDACTED] Higgins K (Kate); Miller D (David); [REDACTED]  
**Subject:** RE: Notification of Fish Farm Mortality - Loch Torridon, NW Highlands

PS Cabinet Secretary for Rural Economy and Connectivity

The Minister will wish to be aware of mortalities reported at three Grieg Seafood salmon sites in Loch Dunvegan, Skye. The sites affected are Gob Na Hoe, Corlarach and Leinish.

- Total: Estimated between 100 – 150,000 fish lost since July, ~ 280 tonnes. The Leinish (3Kg fish) and Corlarach (1.8Kg fish) sites have been particularly affected with 20 and 24% site loss, respectively. Corlarach has suffered the majority of the 24% loss in the last two weeks, following treatment for sea lice.
- Cause: Algal bloom, associated gill damage and compromised gills during sea lice treatment
- Action: FHI will attend site next week. The company do not expect any further elevated mortality.

#### Further information

Algal Blooms are a naturally occurring phenomenon which can cause fish mortality by damaging gill tissues in fish, as well as depleting oxygen levels in the water column.

Gill damage and disease causes thickening of the gills and comprises gill function. Sea lice treatments in the area were delayed from July onwards due to the presence of algae. Increased mortality can occur following treatment of fish for sea lice and gill disease as a result of demand placed on the gills during treatment.

These reports are linked to our previous submission outlining mortalities in the Loch Torridon area as a result of algal blooms [submission of 19 August].

We will keep the Minister informed with any additional relevant information and/or media interest.

[REDACTED]

Marine Scotland – Performance, Aquaculture and Recreational Fisheries  
Tel: [REDACTED]  
E-mail: [REDACTED]  
Web: <http://www.scotland.gov.uk/marinescotland>  
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[REDACTED]

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**From:** [REDACTED]  
**Sent:** 20 November 2017 15:35  
**To:** [REDACTED]  
**Subject:** FW: Fish Farm Mortality - Western Isles - 60,000 salmon - 13% - gill disease treatment

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**From:** [REDACTED]  
**Sent:** 26 September 2016 16:04  
**To:** Cabinet Secretary for the Rural Economy and Connectivity  
**Cc:** Cabinet Secretary for the Environment, Climate Change and Land Reform; Director of Marine Scotland Mailbox; Cowan WJ (Willie); Mitchell A (Alastair); [REDACTED] FishHealth; [REDACTED] Higgins K (Kate); Miller D (David); [REDACTED] Campbell K (Kerrie); Gibbons J (Jeff)  
**Subject:** Fish Farm Mortality - Western Isles - 60,000 salmon - 13% - gill disease treatment

PS Cabinet Secretary for Rural Economy and Connectivity

The Minister will wish to be aware of mortalities reported at Soay marine fish farm in Harris, Western Isles (Marine Harvest).

- Total: 60, 000 salmon @ 2.5Kg, w/o 12 Sept [13%]
- Cause: Hydrogen peroxide treatment for Amoebic Gill Disease (AGD).
- Action: Mortality levels have reduced, however it is expected fish will require a further treatment. A site inspection is being arranged by the FHI.

Further information

AGD causes thickening of the gills and comprises gill function. Mortalities often occur following treatment due to the increased demand placed on the gills.

We expect a further associated mortality report if another treatment is carried out by veterinary instruction.

The local DSFB reported a large number of mortalities being transported off the island to the FHI. The aquaculture policy unit have also received a query from a member of the public with regards to apparent sea lice mortalities and transport of dead harvest sized fish from the Western Isles. All reports are thought to be connected.

We will keep the Minister informed with any additional relevant information and/ or media interest.

Happy to discuss further if required.

[REDACTED]

[REDACTED]

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**From:** [REDACTED]  
**Sent:** 20 November 2017 15:37  
**To:** [REDACTED]  
**Subject:** FW: For Information - Aquaculture Mortality Events - North West Scotland and Orkney - 4 sites

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**From:** [REDACTED]  
**Sent:** 29 August 2017 13:15  
**To:** Cabinet Secretary for the Rural Economy and Connectivity  
**Cc:** Cabinet Secretary for the Environment, Climate Change and Land Reform; Director of Marine Scotland Mailbox; Mitchell A (Alastair); Higgins K (Kate); Miller D (David); [REDACTED] Gibbons J (Jeff); Dryden S (Simon); [REDACTED] Palmer MR (Mike); Raynard R (Rob) (MARLAB); Moffat C (Colin) (MARLAB); Allan C (Charles) (MARLAB)  
**Subject:** For Information - Aquaculture Mortality Events - North West Scotland and Orkney - 4 sites

**PS** Cabinet Secretary for Rural Economy and Connectivity

The Minister will wish to be aware of the following mortality events;

#### **Loch Duart – North West / Ullapool Region**

- Badcall Bay - 17% salmon mortality @ 2.12Kg (~ 12, 300 fish/ 26T) mid to end August. Mortalities occurred after a peroxide treatment.
- Calva Bay – 32% salmon mortality @ 2.2Kg (~51,500 fish/ 113T) mid to end August. Fish on site have complex gill disease. Mortalities are higher in the inner cage groups and site staff believe an unobserved algal bloom may have depleted oxygen, leading to increased stress on the gills.
- The company is harvesting the most affected cages and should be finished this week.

#### **Cooke Aquaculture – Orkney**

- Bay of Vady – 7.4% salmon mortality @ 5Kg ( 11,047 fish/ 55 T) in August.
- Carness Bay – 5.63% salmon mortality @ 5.5Kg ( 16,736 fish/ 92T) in August.
- Cause at both sites is reported as complex gill issues and treatment mortalities.
- A fish health inspector is arranging site visits for next week.

#### Further Information

Gill health issues continue to affect fish health and industry production.

In order to support the ambitions of the 'Aquaculture Growth to 2030' it was suggested at the last meeting of the Aquaculture Industry Leadership Group that a strategic framework for fish health be developed.

A meeting was held with the SSPO and two CEO representatives on Friday to progress the framework. Discussions were constructive, including those on gill health related issues, with industry expressing a desire to work more closely with Marine Scotland Science in future. The agreed next step is for an industry proposal to be presented to the SSPO Board on 5 September. An aquaculture policy official will be in attendance.

Separately, the SSPO are currently organising an integrated health and disease management event to take place over several days in November. Marine Scotland's FHI will present on sea lice at the event.

We will continue to keep the Minister updated.

[REDACTED]  
Marine Scotland – Performance, Aquaculture and Recreational Fisheries

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Web: <http://www.scotland.gov.uk/marinescotland>

Mail: Scottish Government, 1B North, Victoria Quay, Edinburgh EH6 6QQ



**From:** [REDACTED]  
**Sent:** 20 November 2017 15:36  
**To:** [REDACTED]  
**Subject:** FW: Fish Farm Mortality - Western Isles - ~ 140,000 Salmon from 3 sites

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**From:** [REDACTED]  
**Sent:** 18 October 2016 15:52  
**To:** Cabinet Secretary for the Rural Economy and Connectivity  
**Cc:** Cabinet Secretary for the Environment, Climate Change and Land Reform; Director of Marine Scotland Mailbox; Palmer MR (Mike); Mitchell A (Alastair); [REDACTED], Allan C (Charles) (MARLAB); Higgins K (Kate); Miller D (David); [REDACTED], Campbell K (Kerrie); Gibbons J (Jeff)  
**Subject:** Fish Farm Mortality - Western Isles - ~ 140,000 Salmon from 3 sites

PS Cabinet Secretary for Rural Economy and Connectivity

The Minister will wish to be aware of mortality events at three fish farms in North Uist and Benbecula.

Grey Horse Channel – North Uist ( Marine Harvest)

- Total: 84, 820 salmon @3.8Kg beginning 29 August – 14%
- Cause: Amoebic gill disease (AGD) and Pancreas disease (PD)
- Action: FHI diagnostic samples taken

Groatay – North Uist (Marine Harvest)

- Total: 54, 733 salmon @3.4Kg beginning 31 August – 10%
- Cause: Amoebic gill disease (AGD) and Pancreas disease (PD)
- Action: FHI diagnostic samples taken

North Uiskevagh - Benbecula (The Scottish Salmon Company)

- Total: 32, 308 salmon @700g beginning 5 September – 6%
- Cause: Amoebic gill disease (AGD) treatment
- Action: FHI diagnostic samples taken

Further Information

AGD and treatments for AGD have resulted in mortality events in several areas of Scotland in the last few months. These were summarised in a submission on 10 October [attached for ease of reference]. The above mortality reports are the first reports of losses due to AGD in North Uist and Benbecula.

AGD typically occurs in late summer to early winter - reducing water temperatures may offer some relief. PD is a viral disease of salmon. Vaccines are available as a management tool to reduce PD incidence and impact.

There has been no further media interest in fish farm mortalities since a second report published by the Stornoway Gazette on 7 October. We will keep the Minister informed with any additional media interest.

The fish health inspectorate have also been made aware of mortalities associated with an algal bloom in Loch Fyne in July/ August, coupled with AGD, which has caused significant mortalities at three Scottish Salmon Company sites totalling 288, 776 fish. Due to the time which has passed since this event we do not expect any media interest, however it again serves as a reminder of the biological challenge faced by the salmon industry this year.



Fish Farm  
Mortalities - Sky...

[REDACTED]  
Marine Scotland – Performance, Aquaculture and Recreational Fisheries

Tel: [REDACTED]

E-mail: [REDACTED]

Web: <http://www.scotland.gov.uk/marinescotland>

Mail: Scottish Government, 1B North, Victoria Quay, Edinburgh EH6 6QQ

**From:** [REDACTED]  
**Sent:** 20 November 2017 15:35  
**To:** [REDACTED]  
**Subject:** FW: Fish Farm Mortalities - Skye - 50, 000 salmon - 7% & Harris - 40, 000 salmon - 7% - AGD

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**From:** [REDACTED]  
**Sent:** 10 October 2016 12:27  
**To:** Cabinet Secretary for the Rural Economy and Connectivity  
**Cc:** Cabinet Secretary for the Environment, Climate Change and Land Reform; Director of Marine Scotland Mailbox; Palmer MR (Mike); Mitchell A (Alastair); [REDACTED] Higgins K (Kate); Miller D (David); [REDACTED] Campbell K (Kerrie); Gibbons J (Jeff); Allan C (Charles) (MARLAB)  
**Subject:** Fish Farm Mortalities - Skye - 50, 000 salmon - 7% & Harris - 40, 000 salmon - 7% - AGD

PS Cabinet Secretary for Rural Economy and Connectivity

The Minister will wish to be aware of mortalities reported at two fish farms.

Cairidh – Skye ( Marine Harvest)

- Total: 50, 000 salmon @ 1.5Kg, w/o 3 Oct [7%]
- Cause: Hydrogen peroxide treatment for Amoebic Gill Disease (AGD). One cage affected.
- Action: Sampling by the company vet or biologist. Follow up FHI inspection in the area.

Trilleachan Mor – Harris ( Scottish Salmon Company)

- Total: 38, 580 salmon @ 2.1 Kg, w/o 19 Sep [7%]
- Cause: Hydrogen peroxide treatment for AGD. Two cages particularly affected.
- Action: Samples taken by FHI. Treatments currently on hold.

Further information

AGD is caused by a parasite which is free living in the marine environment. Under certain conditions they may proliferate causing thickening of the gills. Mortalities can occur following treatment due to the increased demand placed on the gills.

The Skye, Torridon and Harris regions have reported several mortality incidents recently which are the result of gill health issues, gill treatments and sea lice treatments. Those notified by submission are summarised below;

- Torridon: 2 sites - 102, 645 fish July/ Aug – Scottish Salmon Company (algal blooms, AGD and gill treatment)
- Skye: 3 sites - ~150, 000 fish July/Aug – Grieg Seafood Shetland (algal blooms/ gill pathology, sea lice treatment)  
2 sites - 165, 283 fish July – Sep – Marine Harvest ( sea lice treatment + AGD treatment)
- Harris: 3 sites - ~350, 000 fish Aug/ Sep – Marine Harvest (AGD and gill treatments)  
1 site - 38, 580 fish September – Scottish Salmon Company ( AGD and gill treatments)

The Stornoway Gazette reported on large mortalities in the Western Isles due to AGD on 30 September with a follow up report on 7 October. We have also received an FOI request relating to all information held on Marine Harvest disease events this year.

AGD typically occurs in late summer to early winter and reducing water temperatures may offer some relief. We will keep the Minister informed with any additional relevant information and/ or media interest.

Happy to discuss further if required.

[REDACTED]  
[REDACTED]  
Marine Scotland – Performance, Aquaculture and Recreational Fisheries

Tel: [REDACTED]

E-mail: [REDACTED]

Web: <http://www.scotland.gov.uk/marinescotland>

Mail: Scottish Government, 1B North, Victoria Quay, Edinburgh EH6 6QQ

[REDACTED]

---

**From:** [REDACTED]  
**Sent:** 20 November 2017 15:32  
**To:** [REDACTED]  
**Subject:** FW: Notification of mortality events above 5%

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**From:** [REDACTED]  
**Sent:** 30 October 2015 11:03  
**To:** Minister for Environment, Climate Change and Land Reform  
**Cc:** [REDACTED]; Mitchell A (Alastair); Cowan WJ (Willie); Director of Marine Scotland Mailbox; MS FishHealth; [REDACTED] Allan C (Charles) (MARLAB)  
**Subject:** Notification of mortality events above 5%

PS Minister for Environment, Climate Change and Land Reform

The Minister will wish to be aware of recent mortality events which reached above the agreed reporting threshold of 5%. We are expecting further associated mortality reports and will update the Minister accordingly.

#### **Mortality Event 1**

- 27/08/15 : 9% mortality at MacLean's Nose SW salmon farm, Ardnamurchan (Marine Harvest ) 62,000 fish > 750g.
- Mortalities connected to recent site transfer coupled with treatment for sea lice and diagnosis of heart and skeletal muscle inflammation (HSMI) earlier in the cycle.
- Mortality levels have returned to normal. No further action.

#### **Mortality Event 2**

- 07/09/15 – 13/10/15: 10% mortality at Caolas A Deas SW salmon farm, South Lewis (Marine Harvest) 93,000 fish > 750g.
- Mortalities occurred after sea lice treatment due to compromised gills caused by an algal bloom.
- Company removing biomass on site to reduce sea lice + treatments required. Diagnostic samples taken by fish health inspectorate.

#### **Background**

Algal Blooms are a naturally occurring phenomenon which can cause fish mortality by damaging gill tissues in fish, as well as depleting oxygen levels in the water column. Compromised gills can cause mortalities during bath treatment for parasites.

Heart and skeletal muscle inflammation (HSMI) is currently thought to be associated with Piscine reovirus in salmon. HSMI usually occurs within the first 6 months after transfer to sea. Mortalities can reach up to 20% however usually remain low unless there are other contributory factors.

We will keep the Minister informed with any additional relevant information and/ or media interest.

Happy to discuss further if required.

Thanks,

[REDACTED]  
Marine Scotland – Performance, Aquaculture and Recreational Fisheries  
[REDACTED]

Web: <http://www.scotland.gov.uk/marinescotland>

Mail: Scottish Government, 1B North, Victoria Quay, Edinburgh EH6 6QQ



Aquaculture Europe - Edinburgh

Food For Thought

20-23 September 2016

<http://www.gov.scot/Resource/0043/00433571.pdf>

[REDACTED]

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**From:** [REDACTED]  
**Sent:** 20 November 2017 15:35  
**To:** [REDACTED]  
**Subject:** FW: Fish Farm Mortality - Western Isles - 60,000 salmon - 13% - gill disease treatment

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**From:** [REDACTED]  
**Sent:** 04 October 2016 17:14  
[REDACTED]  
**Subject:** FW: Fish Farm Mortality - Western Isles - 60,000 salmon - 13% - gill disease treatment

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**From:** [REDACTED]  
**Sent:** 26 September 2016 16:04  
**To:** Cabinet Secretary for the Rural Economy and Connectivity  
**Cc:** Cabinet Secretary for the Environment, Climate Change and Land Reform; Director of Marine Scotland Mailbox; Cowan WJ (Willie); Mitchell A (Alastair); [REDACTED] MS FishHealth; [REDACTED] Higgins K (Kate); Miller D (David); [REDACTED] Campbell K (Kerrie); Gibbons J (Jeff)  
**Subject:** Fish Farm Mortality - Western Isles - 60,000 salmon - 13% - gill disease treatment

PS Cabinet Secretary for Rural Economy and Connectivity

The Minister will wish to be aware of mortalities reported at Soay marine fish farm in Harris, Western Isles (Marine Harvest).

- Total: 60, 000 salmon @ 2.5Kg, w/o 12 Sept [13%]
- Cause: Hydrogen peroxide treatment for Amoebic Gill Disease (AGD).
- Action: Mortality levels have reduced, however it is expected fish will require a further treatment. A site inspection is being arranged by the FHI.

Further information

AGD causes thickening of the gills and comprises gill function. Mortalities often occur following treatment due to the increased demand placed on the gills.

We expect a further associated mortality report if another treatment is carried out by veterinary instruction.

The local DSFB reported a large number of mortalities being transported off the island to the FHI. The aquaculture policy unit have also received a query from a member of the public with regards to apparent

sea lice mortalities and transport of dead harvest sized fish from the Western Isles. All reports are thought to be connected.

We will keep the Minister informed with any additional relevant information and/ or media interest.

Happy to discuss further if required.

[REDACTED]  
Marine Scotland – Performance, Aquaculture and Recreational Fisheries

Tel: [REDACTED]

E-mail: [REDACTED]



**Barber J (Jill)**

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**From:** [REDACTED]  
**Sent:** 20 November 2017 15:31  
**To:** [REDACTED]  
**Subject:** FW: Fish Farm Mortality Report

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**From:** [REDACTED]  
**Sent:** 15 December 2015 09:55  
**To:** Minister for Environment, Climate Change and Land Reform  
**Cc:** [REDACTED]; Mitchell A (Alastair); Cowan WJ (Willie); MS FishHealth; Allan C (Charles) (MARLAB); Director of Marine Scotland Mailbox  
**Subject:** Fish Farm Mortality Report

PS Minister for Environment, Climate Change and Land Reform

The Minister will wish to be aware of an on-going mortality event at two marine salmon farms (Cole Deep and East of Papa Little) in Shetland operated by Grieg Seafood.

- The mortalities are thought to be due to gill disease caused by environmental conditions. Gill issues have caused several mortality incidents across Scotland in recent months.
- Both sites are currently accelerating harvest, with the last fish in East of Papa Little due to be harvested today. Two fish health inspectors will arrive on site today to take diagnostic samples.
- Total mortality figures have not been confirmed however indications are that they will be over the 5% threshold for reporting. Cole Deep and East of Papa Little received Norwegian smolts in 2014 - this may attract some media interest. Mortalities appear to be unrelated to fish origin.

We will keep the Minister informed with any additional relevant information and/ or media interest.

[REDACTED]  
Marine Scotland – Performance, Aquaculture and Recreational Fisheries  
[REDACTED]

Web: <http://www.scotland.gov.uk/marinescotland>

Mail: Scottish Government, 1B North, Victoria Quay, Edinburgh EH6 6QQ



Aquaculture Europe - Edinburgh

Food For Thought

20-23 September 2016

<http://www.gov.scot/Resource/0043/00433571.pdf>

[REDACTED]

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**From:** [REDACTED]  
**Sent:** 20 November 2017 15:32  
**To:** [REDACTED]  
**Subject:** FW: Notification of mortality above 5%

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**From:** [REDACTED]  
**Sent:** 07 September 2015 15:25  
**To:** [REDACTED]  
**Subject:** FW: Notification of mortality above 5%

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**From:** [REDACTED]  
**Sent:** 12 February 2015 11:44  
**To:** Minister for Environment, Climate Change and Land Reform  
**Cc:** Mitchell A (Alastair); Cowan WJ (Willie); Director of Marine Scotland Mailbox; Allan C (Charles) (MARLAB); [REDACTED]  
**Subject:** Notification of mortality above 5%

PS Minister for Environment, Climate Change and Land Reform

As agreed in our submission of 17<sup>th</sup> December 2014 and with apologies for the delay in notification.

The Minister will wish to be aware of two recent reported mortality events on marine salmon farms that were above the agreed mortality reporting threshold of 5%:

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

**2. Sites: Scotasay and Raineach**

Date of mortality: reported week beginning 5<sup>th</sup> January 2015

Percentage mortality: Between 2% and 33%

Company: Marine Harvest

Species: Atlantic Salmon

Weight: Sites now fallow (Nov – fish up to 2.4kg)

Age: Sites now fallow (2013 Q4 and 2014 Q1 previously on site)

Estimated number of fish lost: From the start of October to fallow – Scotasay = 192,000 mortalities and 123,600 culled. Raineach = 297,000 mortalities and 25,600 culled. In addition, 407,000 fish were harvested from these sites in this time period

Circumstance: Reported due to sea lice/gill damage/physical damage/treatment damage. 4 cages were culled out between 20<sup>th</sup> – 23<sup>rd</sup> Nov (3 at Scotasay and 1 at Raineach). Harvest completed on 28<sup>th</sup> January and site now fallow.

MS action: Scotasay inspected November 2014 – sites now fallow.

Happy to discuss further if required.

We have implemented changes to the notification procedure internally so that these can be notified as soon as possible after intelligence being received by Marine Scotland Science.

Thanks,  
[REDACTED]

[REDACTED]

Marine Scotland – Performance, Aquaculture and Recreational Fisheries  
[REDACTED]

Web: <http://www.scotland.gov.uk/marinescotland>

Mail: Scottish Government, 1B North, Victoria Quay, Edinburgh EH6 6QQ



**From:** [REDACTED]  
**Sent:** 20 November 2017 15:36  
**To:**  
**Subject:** FW: Fish Farm Mortality - ~100,000 Fish - Skye - Grieg Seafood

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**From:** [REDACTED]  
**Sent:** 28 October 2016 14:30  
**To:** Cabinet Secretary for the Rural Economy and Connectivity  
**Cc:** Cabinet Secretary for the Environment, Climate Change and Land Reform; Communications Rural Economy & Environment; Director of Marine Scotland Mailbox: Palmer MR (Mike); Mitchell A (Alastair); Higgins K (Kate); Miller D (David); [REDACTED] Allan C (Charles) (MARLAB)  
**Subject:** Fish Farm Mortality - ~100,000 Fish - Skye - Grieg Seafood

PS Cabinet Secretary for Rural Economy and Connectivity

The Minister will wish to be aware of mortalities reported at Gob Na Hoe salmon farm in Skye.

- Total: Estimated 100,000 fish @2Kg in the last three weeks (35%). Operated by Grieg Seafood.
- Cause: Complex gill issues and gill treatments
- Action: FHI will be on site next week to investigate.

#### Further Information

FHI were notified of the above mortality event by a Marine Scotland Compliance intelligence report and the company have since provided further information.

We reported a mortality event between July and August at Gob Na Hoe, Leinish and Corlarach fish farms by submission on 2 September, which were the result of algal blooms and gill damage. This is therefore the second large mortality event due to gill issues in this area.

AGD and other gill diseases, many of which are co-occurring, are affecting production in many parts of Scotland this year.

We will keep the Minister informed with any additional information or media interest.

[REDACTED]  
[REDACTED]  
Marine Scotland – Performance, Aquaculture and Recreational Fisheries  
[REDACTED]

Web: <http://www.scotland.gov.uk/marinescotland>

Mail: Scottish Government, 1B North, Victoria Quay, Edinburgh EH6 6QQ

[REDACTED]

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**From:** [REDACTED]  
**Sent:** 20 November 2017 15:32  
**To:** [REDACTED]  
**Subject:** FW: Fish Farm Mortality Report

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**From:** [REDACTED]  
**Sent:** 04 November 2015 12:06  
**To:** Minister for Environment, Climate Change and Land Reform  
**Cc:** [REDACTED], Mitchell A (Alastair); Cowan WJ (Willie); Director of Marine Scotland Mailbox; MS FishHealth; Allan C (Charles) (MARLAB)  
**Subject:** Fish Farm Mortality Report

PS Minister for Environment, Climate Change and Land Reform

The Minister will wish to be aware of a recent mortality event which reached above the agreed reporting threshold of 5%.

- Total: 5.7% mortality at Cairidh SW salmon farm in Skye on 07/10/2015 - 31, 565 fish at 3.5Kg (Marine Harvest)
- Cause: Mortalities occurred the day after sea lice treatment. Amoebic gill disease (AGD) present on site.
- Action: Mortalities have decreased. The site is harvesting and will be empty in January. No further action.

#### Background

AGD causes thickening of the gills and comprises gill function. Mortalities often occur following treatment of fish due to the increased demand placed on the gills.

Further mortality reports may be expected due to recent algal blooms, reports of AGD on several farms and sea lice treatments.

We will keep the Minister informed with any additional relevant information and/ or media interest.

Happy to discuss further if required.

Thanks,

[REDACTED]  
[REDACTED]  
Marine Scotland – Performance, Aquaculture and Recreational Fisheries  
[REDACTED]

[REDACTED]

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**From:** [REDACTED]  
**Sent:** 20 November 2017 15:32  
**To:** [REDACTED]  
**Subject:** FW: Fish Farm Mortality Report - 12%

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**From:** [REDACTED]  
**Sent:** 07 December 2015 09:51  
**To:** Minister for Environment, Climate Change and Land Reform  
**Cc:** [REDACTED] Mitchell A (Alastair); Cowan WJ (Willie); Director of Marine Scotland Mailbox; MS FishHealth; Allan C (Charles) (MARLAB)  
**Subject:** Fish Farm Mortality Report - 12%

PS Minister for Environment, Climate Change and Land Reform

The Minister will wish to be aware of a recent mortality event which reached above the agreed reporting threshold of 5%.

- Total: 12% mortality at Sgian Dubh SW salmon farm in Loch Striven, near Dunoon, on 21/11/2015 – 97, 000 fish at 1.5 Kg (The Scottish Salmon Company)
- Cause: Mortalities occurred the day after sea lice treatment. Gill pathology identified on site by the fish vet group but was not thought severe enough to prevent treatment.
- Action: Treatment halted as soon as mortalities were observed in cages 1-6. Cages 7-10 remain to be treated. Mortalities have decreased to pre-treatment levels. The site will conduct full gill screening before any further treatment. The fish health inspectorate are considering whether to attend site.

#### Background

Gill pathologies can result in mortalities during treatment due to increased demand placed on the gills.

Further mortalities may result if the company take the decision to treat cages 7-10.

We will keep the Minister informed with any additional relevant information and/ or media interest.

Happy to discuss further if required.

Thanks,

[REDACTED]  
Marine Scotland – Performance, Aquaculture and Recreational Fisheries

E-mail: [REDACTED]

[REDACTED]

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**From:** [REDACTED]  
**Sent:** 20 November 2017 15:36  
**To:** [REDACTED]  
**Subject:** FW: Fish Farm Mortality - Shetland, 67 000 fish (12%) - gill disease treatment

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**From:** [REDACTED]  
**Sent:** 14 November 2016 10:13  
**To:** Cabinet Secretary for the Rural Economy and Connectivity  
**Cc:** Cabinet Secretary for the Environment, Climate Change and Land Reform; Director of Marine Scotland Mailbox; Mitchell A (Alastair); [REDACTED] Higgins K (Kate); Miller D (David); Campbell K (Kerrie); Gibbons J (Jeff); [REDACTED]  
**Subject:** Fish Farm Mortality - Shetland, 67 000 fish (12%) - gill disease treatment

**PS Cabinet Secretary for Rural Economy and Connectivity**

The Minister will wish to be aware of mortalities reported at Cole Deep fish farm in Shetland, operated by Grieg Seafood.

- Total: 67, 317 salmon (12%) @ 600g – week beginning 31<sup>st</sup> October.
- Cause: gill damage + treatment for Amoebic Gill Disease (AGD)
- Action: FHI attended site this week. Remaining fish appeared healthy - no follow up action required.

Further information

Increased algae has been observed in water samples since the transfer of smolts to sea at Cole Deep. Mortalities occurred following a hydrogen peroxide treatment for AGD. Mortalities are thought to have occurred because of gill damage resulting from a combination of increased algae and Amoebic Gill Disease.

We will keep the Minister informed with any additional relevant information and/ or media interest.

[REDACTED]  
Aquaculture Policy Advisor  
Marine Scotland – Performance, Aquaculture and Recreational Fisheries  
Tel: [REDACTED]  
E-mail: [REDACTED]  
Web: <http://www.scotland.gov.uk/marinescotland>  
Mail: Scottish Government, 1B North, Victoria Quay, Edinburgh EH6 6QQ

(6)

**From:** [REDACTED]  
**Sent:** 20 November 2017 15:34  
**To:** [REDACTED]  
**Subject:** FW: Notification of Fish Farm Mortality - Loch Torridon, NW Highlands

**From:** [REDACTED]  
**Sent:** 19 August 2016 16:40  
**To:** Cabinet Secretary for the Rural Economy and Connectivity  
**Cc:** Cabinet Secretary for the Environment, Climate Change and Land Reform; Communications Rural Economy & Environment; Director of Marine Scotland Mailbox; Cowan WJ (Willie); Mitchell A (Alastair); [REDACTED]; Higgins K (Kate); Miller D (David); [REDACTED]  
**Subject:** Notification of Fish Farm Mortality - Loch Torridon, NW Highlands

PS Cabinet Secretary for Rural Economy and Connectivity

Please find attached a submission detailing recent fish farm mortality events in Loch Torridon and the internal mortality reporting system.



Notification of Algal Bloom an...    FW: Notification of Fish Farm ...

Best Regards,

[REDACTED]  
Marine Scotland – Performance, Aquaculture and Recreational Fisheries  
Tel: [REDACTED]  
E-mail: [REDACTED]  
Web: <http://www.scotland.gov.uk/marinescotland>  
Mail: Scottish Government, 1B North, Victoria Quay, Edinburgh EH6 6QQ



Scottish Government

Aquaculture Europe - Edinburgh  
Food For Thought  
20-23 September 2016



[REDACTED]

19 August 2016

Cabinet Secretary for Rural Economy and Connectivity

**NOTIFICATION OF FISH FARM MORTALITY EVENTS AND REPORTING REQUIREMENTS**

**Purpose**

1. To notify the Cabinet Secretary of significant mortality events at fish farms operated by The Scottish Salmon Company in Loch Torridon, North West Highlands as the result of algal blooms in the area.

[REDACTED]

**Priority**

3. **Routine.**

**Mortality Notification**

4. The Scottish Salmon Company have reported mortalities at [REDACTED] and Kenmore Loch Torridon fish farms which can be summarised as follows;

- [REDACTED]
- Kenmore, Loch Torridon: Week beginning 15 August - 42% site mortality [~60,000 fish @ 800g] – caused by presence of algal bloom, amoebic gill disease (AGD) and associated chemical treatment complications.

5. Algal Blooms are a naturally occurring phenomenon which can cause fish mortality by damaging gill tissues in fish, as well as depleting oxygen levels in the water column.

6. The fish in Kenmore began to show signs of AGD in July, however treatment could not be performed due to the algal bloom in the area which had already caused gill problems. AGD progressed and the site carried out a treatment with hydrogen peroxide on 15<sup>th</sup> August. Mortalities often occur following treatment of fish due to the increased demand placed on the gills, especially those with progressed AGD, where gills are already compromised.

**Next Steps**

7. Mortality levels are reported to have reduced to normal. Marine Scotland's Fish Health Inspectorate are currently scheduling visits to both sites.

## **Fish Farm Mortality Reporting Requirements**

8. The Code of Good Practice for Scottish Finfish Aquaculture, in line with a recommendation from the Ministerial Group on Sustainable Aquaculture's predecessor Healthier Fish working group, requires that marine fish farms notify Marine Scotland of mortalities above the level of 1% of the total fish on site (for fish over 750g) and above 1.5% of the total fish (for fish under 750g) on site in any one week. Reporting levels for freshwater farms are also described based on development stage. This reporting is required in order for the Fish Health Inspectorate to monitor any emerging disease issues.

9. It was agreed during the previous administration that fish farm mortality of greater than 5% of the total site in any one week should be notified to the Minister as a matter of course. Having reviewed the Ministerial reporting requirements we recommend using the existing 5% mortality as a guideline trigger, advising Ministers where experience suggests there is a likelihood the incident will attract attention and/or become newsworthy.

### **Mortality Reporting**

10. If the Cabinet Secretary agrees to this approach, relevant mortality notifications will be provided in template form, similar to those provided in the case of a significant fish escape. The information will detail site name, site operator, location, and the level of mortality experienced as well as the reported reason for the mortality (if known). We will also provide additional background detail and handling guidance where appropriate. An example notification, using the current mortality incident information has been provided.

### **Communications**

11. We will keep the Cabinet Secretary informed with any additional relevant information and media interest.

### **Recommendation**

12. The Cabinet Secretary is invited to note this submission and confirm if content with the proposed mortality reporting system.

[REDACTED]  
[REDACTED]  
[REDACTED]  
Marine Scotland  
[REDACTED]

19 August 2016

**From:** [redacted]  
**Sent:** 19 August 2016 16:39  
**To:** [redacted]  
**Subject:** FW: Notification of Fish Farm Mortality - Loch Torridon, NW highlands

**From:** [redacted]  
**Sent:** 19 August 2016 15:08  
**To:** [redacted]  
**Subject:** Notification of Fish Farm Mortality - Loch Torridon, NW highlands

PS Cabinet Secretary for Rural Economy and Connectivity,

The minister will wish to be aware of recent mortality events in Loch Torridon, NW Highlands

[redacted]

Kenmore, Loch Torridon (The Scottish Salmon Company)

- Total: 42% mortality – week beginning 8 August. Estimated 60,000 fish @ 800g average
- Cause: Algal bloom, Amoebic Gill Disease (AGD) + associated treatment.
- Action: Mortalities have decreased to background levels. Fish Health Inspectorate site visit being arranged.

Background

Algal Blooms are a naturally occurring phenomenon which can cause fish mortality by damaging gill tissues in fish, as well as depleting oxygen levels in the water column.

AGD causes thickening of the gills and comprises gill function. AGD treatment at Kenmore was delayed due to the algal bloom present in the Loch. This led to further gill deterioration. Mortalities often occur following treatment of fish due to the increased demand placed on the gills, particularly in cases where gills are already compromised.

We will keep the Ministers' informed with any additional relevant information and/ or media interest.

Happy to discuss further if required.

[redacted]  
[redacted]  
Marine Scotland – Performance, Aquaculture and Recreational Fisheries  
[redacted]  
E-mail [redacted]

[REDACTED]

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**From:** [REDACTED]  
**Sent:** 20 November 2017 15:35  
**To:** [REDACTED]  
**Subject:** FW: Fish Farm Mortality - Marine Harvest Western Isles - 25% - 250,000 salmon

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**From:** [REDACTED]  
**Sent:** 05 October 2016 09:55  
**To:** Cabinet Secretary for the Rural Economy and Connectivity  
**Cc:** Cabinet Secretary for the Environment, Climate Change and Land Reform; Director of Marine Scotland Mailbox; Palmer MR (Mike); Mitchell A (Alastair); [REDACTED] MS FishHealth; [REDACTED] Higgins K (Kate); Miller D (David); [REDACTED] Campbell K (Kerrie); Gibbons J (Jeff)  
**Subject:** Fish Farm Mortality - Marine Harvest Western Isles - 25% - 250,000 salmon

PS Cabinet Secretary for Rural Economy and Connectivity

The Minister will wish to be aware of mortalities reported at Raineach and Scotasay marine fish farms in Harris, Western Isles (Marine Harvest).

- Total: Estimated 250,000 fish @ 2.5 - 3 Kg – cumulative mortalities throughout August and September (~ 675T, ~25%)
- Cause: Amoebic Gill Disease (AGD) and associated treatments
- Action: A fish health inspector is on site this week conducting investigations.

#### Further information

Raineach and Scotasay fish farms are formed of two cage groups separated by a feed barge and can be considered as one site in terms of fish health. This incident is related to the submission of 26 September which gave details of a 60,000 fish mortality at Soay fish farm in Harris, also operated by Marine Harvest.

AGD causes thickening of the gills and comprises gill function. Mortalities can occur following treatment due to the increased demand placed on the gills.

#### Media and/ or public interest

The local DSFB informed the FHI of a large volume of mortalities being transported off the island. The Stornoway Gazette ran a report on 30 September titled ' Marine Harvest has 'serious AGD issues'' and have asked for comment from the Scottish Government for a follow up report. We have also received an FOI request relating to all information held on Marine Harvest disease events this year.

We will keep the Minister informed with any additional relevant information and/ or media interest.

Happy to discuss further if required

[REDACTED]

[REDACTED]

---

**From:** [REDACTED]  
**Sent:** 20 November 2017 15:35  
**To:** [REDACTED]  
**Subject:** FW: Fish Farm Mortality ~ 115,000 4Kg fish - sea lice treatment - Skye

---

**From:** [REDACTED]  
**Sent:** 12 September 2016 16:55  
**To:** Cabinet Secretary for the Rural Economy and Connectivity  
**Cc:** Cabinet Secretary for the Environment, Climate Change and Land Reform; Communications Rural Economy & Environment; Director of Marine Scotland Mailbox; Cowan WJ (Willie); Mitchell A (Alastair); [REDACTED] Allan C (Charles) (MARLAB); [REDACTED] Higgins K (Kate); Miller D (David); [REDACTED]  
**Subject:** Fish Farm Mortality ~ 115,000 4Kg fish - sea lice treatment - Skye

PS Cabinet Secretary for Rural Economy and Connectivity

The Minister will wish to be aware of mortalities reported at Greshornish salmon farm in Skye (Marine Harvest).

- Total: 115, 283 fish @ 4Kg fish lost since July [est. 460T]
- Cause: Failed sea lice treatments - 95,400 mortalities occurred during weeks of 31/07 and 07/08 following operational issues using a thermolicer.
- Action: Mortality levels have returned to 'background' levels. Accelerated harvest at site – to be fallow by end of September. FHI to remain updated with weekly mortality on site.

Further information

The Skye and Loch Torridon area suffered algal blooms in July [linked to mortality reports of 19 Aug and 2 September] which led to delayed sea lice treatments across the area. Greshornish fish farm has reported having a sea lice issue since February 2016. They have been treating ineffectively on a monthly basis since.

The site made the decision to treat with a new thermolicer (a recent £4million investment by Scottish Sea Farms rented by Marine Harvest) - the device works by shocking lice with a sudden temperature change - which gave 95% lice clearance but also caused significant mortalities. As such, the treatment was stopped.

This report highlights the ongoing difficulties and costs (we estimate the financial loss of this mortality event was over £2.7 million) faced by industry with regards to sea lice management.

A fish health inspector is in the area this week. We will keep the Minister informed with any additional relevant information and/ or media interest.

[REDACTED]

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**From:** [REDACTED]  
**Sent:** 20 November 2017 15:34  
**To:** [REDACTED]  
**Subject:** FW: Notification of Fish Farm Mortality - Loch Torridon, NW Highlands

---

**From:** [REDACTED]  
**Sent:** 02 September 2016 16:48  
**To:** Cabinet Secretary for the Rural Economy and Connectivity  
**Cc:** Cabinet Secretary for the Environment, Climate Change and Land Reform; Communications Rural Economy & Environment; Director of Marine Scotland Mailbox; Cowan WJ (Willie); Mitchell A (Alastair); [REDACTED]  
[REDACTED] Higgins K (Kate); Miller D (David); [REDACTED]  
**Subject:** RE: Notification of Fish Farm Mortality - Loch Torridon, NW Highlands

PS Cabinet Secretary for Rural Economy and Connectivity

The Minister will wish to be aware of mortalities reported at three Grieg Seafood salmon sites in Loch Dunvegan, Skye. The sites affected are Gob Na Hoe, Corlarach and Leinish.

- Total: Estimated between 100 – 150,000 fish lost since July, ~ 280 tonnes. The Leinish (3Kg fish) and Corlarach (1.8Kg fish) sites have been particularly affected with 20 and 24% site loss, respectively. Corlarach has suffered the majority of the 24% loss in the last two weeks, following treatment for sea lice.
- Cause: Algal bloom, associated gill damage and compromised gills during sea lice treatment
- Action: FHI will attend site next week. The company do not expect any further elevated mortality.

#### Further information

Algal Blooms are a naturally occurring phenomenon which can cause fish mortality by damaging gill tissues in fish, as well as depleting oxygen levels in the water column.

Gill damage and disease causes thickening of the gills and comprises gill function. Sea lice treatments in the area were delayed from July onwards due to the presence of algae. Increased mortality can occur following treatment of fish for sea lice and gill disease as a result of demand placed on the gills during treatment.

These reports are linked to our previous submission outlining mortalities in the Loch Torridon area as a result of algal blooms [submission of 19 August].

We will keep the Minister informed with any additional relevant information and/or media interest.

[REDACTED]

Marine Scotland – Performance, Aquaculture and Recreational Fisheries  
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[REDACTED]

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**From:** [REDACTED]  
**Sent:** 20 November 2017 15:35  
**To:** [REDACTED]  
**Subject:** FW: Fish Farm Mortality - Western Isles - 60,000 salmon - 13% - gill disease treatment

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**From:** [REDACTED]  
**Sent:** 26 September 2016 16:04  
**To:** Cabinet Secretary for the Rural Economy and Connectivity  
**Cc:** Cabinet Secretary for the Environment, Climate Change and Land Reform; Director of Marine Scotland Mailbox; Cowan WJ (Willie); Mitchell A (Alastair); [REDACTED] FishHealth; [REDACTED] Higgins K (Kate); Miller D (David); [REDACTED] Campbell K (Kerrie); Gibbons J (Jeff)  
**Subject:** Fish Farm Mortality - Western Isles - 60,000 salmon - 13% - gill disease treatment

PS Cabinet Secretary for Rural Economy and Connectivity

The Minister will wish to be aware of mortalities reported at Soay marine fish farm in Harris, Western Isles (Marine Harvest).

- Total: 60,000 salmon @ 2.5Kg, w/o 12 Sept [13%]
- Cause: Hydrogen peroxide treatment for Amoebic Gill Disease (AGD).
- Action: Mortality levels have reduced, however it is expected fish will require a further treatment. A site inspection is being arranged by the FHI.

Further information

AGD causes thickening of the gills and comprises gill function. Mortalities often occur following treatment due to the increased demand placed on the gills.

We expect a further associated mortality report if another treatment is carried out by veterinary instruction.

The local DSFB reported a large number of mortalities being transported off the island to the FHI. The aquaculture policy unit have also received a query from a member of the public with regards to apparent sea lice mortalities and transport of dead harvest sized fish from the Western Isles. All reports are thought to be connected.

We will keep the Minister informed with any additional relevant information and/ or media interest.

Happy to discuss further if required.

[REDACTED]

[REDACTED]

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**From:** [REDACTED]  
**Sent:** 20 November 2017 15:37  
**To:** [REDACTED]  
**Subject:** FW: For Information - Aquaculture Mortality Events - North West Scotland and Orkney - 4 sites

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**From:** [REDACTED]  
**Sent:** 29 August 2017 13:15  
**To:** Cabinet Secretary for the Rural Economy and Connectivity  
**Cc:** Cabinet Secretary for the Environment, Climate Change and Land Reform; Director of Marine Scotland Mailbox; Mitchell A (Alastair); Higgins K (Kate); Miller D (David); [REDACTED] Gibbons J (Jeff); Dryden S (Simon); [REDACTED] Palmer MR (Mike); Raynard R (Rob) (MARLAB); Moffat C (Colin) (MARLAB); Allan C (Charles) (MARLAB)  
**Subject:** For Information - Aquaculture Mortality Events - North West Scotland and Orkney - 4 sites

**PS** Cabinet Secretary for Rural Economy and Connectivity

The Minister will wish to be aware of the following mortality events;

#### **Loch Duart – North West / Ullapool Region**

- Badcall Bay - 17% salmon mortality @ 2.12Kg (~ 12, 300 fish/ 26T) mid to end August. Mortalities occurred after a peroxide treatment.
- Calva Bay – 32% salmon mortality @ 2.2Kg (~51,500 fish/ 113T) mid to end August. Fish on site have complex gill disease. Mortalities are higher in the inner cage groups and site staff believe an unobserved algal bloom may have depleted oxygen, leading to increased stress on the gills.
- The company is harvesting the most affected cages and should be finished this week.

#### **Cooke Aquaculture – Orkney**

- Bay of Vady – 7.4% salmon mortality @ 5Kg ( 11,047 fish/ 55 T) in August.
- Carness Bay – 5.63% salmon mortality @ 5.5Kg ( 16,736 fish/ 92T) in August.
- Cause at both sites is reported as complex gill issues and treatment mortalities.
- A fish health inspector is arranging site visits for next week.

#### Further Information

Gill health issues continue to affect fish health and industry production.

In order to support the ambitions of the 'Aquaculture Growth to 2030' it was suggested at the last meeting of the Aquaculture Industry Leadership Group that a strategic framework for fish health be developed.

A meeting was held with the SSPO and two CEO representatives on Friday to progress the framework. Discussions were constructive, including those on gill health related issues, with industry expressing a desire to work more closely with Marine Scotland Science in future. The agreed next step is for an industry proposal to be presented to the SSPO Board on 5 September. An aquaculture policy official will be in attendance.



Separately, the SSPO are currently organising an integrated health and disease management event to take place over several days in November. Marine Scotland's FHI will present on sea lice at the event.

We will continue to keep the Minister updated.

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[REDACTED]

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**From:** [REDACTED]  
**Sent:** 20 November 2017 15:36  
**To:** [REDACTED]  
**Subject:** FW: Fish Farm Mortality - Western Isles - ~ 140,000 Salmon from 3 sites

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**From:** [REDACTED]  
**Sent:** 18 October 2016 15:52  
**To:** Cabinet Secretary for the Rural Economy and Connectivity  
**Cc:** Cabinet Secretary for the Environment, Climate Change and Land Reform; Director of Marine Scotland Mailbox; Palmer MR (Mike); Mitchell A (Alastair); [REDACTED]; Allan C (Charles) (MARLAB); Higgins K (Kate); Miller D (David); [REDACTED]; Campbell K (Kerrie); Gibbons J (Jeff)  
**Subject:** Fish Farm Mortality - Western Isles - ~ 140,000 Salmon from 3 sites

PS Cabinet Secretary for Rural Economy and Connectivity

The Minister will wish to be aware of mortality events at three fish farms in North Uist and Benbecula.

Grey Horse Channel – North Uist ( Marine Harvest)

- Total: 84, 820 salmon @3.8Kg beginning 29 August – 14%
- Cause: Amoebic gill disease (AGD) and Pancreas disease (PD)
- Action: FHI diagnostic samples taken

Groatay – North Uist (Marine Harvest)

- Total: 54, 733 salmon @3.4Kg beginning 31 August – 10%
- Cause: Amoebic gill disease (AGD) and Pancreas disease (PD)
- Action: FHI diagnostic samples taken

North Uiskevagh - Benbecula (The Scottish Salmon Company)

- Total: 32, 308 salmon @700g beginning 5 September – 6%
- Cause: Amoebic gill disease (AGD) treatment
- Action: FHI diagnostic samples taken

Further Information

AGD and treatments for AGD have resulted in mortality events in several areas of Scotland in the last few months. These were summarised in a submission on 10 October [attached for ease of reference]. The above mortality reports are the first reports of losses due to AGD in North Uist and Benbecula.

AGD typically occurs in late summer to early winter - reducing water temperatures may offer some relief. PD is a viral disease of salmon. Vaccines are available as a management tool to reduce PD incidence and impact.

There has been no further media interest in fish farm mortalities since a second report published by the Stornoway Gazette on 7 October. We will keep the Minister informed with any additional media interest.

The fish health inspectorate have also been made aware of mortalities associated with an algal bloom in Loch Fyne in July/ August, coupled with AGD, which has caused significant mortalities at three Scottish Salmon Company sites totalling 288, 776 fish. Due to the time which has passed since this event we do not expect any media interest, however it again serves as a reminder of the biological challenge faced by the salmon industry this year.



Fish Farm  
Mortalities - Sky...

[REDACTED]  
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**From:** [REDACTED]  
**Sent:** 20 November 2017 15:35  
**To:** [REDACTED]  
**Subject:** FW: Fish Farm Mortalities - Skye - 50, 000 salmon - 7% & Harris - 40, 000 salmon - 7% - AGD

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**From:** [REDACTED]  
**Sent:** 10 October 2016 12:27  
**To:** Cabinet Secretary for the Rural Economy and Connectivity  
**Cc:** Cabinet Secretary for the Environment, Climate Change and Land Reform; Director of Marine Scotland Mailbox; Palmer MR (Mike); Mitchell A (Alastair); [REDACTED] Higgins K (Kate); Miller D (David); [REDACTED] Campbell K (Kerrie); Gibbons J (Jeff); Allan C (Charles) (MARLAB)  
**Subject:** Fish Farm Mortalities - Skye - 50, 000 salmon - 7% & Harris - 40, 000 salmon - 7% - AGD

PS Cabinet Secretary for Rural Economy and Connectivity

The Minister will wish to be aware of mortalities reported at two fish farms.

Cairidh – Skye ( Marine Harvest)

- Total: 50, 000 salmon @ 1.5Kg, w/o 3 Oct [7%]
- Cause: Hydrogen peroxide treatment for Amoebic Gill Disease (AGD). One cage affected.
- Action: Sampling by the company vet or biologist. Follow up FHI inspection in the area.

Trilleachan Mor – Harris ( Scottish Salmon Company)

- Total: 38, 580 salmon @ 2.1 Kg, w/o 19 Sep [7%]
- Cause: Hydrogen peroxide treatment for AGD. Two cages particularly affected.
- Action: Samples taken by FHI. Treatments currently on hold.

Further information

AGD is caused by a parasite which is free living in the marine environment. Under certain conditions they may proliferate causing thickening of the gills. Mortalities can occur following treatment due to the increased demand placed on the gills.

The Skye, Torridon and Harris regions have reported several mortality incidents recently which are the result of gill health issues, gill treatments and sea lice treatments. Those notified by submission are summarised below;

- Torridon: 2 sites - 102, 645 fish July/ Aug – Scottish Salmon Company (algal blooms, AGD and gill treatment)
- Skye: 3 sites - ~150, 000 fish July/Aug – Grieg Seafood Shetland (algal blooms/ gill pathology, sea lice treatment)  
2 sites - 165, 283 fish July – Sep – Marine Harvest ( sea lice treatment + AGD treatment)
- Harris: 3 sites - ~350, 000 fish Aug/ Sep – Marine Harvest (AGD and gill treatments)  
1 site - 38, 580 fish September – Scottish Salmon Company ( AGD and gill treatments)

The Stornoway Gazette reported on large mortalities in the Western Isles due to AGD on 30 September with a follow up report on 7 October. We have also received an FOI request relating to all information held on Marine Harvest disease events this year.

AGD typically occurs in late summer to early winter and reducing water temperatures may offer some relief. We will keep the Minister informed with any additional relevant information and/ or media interest.

Happy to discuss further if required.

[REDACTED]  
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[REDACTED]

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**From:** [REDACTED]  
**Sent:** 20 November 2017 15:32  
**To:** [REDACTED]  
**Subject:** FW: Notification of mortality events above 5%

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**From:** [REDACTED]  
**Sent:** 30 October 2015 11:03  
**To:** Minister for Environment, Climate Change and Land Reform  
**Cc:** [REDACTED]; Mitchell A (Alastair); Cowan WJ (Willie); Director of Marine Scotland Mailbox; MS FishHealth; [REDACTED] Allan C (Charles) (MARLAB)  
**Subject:** Notification of mortality events above 5%

PS Minister for Environment, Climate Change and Land Reform

The Minister will wish to be aware of recent mortality events which reached above the agreed reporting threshold of 5%. We are expecting further associated mortality reports and will update the Minister accordingly.

#### **Mortality Event 1**

- 27/08/15 : 9% mortality at MacLean's Nose SW salmon farm, Ardnamurchan (Marine Harvest ) 62,000 fish > 750g.
- Mortalities connected to recent site transfer coupled with treatment for sea lice and diagnosis of heart and skeletal muscle inflammation (HSMI) earlier in the cycle.
- Mortality levels have returned to normal. No further action.

#### **Mortality Event 2**

- 07/09/15 – 13/10/15: 10% mortality at Caolas A Deas SW salmon farm, South Lewis (Marine Harvest) 93,000 fish > 750g.
- Mortalities occurred after sea lice treatment due to compromised gills caused by an algal bloom.
- Company removing biomass on site to reduce sea lice + treatments required. Diagnostic samples taken by fish health inspectorate.

#### **Background**

Algal Blooms are a naturally occurring phenomenon which can cause fish mortality by damaging gill tissues in fish, as well as depleting oxygen levels in the water column. Compromised gills can cause mortalities during bath treatment for parasites.

Heart and skeletal muscle inflammation (HSMI) is currently thought to be associated with Piscine reovirus in salmon. HSMI usually occurs within the first 6 months after transfer to sea. Mortalities can reach up to 20% however usually remain low unless there are other contributory factors.

We will keep the Minister informed with any additional relevant information and/ or media interest.

Happy to discuss further if required.

Thanks,

[REDACTED]  
Marine Scotland – Performance, Aquaculture and Recreational Fisheries  
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Aquaculture Europe - Edinburgh

Food For Thought

20-23 September 2016

<http://www.gov.scot/Resource/0043/00433571.pdf>

[REDACTED]

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**From:** [REDACTED]  
**Sent:** 20 November 2017 15:35  
**To:** [REDACTED]  
**Subject:** FW: Fish Farm Mortality - Western Isles - 60,000 salmon - 13% - gill disease treatment

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**From:** [REDACTED]  
**Sent:** 04 October 2016 17:14  
**Subject:** FW: Fish Farm Mortality - Western Isles - 60,000 salmon - 13% - gill disease treatment

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**From:** [REDACTED]  
**Sent:** 26 September 2016 16:04  
**To:** Cabinet Secretary for the Rural Economy and Connectivity  
**Cc:** Cabinet Secretary for the Environment, Climate Change and Land Reform; Director of Marine Scotland Mailbox; Cowan WJ (Willie); Mitchell A (Alastair); [REDACTED] MS FishHealth; [REDACTED] Higgins K (Kate); Miller D (David); [REDACTED] Campbell K (Kerrie); Gibbons J (Jeff)  
**Subject:** Fish Farm Mortality - Western Isles - 60,000 salmon - 13% - gill disease treatment

PS Cabinet Secretary for Rural Economy and Connectivity

The Minister will wish to be aware of mortalities reported at Soay marine fish farm in Harris, Western Isles (Marine Harvest).

- Total: 60, 000 salmon @ 2.5Kg, w/o 12 Sept [13%]
- Cause: Hydrogen peroxide treatment for Amoebic Gill Disease (AGD).
- Action: Mortality levels have reduced, however it is expected fish will require a further treatment. A site inspection is being arranged by the FHI.

Further information

AGD causes thickening of the gills and comprises gill function. Mortalities often occur following treatment due to the increased demand placed on the gills.

We expect a further associated mortality report if another treatment is carried out by veterinary instruction.

The local DSFB reported a large number of mortalities being transported off the island to the FHI. The aquaculture policy unit have also received a query from a member of the public with regards to apparent



sea lice mortalities and transport of dead harvest sized fish from the Western Isles. All reports are thought to be connected.

We will keep the Minister informed with any additional relevant information and/ or media interest.

Happy to discuss further if required.

[REDACTED]  
Marine Scotland – Performance, Aquaculture and Recreational Fisheries

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E-mail: [REDACTED]

**Barber J (Jill)**

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**From:** [REDACTED]  
**Sent:** 20 November 2017 15:31  
**To:** [REDACTED]  
**Subject:** FW: Fish Farm Mortality Report

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**From:** [REDACTED]  
**Sent:** 15 December 2015 09:55  
**To:** Minister for Environment, Climate Change and Land Reform  
**Cc:** [REDACTED]; Mitchell A (Alastair); Cowan WJ (Willie); MS FishHealth; Allan C (Charles) (MARLAB); Director of Marine Scotland Mailbox  
**Subject:** Fish Farm Mortality Report

PS Minister for Environment, Climate Change and Land Reform

The Minister will wish to be aware of an on-going mortality event at two marine salmon farms (Cole Deep and East of Papa Little) in Shetland operated by Grieg Seafood.

- The mortalities are thought to be due to gill disease caused by environmental conditions. Gill issues have caused several mortality incidents across Scotland in recent months.
- Both sites are currently accelerating harvest, with the last fish in East of Papa Little due to be harvested today. Two fish health inspectors will arrive on site today to take diagnostic samples.
- Total mortality figures have not been confirmed however indications are that they will be over the 5% threshold for reporting. Cole Deep and East of Papa Little received Norwegian smolts in 2014 - this may attract some media interest. Mortalities appear to be unrelated to fish origin.

We will keep the Minister informed with any additional relevant information and/ or media interest.

[REDACTED]  
Marine Scotland – Performance, Aquaculture and Recreational Fisheries  
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Aquaculture Europe - Edinburgh

Food For Thought

20-23 September 2016

<http://www.gov.scot/Resource/0043/00433571.pdf>