

All Records Associated with Unannounced Fish Farm Visits

Correspondence 1

From: Voas S (Sheila)

Sent: 25 July 2022 12:51

To: [Redacted R. 10 (3)].

Cc: [Redacted R. 10 (3)].@gov.scot,[Redacted R. 10 (3)]. @gov.scot

Subject: Thank you

Good morning [Redacted R. 10 (3)].

I just wanted to contact you to say thank you – both to yourself and to [Redacted R. 10 (3)]. – for taking time and facilitating my visit along with FHI colleagues last week. I'm sure that you will have realised I knew nothing about mussel growing and so I really appreciate the time that you both spent explaining it to me and indulging my curiosity about the process and also about the other wildlife we encountered.

I thoroughly enjoyed my visit and learned a lot so thank you both

Sheila

Sheila M Voas, BVM&S, ARAgS, FRCVS,

Chief Veterinary Officer (Scotland)

Animal Health and Welfare Division,

Scottish Government,

Spur P, Saughton House, Broomhouse Drive,

Edinburgh, EH11 3XD

Phone: [Redacted R. 10 (3)].

Email: sheila.voas@gov.scot

Correspondence 2

From: [Redacted R. 10 (3)].

Sent: 25 July 2022 13:09

To: Voas S (Sheila) <Sheila.Voas@gov.scot>

Cc: [Redacted R. 10 (3)]. , [Redacted R. 10 (3)].

Subject: RE: An explanation and my thanks

I'd say this was a well-timed visit, Sheila, given what's been happening elsewhere.

Good to see you found it as we would hope and expect. I'll pass on your message to the farm team.

All the best,

[Redacted R. 10 (3)].

From: Sheila.Voas@gov.scot <Sheila.Voas@gov.scot>

Sent: 25 July 2022 12:16

To: [Redacted R. 10 (3)]. @scottishseafarms.com, [Redacted R. 10 (3)].

@scottishseafarms.com, [Redacted R. 10 (3)]. @scottishseafarms.com [

Subject: An explanation and my thanks

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Morning all,

You may already have heard that I joined the FHI on a visit to a couple of your farms in Cliftsound Shetland last Thursday. I apologise for not telling you in advance but I wanted to be able to say I had been on a random visit (as opposed to a specifically arranged one) to help close off some of the claims made about only being taken to what companies want me to see.

I'd say the visit was very successful – [Redacted R. 10 (3)] made us very welcome as did [Redacted R. 10 (3)], [Redacted R. 10 (3)]. and [Redacted R. 10 (3)]. – and what I saw was no different to other visits. Two dead fish, one looking a bit sick, and the remainder all hale and hearty. To be honest I didn't expect to find anything different, but I wanted to be able to say I had just turned up somewhere to counter the criticism. In actual fact I didn't know until the day before where we were going – just that it was Shetland - as I gave the FHI the dates I could do and left it up to them.

Anyway, just wanted to explain why I didn't ask you about it in advance

Hope you are all well and have had / arranged some time off over the summer.

Please will you pass on my thanks to the team at Cliftsound - I don't have emails for all or I would do it myself

Sheila

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Chief Veterinary Officer (Scotland)
Animal Health and Welfare Division,
Scottish Government,
Spur P, Saughton House, Broomhouse Drive,
Edinburgh, EH11 3XD

Phone: [Redacted R. 10 (3)].

Email: sheila.voas@gov.scot

Correspondence 3

From: Voas S (Sheila)

Sent: 25 July 2022 12:27

To: [Redacted R. 10 (3)].@gov.scot, [Redacted R. 10 (3)].@gov.scot,

Cc: [Redacted R. 10 (3)].@gov.scot, [Redacted R. 10 (3)].@gov.scot, [Redacted R. 10 (3)].@gov.scot, Director of Marine Scotland Mailbox <Directormarinescotland@gov.scot>

Subject: Thank you

Morning all

I just wanted to say a big thank you to [Redacted R. 10 (3)]. and [Redacted R. 10 (3)]. for taking me with them on visits to mussel and salmon farms in Shetland last week and for patiently answering my numerous (and possibly daft) questions. I learned a lot about the role of FHI and about mussel farming, but also saw for myself salmon farming when the operators haven't specifically invited me and prepared ahead. And actually what I saw was very similar to what I have seen on previous (announced) visits.

[Redacted R. 10 (3)]. and [Redacted R. 10 (3)]. were very professional and thorough, and obviously are well respected by those they met for good reason.

I have separately emailed my thanks to SFF for hosting me but unfortunately don't have a contact address for [Redacted R. 10 (3)]. on Yell re mussels, so grateful if you could either pass me the address or pass on my thanks to [Redacted R. 10 (3)].

Sheila

PS Hope you are soon feeling better [Redacted R. 10 (3)].

Sheila M Voas, BVM&S, ARAgS, FRCVS,

Chief Veterinary Officer (Scotland)

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Spur P, Saughton House, Broomhouse Drive,

Edinburgh, EH11 3XD

Phone: [Redacted R. 10 (3)].

Email: sheila.voas@gov.scot

Correspondence 3

From: [Redacted R. 10 (3)]. @gov.scot

Sent: 15 July 2022 09:59

To: Voas S (Sheila) <Sheila.Voas@gov.scot>

Subject: RE: VIsit to a fish farm with FHI

Hi Sheila,

Just informing you that the shellfish operator that we will be visiting on Yell on Wednesday has spare lifejackets if you are okay using that? If so, I'd say all you'll need to bring is something warm and your wellies.

Have a good weekend and looking forward to seeing you next week.

[Redacted R. 10 (3)].

From: Voas S (Sheila) <Sheila.Voas@gov.scot>

Sent: 14 July 2022 13:33

To: [Redacted R. 10 (3)].

Subject: RE: VIsit to a fish farm with FHI

Perfect thank you, mine won't have been serviced and doubt [Redacted R. 10 (3)]. has either. My work mobile is [Redacted R. 10 (3)]. and my personal one is [Redacted R. 10 (3)]. Lets touch base on Tuesday
S

Sheila M Voas, BVM&S, ARAgS, FRCVS,
Chief Veterinary Officer (Scotland)
Animal Health and Welfare Division,
Scottish Government,
Spur P, Saughton House, Broomhouse Drive,
Edinburgh, EH11 3XD

Phone: [Redacted R. 10 (3)].

Email: sheila.voas@gov.scot

From: [Redacted R. 10 (3)]. @gov.scot

Sent: 14 July 2022 11:20

To: Voas S (Sheila) <Sheila.Voas@gov.scot>

Subject: RE: VIsit to a fish farm with FHI

If you haven't used it in a long time or had it serviced then it may not be fit for purpose. I can let you know if the site operator has a spare which is more than likely to be the

case. Alternatively I can nip past and grab my own and get permission from Loganair to take it with me on my flight up.

May have a bit of time Tuesday before 6 but we are up on Unst that morning so that's 2 ferries to catch back to the main island. But I can drop you a message for when and where to meet on Wednesday morning. Easiest meeting point will probably be at the harbour front outside where our office is. I'll send it to you on [Google Maps](#). Our office is in the Alexandra Building.

[Redacted R. 10 (3)]

From: Voas S (Sheila) <Sheila.Voas@gov.scot>

Sent: 14 July 2022 11:07

To: **[Redacted R. 10 (3)]. @gov.scot**

cc: **[Redacted R. 10 (3)]. @gov.scot [Redacted R. 10 (3)]. @gov.scot**

[Redacted R. 10 (3)]. @gov.scot

Subject: RE: VIsit to a fish farm with FHI

[Redacted R. 10 (3)]. – wouldn't be the first time! Assuming I don't need to do anything too athletic! Alternatively I could bring my own (clean) **[Redacted R. 10 (3)].** wellies. I probably have an old life jacket hidden somewhere from dingy sailing years ago – would it help if I looked that out? Assuming its still fit for use?

Some confusion over hotel so may not be staying where I thought but will get back to you. Im meeting **[Redacted R. 10 (3)].** from my team 6pm Tuesday so may not be able to meet then unless you have time between plan landing and that? Let me know what you think.

Sheila

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Spur P, Saughton House, Broomhouse Drive,
Edinburgh, EH11 3XD

Phone: **[Redacted R. 10 (3)].**

Email: sheila.voas@gov.scot

From: **[Redacted R. 10 (3)]. @gov.scot**

Sent: 14 July 2022 10:38

To: Voas S (Sheila) <Sheila.Voas@gov.scot>

cc: **[Redacted R. 10 (3)]. @gov.scot [Redacted R. 10 (3)]. @gov.scot [Redacted**

R. 10 (3)]. @gov.scot

Subject: RE: VIsit to a fish farm with FHI

Hi Sheila,

Sorry for the late reply.

I'm still finalising all the site inspections for Wednesday at mussel sites but the 2 salmon farms are set for Thursday. We can meet up on the Tuesday if you'd like to go through anything in advance?

We have oilskins and wellies at our office which you can use but we only have shoe size 4 and 10. **[Redacted R. 10 (3)].** who operate the sites we'll be doing on Thursday will provide life jackets for us and I will try and source one for you for Wednesday from the shellfish operator. In the off chance they don't you will still be able to join me though and use Laura's.

You can contact me on **[Redacted R. 10 (3)].** .

Regards,

[Redacted R. 10 (3)].

From: Voas S (Sheila) <Sheila.Voas@gov.scot>

Sent: 12 July 2022 16:45

To: **[Redacted R. 10 (3)]. @gov.scot**

Cc: **[Redacted R. 10 (3)]. @gov.scot, [Redacted R. 10 (3)]. @gov.scot]**

Subject: RE: VIsit to a fish farm with FHI

Ah apologies I assume we had told you,

Yes I'm flying up on Tuesday afternoon and staying somewhere close to you (Kvelsro House) as your hotel was full. I have hired a car from the airport for the duration, and should be free all day Wednesday and Thursday so just need told what you need me to bring / do / where to meet you etc

I'm going to stay on to the Friday so I also have time to meet the local vet practice who are part of our HIVSS group and meet one of my division who lives in Shetland.

Sorry about the lack of communication

Sheila

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Spur P, Saughton House, Broomhouse Drive,

Edinburgh, EH11 3XD

Phone: **[Redacted R. 10 (3)]**.

Email: sheila.voas@gov.scot

From: **[Redacted R. 10 (3)]. @gov.scot**

Sent: 12 July 2022 15:18

To: Voas S (Sheila) <Sheila.Voas@gov.scot>

Cc: **[Redacted R. 10 (3)]. @gov.scot**, **[Redacted R. 10 (3)]. @gov.scot** **[Redacted R. 10 (3)]. @gov.scot** , **[Redacted R. 10 (3)]. @gov.scot**

Subject: RE: VIsit to a fish farm with FHI

Good afternoon Sheila,

Were you able to find suitable accommodation In Shetland so you could join us next week?

Regards,

[Redacted R. 10 (3)].

From: Voas S (Sheila) <Sheila.Voas@gov.scot>

Sent: 04 July 2022 11:59

To: **[Redacted R. 10 (3)]. @gov.scot** , **[Redacted R. 10 (3)]. @gov.scot** , **[Redacted R. 10 (3)]. @gov.scot** **[Redacted R. 10 (3)]**., **[Redacted R. 10 (3)]. @gov.scot** , **[Redacted R. 10 (3)]. @gov.scot** , **[Redacted R. 10 (3)]. @gov.scot**

Subject: RE: VIsit to a fish farm with FHI

Fantastic thanks **[Redacted R. 10 (3)]**.

Wonderful if I can join you and **[Redacted R. 10 (3)]**. – **[Redacted R. 10 (3)]**. is looking at travel and accommodation for me as that may be the difficult part – but really hope we can make it work as I feel a bit of fraud having only seen what industry want me to see to date – also good to get a better understanding of the work that you and your colleagues do so I can speak with more authority than now.
Sheila

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Phone: **[Redacted R. 10 (3)]**.

Email: sheila.voas@gov.scot

From: [Redacted R. 10 (3)].

Sent: 04 July 2022 10:33

To: [Redacted R. 10 (3)]. Voas S (Sheila) <Sheila.Voas@gov.scot>; [Redacted R. 10 (3)].

Cc: [Redacted R. 10 (3)]. [Redacted R. 10 (3)]. [Redacted R. 10 (3)].
[Redacted R. 10 (3)].

Subject: RE: VIsit to a fish farm with FHI

Good morning Sheila,

Val will only be carrying out inspections at mussel sites during her trip as the salmon site that she was down to do is currently fallow.

Laura and myself will be carrying out inspections at a few mussels sites on Wednesday 20th and 2 salmon sites on 21st. If you would like to join us then let me know and I can get things arranged.

Regards,

[Redacted R. 10 (3)].

From: [Redacted R. 10 (3)]. @gov.scot

Sent: 02 July 2022 12:28

To: Voas S (Sheila) <Sheila.Voas@gov.scot>; [Redacted R. 10 (3)].@gov.scot [Redacted R. 10 (3)].@gov.scot

Cc: [Redacted R. 10 (3)].@gov.scot , [Redacted R. 10 (3)].@gov.scot ,
[Redacted R. 10 (3)].@gov.scot , [Redacted R. 10 (3)].@gov.scot .

Subject: RE: VIsit to a fish farm with FHI

Hello Sheila,

I have had a look at your dates. As [Redacted R. 10 (3)]. mentioned we are not out doing a lot of fish farm work over the summer months with Shetland being the only area that will be reliably under the 14oc we require for our inspections.

We have inspectors in Shetland the week 18/7/22 [Redacted R. 10 (3)]. and [Redacted R. 10 (3)]. again week 22/8/22.

From your list of dates the only ones that matches a Shetland trip would be 20th and 21st July. The inspectors tend to fly up to Shetland on the Monday and return on the Thursday afternoon. Both [Redacted R. 10 (3)]. and [Redacted R. 10 (3)]. have routine fish farm visits for these weeks and if they can arrange to do them on the Wednesday or Thursday morning of that week that would fit in with your availability.

I am on annual leave next week so I have copied both [Redacted R. 10 (3)]. and [Redacted R. 10 (3)]. in so we can see if this can work in with every ones plans.

[Redacted R. 10 (3)]. and **[Redacted R. 10 (3)].**

Can you let Sheila know if you are able to accommodate her request to accompany an inspector during a route visit to a fish farm on 20th and 21st July.

I hope we get something put in place for this week but if not I am back from leave on 12th July and can consider other options.

Best regards

[Redacted R. 10 (3)].

[Redacted R. 10 (3)].

[Redacted R. 10 (3)].

Marine Scotland - Science

Scottish Government | Marine Laboratory | 375 Victoria Road | Aberdeen | AB11 9DB

[Redacted R. 10 (3)].

[Redacted R. 10 (3)].

e: **[Redacted R. 10 (3)] @govscot.**

w: <https://www.gov.scot/marine-and-fisheries/>

From: Voas S (Sheila) <Sheila.Voas@gov.scot>

Sent: 01 July 2022 13:07

To: **[Redacted R. 10 (3)].@gov.scot**

cc: **[Redacted R. 10 (3)].@gov.scot, [Redacted R. 10 (3)].@gov.scot**

Subject: Visit to a fish farm with FHI

Hi **[Redacted R. 10 (3)].** , good to “meet” you

[Redacted R. 10 (3)]. has suggested I liaise directly with you about arranging a visit to a fish farm.

My wish is to see a farm “as it really is” rather than where I have rearranged a visit. I don’t really expect that people spend weeks preparing but equally I suspect I’m only taken to “good “ sites so it would be good to see one in the rough so to speak. As much as anything so I can refute the idea that everywhere I go smells of fresh paint because they know I’m coming. (I wish I really was that important!)

My diary is less congested over the next couple of months so as a starter here are some possible dates, but am happy if you prefer to suggest some that you already have earmarked for visits, and I will try to fit in.

Speaking to **[Redacted R. 10 (3)].** I understand that it may be necessary to go to Shetland because of water temperatures at this time of year so have made assumptions about needing 2 clear days. Any option will require some juggling of

meetings in my calendar but there is nothing on these days that can't be rearranged or have a deputy attend.

6th and 7th July

14th and 15th July

20th to 22nd July

1st 2nd 3rd 5th August (have a meeting on afternoon of 4th I need to be at - but could do it remotely if out and about)

Do any of these work for you?

Sheila

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Chief Veterinary Officer (Scotland)

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Phone: **[Redacted R. 10 (3)].@gov.scot**

Email: sheila.voas@gov.scot

Meeting Notes and Reports of the Farmed Fish Health Framework Post May 2019

Cabinet Secretary for the Rural Economy
Fergus Ewing MSP

F/T: 0300 244 4000
E: scottish.ministers@gov.scot



Scottish Government
Riaghaltas na h-Alba
gov.scot

Edward Mountain, MSP/Convener
Rural Economy and Environment Committee
The Scottish Parliament
Edinburgh
EH99 1SP

Gillian Martin, MSP/Convener
Environment, Climate Change and Land
Reform Committee
The Scottish Parliament
Edinburgh
EH99 1SP

By email

2 July 2019

Dear Edward and Gillian,

Update on Scotland's 10 Year Farmed Fish Health Framework

On 5 June I made a statement to Parliament on progress on delivering a more sustainable aquaculture sector in Scotland. That update provided information on the work of the Salmon Interactions Working Group, the publication of the Scottish Environment Protection Agency's new tin-fish regulatory framework and the outcomes of the review of Scotland's farmed fish sea lice compliance policy including the transparency of public reporting.

It has been a year since the publication of Scotland's 10-year Farmed Fish Health Framework. Due to time constraints, I was unable to touch upon the wider work of the Framework in my statement to Parliament. I am therefore delighted to be able to share with you the first annual update to Scottish Parliament from the Farmed Fish Health Framework steering group today.

This Government is committed to the sustainable growth of Scotland's aquaculture sector – which produces Scotland's biggest food export – and its continued success at home and abroad. We will continue to deliver on our collective commitments, and I look forward to updating you on further progress.

FERGUS EWING

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Environment, Climate Change and Land Reform Committee Members**

[Scotland's 10-year Farmed Fish Health Framework](#) was published in May 2018 to provide a strategic and evidence-based approach to the short and long-term improvement of fish health and wellbeing in Scotland. It aims to support and promote innovation in fish health management in order to secure improved productivity and survival of farmed fish and to underpin the sustainable growth of the sector.

Four dedicated subgroups have been established to deliver across the identified workstreams, namely;

- Information, Gill Health, Sea Lice and Cleanerfish;
- Production Cycle and on-Farm Management;
- Licensing Regime and Medicine Use; and
- Climate Change and Ocean Acidification.

Importantly, these working groups bring the right people and organisations together in order to address the challenges identified, and respond to how these change over the lifetime of the Framework. This includes representatives of the salmon farming and rainbow trout farming sectors, their associated trade associations, the Scottish Aquaculture Innovation Centre, professional veterinarians, regulators, Fisheries Management Scotland (as an observer) and science professionals.

Given the breadth of work identified, each subgroup has been working to prioritise and progress its activities with the support of the Framework steering group. An update on that process is provided.

In addition, the Framework Steering Group would like to draw your attention to the Annex which gives information on five new fish health innovation project funding offers announced by the Scottish Aquaculture Innovation Centre today, which are directly aligned to the Farmed Fish Health Framework.

You can find further information on each of the working groups activities, including membership and meeting actions, at the following web address;
<https://www2.gov.scot/Topics/marine/Fish-Shellfish/Strategic-Framework>.

I hope this information is useful to Committee members.

**Professor Colin Moffat
Chief Scientific Advisor Marine
Scottish Government**

**Ben Hadfield
Managing Director
Mowi Scotland**

Information, Gill Health, Sea Lice and Cleanerfish Subgroup

Scotland's 10-year Farmed Fish Health Framework makes a commitment to lead in information sharing and transparency. Last year the Scottish Salmon Producers' Organisation started to publish monthly site level sea lice and percentage mortality information, three months in arrears. Improvements to the data handling process has since allowed an increase in publication frequency to monthly in arrears for some companies. Provision of such detailed mortality information is world leading across terrestrial and marine farming sectors.

In January the Scottish Government added sea lice information, collected as part of Scotland's farmed fish sea lice compliance regime, mortality information, collected as part of the risk based surveillance implemented by the Code of Good Practice for Scottish Finfish Aquaculture (CoGP), and diagnostic pictures, taken during Fish Health Inspectorate inspections, to its proactive case information publication scheme.

The Information, Gill Health, Sea Lice and Cleanerfish subgroup has the largest breadth of work assigned to it, including two of the biggest fish health management threats to the Scottish salmonid industry – gill health and sea lice. The work being completed by the subgroup is therefore substantial. Three work areas are currently being progressed as a priority.

1) Sea Lice Compliance Review

On 5 June, Mr Ewing announced the outcomes of the review of the farmed fish sea lice policy which has been progressed as a key strand of Scotland's 10-year Farmed Fish Health Framework, and will continue to be so – the current reporting and intervention thresholds have already been lowered as a result of that review.

We have also committed to;

- build upon the work of the salmon farming industry to increase transparency and reporting by introducing reporting legislation in 2020, which will require every marine salmonid farm to report a weekly average adult female lice count, one week in arrears.
- the development of an appropriate reporting and publication platform
- a further reduction of sea lice reporting and intervention thresholds - unless there is compelling evidence to the contrary - to two and four average adult female lice per fish in 2021; and
- explore how to introduce independent sea lice count checks in Scotland.

2) Mortality Reporting and Analysis

As already described, the Scottish Salmon Producers' Organisation has developed a reporting system for site level mortality information, giving cause of mortality for percentages over CoGP thresholds. However the different ways in classifying and recording mortality between companies, and the complexity between identifying causative and contributing factors, means that one company's classification is not always comparable to another.

A priority for this subgroup is the development of a standardised approach to the recording of on farm mortality that enables an analysis of the causes of mortality required to inform the

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framework and measure success – this will ensure that delivery and actions remain evidence based. The group is aiming to commission its first standardised analysis in Q4 2019.

3) Sea Lice Connectivity Modelling

A priority for the Information, Gill Health, Sea Lice and Cleanerfish subgroup is to develop a sea lice connectivity model.

The aims of this project are to;

- Create a sea lice modelling and farm connectivity action plan
- Explore the use of hydrodynamic and other models to manage sea lice infection pressure over larger areas which should be complementary to other environmental models
- Explore application of models to support optimal site identification
- Identify required resources
- Identify the responsible parties for sea lice modelling
- Ensure model validation

The subgroup is in the process of identifying research gaps which must be addressed before it is possible to create a model that is fit for purpose. Validation of any tools which could be utilised as part of a regulatory Framework is absolutely essential. Validation must be demonstrated to ensure that the outputs are representative of the Scottish environment.

Out with the three identified priorities, the subgroup is progressing other workstream activities where it has the capacity to do so.

The sea lice workstream activities include;

- Industry to further evolve its sea lice strategy from primarily a medicinal one to a balanced combination strategy (medicinal, physical and cleaner fish) through development of new best practice guidance; and
- Develop and disseminate guidance on operational best practice for physical sea lice treatments

The Scottish Salmon Producers' Organisation has reported that sea lice levels in Scotland in 2018 were at a 6 year low – 0.46 average adult female lice per fish. Industry investment in new and innovative lice removing technologies has totalled over £53.5 million over the past three years.

The application of technologies, in addition to cleanerfish, is helping the industry to achieve lower lice loads. Indeed the SSPO has reported that the amount that the Scottish salmon industry spends annually on medicinal treatments against sea lice has fallen by 47% in the last three years, with medicine use in 2018 reducing by 64% from the previous 5 years.

The industry is continually evolving their sea lice strategy and sharing industry best practice, in order to consistently adopt a fully integrated sea lice management strategy across the sector.

To facilitate knowledge exchange, the Scottish Aquaculture Innovation Centre organised and hosted a workshop in February 2019, on the non-medicinal management of fish parasites in

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Inverness. The event was attended by 47 delegates from across the sector – including fish producers, supply chain, public sector stakeholders and regulators – who shared knowledge and conducted SWOT analyses on the different methods and technologies of non-medicinal parasite prevention and control. Post-event, a report of the learnings from these discussions was shared with all delegates.

Gill Health

In the last couple of years, gill health has emerged as the key challenge to the farmed fish industry and is the most significant contributor to increasing marine mortality. The Framework aims to improve our understanding of the underlying environmental factors contributing to poor gill health, increase awareness of the key factors which contribute to gill health challenges and convene best practice and workshops, bringing together industry experts from across the globe.

At the beginning of this year, SAIC announced £3.5 million of funding which is being spent to improve gill health and resilience of Scottish farmed salmon. The projects will bring together the expertise of several businesses and academic institutions, led by Scotland's Rural College; the Roslin Institute (part of the University of Edinburgh); salmon farmer Loch Duart; and salmon breeding business Landcatch Natural Selection, part of Hendrix Genetics.

Another ten organisations, including the Scottish Salmon Company and Grieg Seafood Shetland, will also contribute to the two consortiums. Their work will complement an £800,000 SAIC co-funded project announced in April 2018, which is aiming to develop new feeds to promote salmon health and devise diagnostic tools for monitoring gill health, and includes Biomar and Marine Scotland Science as project partners.

SAIC is also collaborating with the Norwegian Seafood Research Fund (FHF), facilitating for the respective countries' project teams to share knowledge on a suite of gill health projects. Opportunities for a future joint funding call are also being explored.

In May 2019, SAIC welcomed an international group of histopathologists for a highly successful gill pathology workshop. The group pooled their expertise and made significant progress in agreeing common standards when assessing Complex Gill Disease.

In 2020, Scotland will host the international Gill Health Initiative, which brings together experts from across the globe.

Cleanerfish

The activities of the Cleanerfish workstream include:

- Building on agreed management measures with the Scottish Government, define industry demand for farmed cleaner fish (wrasse and lumpfish) and the barriers to delivery.
- Mapping out required research and development, investment and timescales to deliver total industry demand.
- Review and assess the potential for cleanerfish use in rainbow trout cultivation.
- Assess whether management measures are appropriate and proportionate to the current and anticipated future levels of sustainable wild wrasse fishing in Scotland.

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- Establish an international forum or platform in order to share cleaner fish husbandry best practice and establish best practice husbandry measures for the Scottish industry.

Cleanerfish are one measure available to the industry to manage sea lice and the industry continue to work towards increasing the number of safe and sustainable alternative solutions to the challenge of managing sea-lice, a number of those alternative solutions having already been described.

Voluntary wild wrasse fishery measures were introduced in May 2018 [<https://www2.gov.scot/Topics/marine/Sea-Fisheries/InshoreFisheries/wrasse>] and provide a framework as a basis for managing the wrasse fishery. These measures include the provision of catch data, minimum and maximum landing sizes for each wrasse species; seasonal operation of the fishery as well as trap design and use specifications which include measures designed to protect fish welfare and improve mortality rates. The measures are included in fishers' contracts and codes of practice of those who supply wild-caught wrasse to SSPO members.

The information collected by Marine Scotland as part of this arrangement enables improvements in understanding of the species, including commercial fishing activity on these stocks. Marine Scotland are currently scoping the feasibility of a 3-5 year timeframe stock assessment programme which will encompass landings data; fishing locations and a scientific observer programme. A key aim is to reduce the need for wild-caught wrasse by replacing the stock demands with farmed wrasse.

A recent collaborative wrasse hatchery project supported by Mowi Scotland and Scottish Sea Farms, SAIC and the Institute for Aquaculture, successfully hatched eggs from were progeny of wild-caught fish. This achievement is believed to be a world first, and offers confidence that the industry can reduce pressure on wild wrasse stocks over the coming years, with Mowi Scotland expecting to become self-sufficient within the next three years. Lumpfish have also been successfully deployed as cleanerfish in Scotland, and hatchery production in this species is also increasing, with production increasing from 262,000 lumpfish in 2016 to 925,000 in 2017.

The SSPO hosted an industry cleanerfish knowledge exchange day in May, immediately followed by a scientific workshop to promote and share research in this field.

Production Cycle and on-Farm Management

The Production Cycle and on-Farm Management subgroup is working with the Information, Gill Health, Sea Lice and Cleanerfish subgroup to ensure the mortality cause analysis which is being developed will inform its future priorities.

The Production Cycle and on-Farm Management subgroup has started work on 30 day pre and post transfer survival and aims to maximise survival by characterising best transfer practice. This is the 30 days before and after fish are moved from the freshwater environment into the sea. The group has also met to discuss how to maximise genetics in Scotland, including the opportunities that bigger smolts may provide – such as a reduction time spent in the sea. Genetic opportunities for improved fish health will be considered for translation into recommendations to be included in the Code of Good Practice for Scottish Finfish Aquaculture.

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Development of guidance for the use of Acoustic Deterrent Devices (ADDs) or alternatives on marine salmon farms is also a priority activity of this workstream. The Scottish Government has commissioned work to improve understanding of the use, impact and efficacy of Acoustic Deterrent Devices (ADDs) in aquaculture. The Sea Mammal Research Unit at the University of St Andrews have been awarded this contract which will complete by the end of July 2020.

The industry continues to explore alternative methods for seal management. Across the Scottish salmon farming sector, the adoption of protective netting and acoustic devices and other non-lethal options to keep seals away from cages has contributed to an 81% drop in the number of seals shot under licence since 2011. Scottish Sea Farms has made installing Seal Pro nets at farms with a historic seal challenge a priority, and has invested £4.2 million in nets to date.

Licensing Regime and Medicine Use

The Medicines and Licensing Group workstream of the Farmed Fish Health Framework priorities were identified as:

- Revisit the conclusions of the Wellboat Working Group and progress to date
- Progress hydrodynamic modelling to demonstrate cumulative water body impacts in order to deliver the capability to identify optimum locations for organic deposition and water column measures

Work already being undertaken in these areas includes:

- work Marine Scotland is undertaking to progress the transition of wellboat licensing into CAR. (Officials are currently working on a legislative timetable for a statutory instrument, with the potential for the Regulation to come into force within this year, subject to Parliamentary scrutiny.)
- work related to the development of the Scottish Environment Protection Agency (SEPA) finfish regulatory Framework and Aquaculture Sector Plan.

As these areas are both regulatory in nature, their progression is being led as a priority by Government officials in consultation with stakeholders. The subgroup will review its focus at the end of this year; following completion of its 2 current priorities.

Members of the Committee will be aware that the new SEPA finfish regulatory framework launched on 1 June. That framework seeks to strengthen the protection of Scotland's marine environment, enabling the sustainable growth of aquaculture in the right places, and will be implemented through improvements to the existing Controlled Activities Regulations (CAR) licensing process. SEPA's new framework will use the best modelling available so that they are able to better predict and monitor environmental effects. In addition to the introduction and the enforcement of a tighter organic waste standard, this improved modelling will mean that risks to the local environment will be better understood, and can be better managed. Further information on the new Framework can be found here; <http://media.sepa.org.uk/media-releases/2019/sepa-s-new-finish-aquaculture-regulatory-framework.aspx>

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Climate Change and Ocean Acidification

The Scottish Government has declared a climate emergency. Global marine ecosystems will be affected by climate change (warming of the seas) and ocean acidification. Changes include increased plankton community variability and fluctuations in environmental conditions. In particular, fish farmers have experienced increased sea temperatures in successive years, and this can be linked to increased fish mortality. Many of the initiatives of the Framework are aimed at helping fish farms adapt to health challenges and build resilience to climate change, such as the work of the sea lice and gill health workstreams, therefore the focus on a changing environment is not the sole responsibility of this subgroup.

The objective of this subgroup is to monitor, review and assess the impact of climate change and ocean acidification on Scottish waters and the implications for the marine aquaculture industry. The group has already identified relevant programmes to this work, including the Scottish Ocean Climate Status Report [<https://blogs.gov.scot/marine-scotland/2018/07/04/scottish-ocean-climate-status-report-2018/>]. Fish farms hold a huge range of environmental data. The focus of the Climate Change and Ocean Acidification subgroup has been to progress its efforts to seek funding for an agreed feasibility and economic assessment of a real time monitoring network of aquaculture, which will produce marine monitoring data for emerging areas of environmental concern including ocean acidification.

Heather Jones, the CEO of SAIC, will take over as Chair of the working group in the autumn of 2019. At that time the group will review its activities and how they interact with the work of the other subgroups.

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Driving innovation to deliver the Farmed Fish Health Framework

Since the launch of the Scottish Government's 10-year Farmed Fish Health Framework (FFHF) in May 2018, the Scottish Aquaculture Innovation Centre (SAIC) has been proactively and collaboratively working towards meeting the objectives in this vital strategic framework.

Applied research projects

Following the introduction of the FFHF, SAIC has activated five new innovation projects targeting fish health, alongside the six projects already operational on this important topic (see below for projects listing). The total investment to date in core SAIC projects addressing fish health and welfare – excluding those that were completed before the launch of the Framework – is £12.2 million (31% SAIC, 62% industry, and 7% academic funding), generating important progress and learning that will help provide solutions to the sector's challenges.

Live projects aligned to the Farmed Fish Health Framework over the last year include:

- Scaling up production and implementation of farmed cleanerfish in the Scottish salmon industry
- Securing a sustainable supply and the optimal deployment of lumpsucker for sea lice control in the Scottish salmon industry
- Health and welfare of lumpfish in hatchery production, deployed in Scottish salmon cages
- Risk factors for escalating *saprolegniosis* outbreaks in salmon farms
- Clinical nutrition and the treatment of Atlantic salmon gill diseases
- Improving disease resistance in Atlantic salmon and Rainbow trout to *flavobacterium psychrophilum*
- Gill health in Scottish farmed salmon
- Genomic breeding for gill health and lice resistance in salmon: towards a step improvement in accuracy and affordability
- Investigation into the causes of and possible solutions to failed Rainbow trout in aquaculture
- Testing of novel health ingredients against multi-mucosal disturbance and stress-induced immune suppression under a practical repetitive stress challenge model
- Field trials of a novel vaccine to combat rainbow trout fry syndrome (RTFS) in Scotland

These activities involve extensive collaboration between SAIC and a total of 39 industry and academic project partners, as well as a number of public sector bodies, regulators and government agencies.

SAIC has also co-invested in three pan-UK fish health projects where BBSRC/ARCH-UK are the primary funders:

- AquaLeap: innovation in genetics and breeding to advance UK aquaculture production
- ROBUST-SMOLT: impact of early life history in freshwater Recirculation Aquaculture Systems on Atlantic salmon robustness and susceptibility to disease at sea
- NOSIFISH: novel Omega-3 Sources in feeds and impacts on salmon health

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These add up to a total investment of £3.05 million (19% SAIC, 13% industry, 3% academic, 65% BBSRC).

In March 2019, SAIC furthermore issued a thematic Special Call for Projects to support the delivery of the Farmed Fish Health Framework. Funding for a suite of new innovation projects has now been agreed and will be announced over the summer 2019.

In terms of marketing and communications, SAIC has issued a series of widely covered press releases related to the FFHF, including thought leadership pieces on tackling sea lice, how the Scottish aquaculture sector can scale up sustainably, the transfer of innovative technology from human health to fish health, and the development of a vaccine for Rainbow Trout Fry Syndrome.

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Until 2020



Farmed Fish Health Framework – 6 October 2021 - meeting 7 - actions and note

Attendees: Sheila Voas (SG, Chair) , [Redacted R. 10 (3)]. (SSPO) [Redacted R. 10 (3)]. (MOWI) [Redacted R. 10 (3)]. (SSF) [Redacted R. 10 (3)]. (Dawnfresh) [Redacted R. 10 (3)]. (Fish Vets), [Redacted R. 10 (3)]. (SAIC) [Redacted R. 10 (3)]. (SEPA), [Redacted R. 10 (3)]. (VMD), [Redacted R. 10 (3)]. (MS) [Redacted R. 10 (3)]. (MS), [Redacted R. 10 (3)]. (MS) , [Redacted R. 10 (3)]. [Redacted R. 10 (3)]. [Redacted R. 10 (3)]. (MS), [Redacted R. 10 (3)]. (MS)

Apologies: Representative from MS Conservation Team, [Redacted R. 10 (3)]. (BTA) and [Redacted R. 10 (3)]. (MS FHI)

1. Mortality

Mortality analysis by cause. Work is ongoing on the presentation of the causes of mortality analysis work being undertaken by the SSPO. Data will be presented as monthly aggregated figures for seawater salmon expressed as a percentage of the number of fish under the 10 categories previously agreed by the FFHF steering group. Final presentation will include a narrative explaining methodology and presentation.

Action 1: SSPO to provide an update on progress made towards publication of analysis by cause data following its December Board meeting.

Dissolved oxygen. Lower dissolved oxygen as a result of increased water temperature contributed to summer mortality in some areas. Impacts were greater when lower levels of dissolved oxygen coincided with algal blooms or other events which further reduce oxygen saturation, or when gill disease which hampers oxygen uptake. There is a need to better understand lower levels of dissolved oxygen outwith farms in the wider environment and better understand the movement of oxygen depleted water.

Possible mitigation to take in response to decreased dissolved oxygen could include reducing biomass within pens when required; improved ability to net clean; abstraction of fresh water (at the point where it joins sea water) for storage and use in net pens. Flexibility to trigger implementation of mitigation measures when specific environmental conditions were met (e.g. high water temperatures for a given period / high sunlight for a given period / when certain dissolved oxygen levels are reached) could significantly improve fish health and welfare.

It was noted that availability of oxygen supplies to the farmed fish sector had decreased due to requirements for Covid-19 treatment, and that limited available stocks had not been prioritised for farmed fish welfare as opposed to other non-animal purposes in some areas.

Action 2: All steering group members to determine what dissolved oxygen data is being collected and report at next meeting.

Action 3: MOWI to provide information/give presentation on fresh water abstraction and storage as mitigation by farms in Ireland at next meeting.

Action 4; SEPA with MOWI and Fish Vets to consider flexibility in water abstraction consents in response to specific weather / environmental parameters

Action 5: Chair to raise problem with supply of oxygen to aquaculture sites with SGoR, seeking prioritisation of supplies to aquaculture for fish welfare purposes.

Post meeting note from S Voas: CVO (Scotland) has had discussions with suppliers of oxygen who have agreed to prioritise supplies for animal welfare purposes ahead of other areas except human health. A further meeting is arranged to confirm that this mitigation is working.

Mortality reporting within official statistics. There was discussion on different presentations of mortality related data by different organisations including SSPO, SEPA and Marine Scotland. Although different data is published for different purposes and using different methodologies, readers could be confused as to why mortality figures apparently vary between organisations and the use of different metrics was questioned.

Action 5a: Marine Scotland to consider the presentation of 'survival to harvest' data in the Marine Scotland production survey and the opportunity for alignment with information presented elsewhere.

2. Treatments

The treatments 'subgroup' was seeking to provide data to inform SEPA's consideration of increasing dose limits of SLICE within its regulatory framework provided it can be achieved within environmental standards.

Supporting innovation which can negate environmental impacts of new treatments and thereby promote their availability will be important going forward, especially with regards to regulation of discharge. Accessing treatments used elsewhere in the world but not marketed here would be useful in future.

Discussion on development of vaccines and problems associated with patents concluded that source development was needed. Opportunities to work with academic institutes to promote vaccine development and cross working with SEPA / VMD /MS regarding regulations was thought to be a possible way forward (to be further explored at the next steering group meeting)

Action 6: [Redacted R. 10 (3)]. and [Redacted R. 10 (3)]. to consider medicine discharge levels / medicine residue treatments in relation to changes to slice/SPCs and discharge, to inform future well boat requirement planning.

Action 7: Aquaculture Policy (LK) to seek update from UKTAG on emamectin.

Action 8: SSPO [Redacted R. 10 (3)]. to discuss funding for consultancy work to identify anti-inflammatory medicines available with Marine Scotland (LK).

Action 9: VMD and Fish Vets to discuss use of medicines under cascade and access to global products

Action 10: [Redacted R. 10 (3)]. to contact Julie Fitzpatrick (Chief Scientific Adviser for Scotland Scientific and Director of Moredun) and invite to the steering group.

Post meeting note from UKTAG vis SSPO: The Emamectin Review final draft is ready for peer review however there have been some delays setting up the peer review. We are hoping this process can complete before the end of November.

3. Climate Change

SAIC reported on the first workshop (22 July) agreed by the steering group workshop. It had been well attended by producers, had been cooperative and had identified data availability, sampling techniques, training, data sharing, and a range of actions which could contribute to standardised standard operating procedures had been collected.

The second workshop was intended to focus on standardising protocols across Scotland and provide training to promote enhanced data collection and analysis of climate change related environmental data in future. This would also help with farm to farm dialogue. Funding would be required from MS. The group considered alternatives for funding.

Discussion on next steps included consideration of whether a compiled environmental data set could be analysed in such a way as to complement the SAIC HAB project; whether analysis of environmental factors alongside the biological data generated by the SAIC gill health project could provide insight as to triggers/thresholds and impacts; more practical projects such as identifying anti-inflammatory treatments to help manage the impacts of climate change events; changes in feed to include natural anti-inflammatories.

Action 11: All members to consider practical climate change projects which can be delivered this financial year to be considered/agreed at the next meeting.

Action 12: – MOWI [Redacted R. 10 (3)]. and Scottish Sea Farms [Redacted R. 10 (3)]. with input from [Redacted R. 10 (3)]. and [Redacted R. 10 (3)]. to engage with VMD [Redacted R. 10 (3)]. on treatment solutions for current endemic issue with AGD.

4. SEALS

MS had commissioned SAIC to facilitate a cross interest workshop to identify projects to develop non-lethal control options for seal management. The workshop had been successful and 21 projects had been identified but further work was needed to distil them. Next steps would be for MS/ the SPPO, BTA and SAIC to identify priorities and consider how best to take forward. Members of the steering group considered that the priority focus should be on excluding seals from pens.

Action 13: All steering group members to provide comments to Marine Scotland on the projects recommended by SAIC workshop on non-lethal control of seals.

Action 14: MS to consider the specific request from the sector to implement a grace period in line with the requirement for implementation being delayed until January 2023 and allow the sector some ability to intervene at farms where seals continue to be a contributing factor to mortality.

Post meeting note from Marine Conservation - The aim of the amendment to the Marine (Scotland) Act 2010 was to increase the protection for seals from being killed, injured or taken. It also ensures continued access to the important US market for farmed Scottish Salmon. When the US authorities provided additional time to demonstrate comparability (from 01 March to 30 November 2021) Scottish Ministers were given advice on the potential to delay the coming into force of the amendment.

After carefully considering this advice Ministers chose to proceed with the planned coming into force date of 01 February 2021.

Action 15: MS to comment on seal population dynamics and population control for conservation purposes.

Post meeting note from Marine Conservation - Under the Conservation of Seals Act 1970 and the Marine (Scotland) Act 2010, the Natural Environment Research Council (NERC) has a duty to provide scientific advice to government on matters related to the management of UK seal populations. NERC has appointed a Special Committee on Seals (SCOS) to formulate this advice. The link to the 2020 report is here: www.smru.st-andrews.ac.uk/files/2021/06/SCOS-2020.pdf

5. AOB

MS gave a short update on work which had commenced in relation to commitments on the further reduction in sea lice levels, unless there is evidence to the contrary. It was agreed sea lice should be the first item at the next meeting to allow for a more in depth discussion.

MS was asked to update the FFHF website page to reflect the refreshed FFHF and to arrange a site visit to a fish farm.

Action 16: Aquaculture Policy [Redacted R. 10 (3)]. to update FFHF website page to reflect refreshed FFHF.

Action 17: [Redacted R. 10 (3)]. to arrange a visit to a fish farm site for FFHF steering group members.

**Marine Scotland (secretariat)
Oct 2021**

Farmed Fish Health Framework - 15 November 2021 - meeting 8 - actions and note

Attendees: Sheila Voas (SG, Chair), [Redacted R. 10 (3)]. (SaIScot) [Redacted R. 10 (3)]. (BTA) [Redacted R. 10 (3)]. (MOWI) [Redacted R. 10 (3)]. (Fish Vets), [Redacted R. 10 (3)]. (SAIC), [Redacted R. 10 (3)]. (SEPA), [Redacted R. 10 (3)]., (MS), [Redacted R. 10 (3)]. (MS), [Redacted R. 10 (3)]. (MS FHI), [Redacted R. 10 (3)]. (MS), [Redacted R. 10 (3)]. (MS Conservation), [Redacted R. 10 (3)]. (MS)

Apologies: [Redacted R. 10 (3)]. (Dawnfresh) , [Redacted R. 10 (3)]. (MOWI) [Redacted R. 10 (3)]. (MS) and [Redacted R. 10 (3)]. (MS) .

1. Sea Lice

MS provided an update on forthcoming engagement on reducing the levels of sea lice at which the FHI take action, in line with a commitment to parliament to do so unless there is evidence to the contrary, and more recently the SNP / Scottish Green Party shared policy programme. General discussion focused on the outcomes the policy could be expected to achieve, possible impacts and potential unintended consequences.

2. Seals

SAIC provided an update on the output from the workshop it delivered to identify possible ways forward with regards to non-lethal control of seals. MS confirmed it was considering next steps with the input from SaIScot and BTA. There was general discussion of proposals.

Action 1: SAIC to circulate the list of projects identified through the workshop with additional comments it had received from attendees.

Action 2: MS Conservation to approach St Andrews University with regards to the work it was undertaking on seal avoidance of renewable energy water turbines to determine any relevance for promoting seal avoidance of farm enclosures.

3. Mortality

Mortality analysis by cause. Further update will be provided after the SaIScot December Board meeting.

Dissolved oxygen. There was general discussion on what dissolved oxygen data is being collected by various bodies. SEPA advised that it had some coastal data but not a specific site time series, Marine Scotland monitored at 2 sites offshore and fish farms generally record dissolved oxygen levels as part of fish health monitoring - sometimes daily, but vary in their approach. Industry and vets considered 24 hour monitoring was needed to better detect decreases and understand when they arise . In addition enhanced off farm monitoring was needed to better inform movement of water with lower dissolved oxygen. Standardised and more frequent data collection would be helpful.

Water abstraction. No update, carried over to next meeting.

Mortality reporting within official statistics. MS had discussed variation in mortality reporting between organisations with BTA and SalScot, with a focus on MS production survey and official statistics. It was concluded there was no need to change reporting metrics at present but that MS would review uses of information in the production survey.

Action 3: SalScotto provide an update on progress made towards publication of analysis by cause data following its December Board meeting.

Action 4: MS, SEPA and SAIC to consider project scope to analyse existing data on dissolved oxygen levels and identify gaps in data collection.

Action 5: MS to consider funding possibilities for companies to promote 24 hour recording of dissolved oxygen levels..

Action 6: MOWI to provide information/give presentation on fresh water abstraction and storage as mitigation by farms in Ireland at next meeting.

Action 7: SEPA with MOWI and Fish Vets to consider flexibility in water abstraction consents in response to specific weather / environmental parameters

Action 8: MS to report on uses of the information in the production survey by SG.

4. Treatments

Medicines. SalScot had commissioned work to identify anti-inflammatory medicines and should be complete in Q1 2022. This work will feed into VMD and Fish Vets discussions on the use of medicines.

There was still lack of clarity over progress on UKTAG emamectin review which was needed urgently. .

Vaccine development was discussed and it was agreed that the action to invite the Chief Scientific Adviser for Scotland and Director of Moredun should be carried over to the next meeting.

Action 9: Chair to write to UKTAG and press for progress on the emamectin review.

Action 10: MS to contact Julie Fitzpatrick (Chief Scientific Adviser for Scotland Scientific and Director of Moredun) and invite to the steering group.

5. Climate Change

Practical climate change projects which can be delivered this financial year (and funding availability) were discussed, including the merits of continuing to progress the outcomes of the SAIC climate change workshop.

Action 11: MS and SAIC to consider if the work to standardise of HAB related data collection can be progressed this financial year.

6. AOB

Action 12: MS Aquaculture to update FFHF website page to reflect refreshed FFHF.

Action 13: MS Aquaculture to arrange a visit to a fish farm site for FFHF steering group members.

Date of next meeting: 31 January 2022

Marine Scotland (secretariat)
November 2021

Farmed Fish Health Framework – meeting 9 - 31 January 2022

Minutes

Attendees: Sheila Voas (SG, Chair), [Redacted R. 10 (3)]. (SalScot) [Redacted R. 10 (3)]. (BTA), [Redacted R. 10 (3)]. (SSF), [Redacted R. 10 (3)]. (Fish Vets), [Redacted R. 10 (3)]. (SAIC), [Redacted R. 10 (3)]. (SEPA), [Redacted R. 10 (3)]. (VMD) , [Redacted R. 10 (3)]. (VMD), [Redacted R. 10 (3)]. (MS), [Redacted R. 10 (3)]. (MS), [Redacted R. 10 (3)]. (MS) , [Redacted R. 10 (3)]. (MS) [Redacted R. 10 (3)]. (MS), [Redacted R. 10 (3)]. (MS) and [Redacted R. 10 (3)]. (MS).

Apologies: [Redacted R. 10 (3)]. (Dawnfresh), [Redacted R. 10 (3)]. (MOWI), and [Redacted R. 10 (3)]. (MS)

1. Progress Review

Progress since the refresh in December 2020 was reviewed to ensure delivery and impact going forward. While it was agreed that good progress had been made in some areas, other issues such as gill health were identified as requiring more focus. The structure of the group was discussed in terms of additional expertise participating at an operational level to facilitate delivery, and also to ensure that MS and regulatory strategic direction takes account of fish health and welfare and provides oversight to the FFHF. It was also suggested that the group focus on a smaller number of issues, in order to consolidate a strong evidence base and further progress.

Action 1: The Chair to discuss strategic overview with chief executives of regulatory bodies before the next meeting on February 24.

Action 2: The Chair / MS to invite the Cabinet Secretary to meet with the steering group.

Action 3: The Chair / MS to respond to comments provided by the next meeting on the 24 Feb explore funding available for addressing gill health.

2. Marine Scotland Policy Updates

MS is providing support for the delivery of a number of Ministerial commitments and initiatives, including delivery of an independent review of aquaculture regulation which is due to be published imminently.

Two additional strategic initiatives were presented to the group: the development of a SG Vision for Aquaculture; and the development of a Marine Scotland Science Strategy). Both of these initiatives will involve engagement with external stakeholders, and members of the group were invited to feed back any views or suggestions. Formal work on the MSS vision would begin in April and members of the group would be contacted.

Action 4: Group members interested in contributing to the MSS strategy to email [Redacted R. 10 (3)].

3. Mortality

Salmon Scotland updated the group on its mortality by cause analysis. As of January 2022, they will provide a monthly mortality figure for the entire sector (as a %) and this will be further broken down according to the 10 causes of mortality previously agreed within FFHF. Data will be reported one month in arrears to allow for data collation and verification, therefore the first report will be published at the end February.

MS outlined the many uses of the SG's finfish statistics across policy, marine planning, fulfilment of international commitments, ministerial briefing, external scientific research, and informing knowledge relating to food security.

SEPA is currently looking at its policies relating to water abstraction and have approached colleagues in Northern Ireland in order to share best practice.

There was a brief discussion on dissolved oxygen (DO), and it was reported that low DO has been detected in December which is unusual for this time of the year.

Action 5: SEPA to continue dialogue with counterparts in Northern Ireland regarding water abstraction consents in response to specific weather / environmental parameters

4. Treatments

An update was given on the UKTAG review of the use of emamectin. The report is now due sometime in Q1 of this year.

The VMD gave an update on EU Veterinary Medicinal Products Regulation (VMPR). A consultation will be held in 2022, but the date has not been confirmed. The VMD would like to hear about specific concerns / examples from the sector relating to what approaches have worked, and what hasn't. Concern was raised about the impact of new regulation on the withdrawal period and the stipulation for 500 degree days. The possibility of considering an interim measure since the consultation may not take place for a while was raised.

The potential for using bacteriophages in treatments and how they fit into regulatory frameworks was discussed. VMD confirmed it was considering bacteriophage use and SEPA stated that their use could be accommodated by the regulation.

Action 6: VMD to emphasise need for progress on VMPR consultation within VMD and report to chair. VMD also to consider a meeting with fish vets and sector to fully explore the issue.

Action 7: Fish Vets, SEPA, VMD to discuss the use of bacteriophages in medicines sub group.

Action 8: [Redacted R. 10 (3)]. to provide SEPA with information sourced from Slice manufacturers that will allow SEPA to conclude its consideration of the flexibility of Slice use.

5. Climate Change

Practical climate change projects which can be completed this financial year have been funded by MS and will be delivered by SAIC. These relate to monitoring of dissolved oxygen and monitoring / measurement of harmful algal blooms.

Action 9: MS to circulate details of the newly funded projects to the Group.

6. AOB

The Secretariat of the FFHF Steering Group meetings has changed, and **[Redacted R. 10 (3)]**. will replace **[Redacted R. 10 (3)]**. as Secretary. The Group thanked **[Redacted R. 10 (3)]**. for all of **[Redacted R. 10 (3)]**. hard work over the past year.

Progress relating to the updating of the FFHF pages on the MS website was raised, as was the possibility of a visit to a fish farm site for group members.

It was agreed that it would be beneficial to further discussions on medicines if Julie Fitzpatrick (Moredun Research Institute, CSA for Scotland) was to attend the next meeting of the Steering Group.

Action 10: MS Aquaculture to update FFHF website page to reflect refreshed FFHF, once the forward look for the group is agreed.

Action 11: MS Aquaculture to arrange a visit to a fish farm site for FFHF steering group members.

Action 12: MS to invite Julie Fitzpatrick to the next meeting.

Action 13: MS to circulate brief SMRU analysis of data relating to seal avoidance of underwater turbines.

Date of next meeting: 24 February 2022

**Marine Scotland (secretariat)
February 2022**

Farmed Fish Health Framework 10 **February 24 2022**

Meeting Note

Attendees: Sheila Voas (SG, Chair), Julie Fitzpatrick (SG, Chief Scientific Adviser / Moredun), [Redacted R. 10 (3)]. (SalScot) [Redacted R. 10 (3)]. (BTA), [Redacted R. 10 (3)]. (BTA), [Redacted R. 10 (3)]. (SSF), [Redacted R. 10 (3)]. (Dawnfresh), [Redacted R. 10 (3)]. (Fish Vets) [Redacted R. 10 (3)]. (SAIC), [Redacted R. 10 (3)]. (SEPA), [Redacted R. 10 (3)]. (VMD) [Redacted R. 10 (3)]. (VMD), [Redacted R. 10 (3)]. (MS), [Redacted R. 10 (3)]. (MS), [Redacted R. 10 (3)]. (MS FHI), [Redacted R. 10 (3)]. (MS).

Apologies: [Redacted R. 10 (3)]. (MOWI), [Redacted R. 10 (3)]. (MS) and [Redacted R. 10 (3)]. (MS)

1. Review of proposed structural changes to FFHF

A discussion paper was circulated to the group that proposed the formation of a Strategy Group that would agree broad principles for collaborative working and define the actions for delivery by the Steering Group. The latter would become more operational and make greater use of workshops in order to explore issues of concern and generate a plan of action.

The group was broadly supportive of this new approach. However, the following points were made which should be noted.

- The Strategy Group must be kept relatively small and focused.
- The composition of the Steering Group would remain as it is, but there is some flexibility. Those who attend the Strategy Group may also want to attend to the Steering Group (in an operational role), but may wish to delegate their place.
- Sub-groups were used at the beginning of the FFHF (before the refresh in 2020), we must ensure that lessons from this previous approach are learned, and the workshop approach proposed today is effective.
- Representation of the VMD at the Strategy Group was discussed. Given the specialisations of personnel, further consideration of who would be best to attend this group is required.
- New MS resource will be dedicated to FFHF and enable the secretariat to take more of an active role. The secretariat will attend both groups.
- The new Strategy group will need to meet relatively soon in order to set the agenda for the Steering Group. The latter are due to meet net on April 4, but this may need to be rescheduled.

Action 1: Inaugural meeting of Strategy Group to be organised by the secretariat.

Action 2: VMD to let secretariat know who will attend this meeting.

2. Discussion of treatments and vaccines

The Group was pleased to welcome Julie Fitzpatrick, the Chief Scientific Adviser for Scotland and Director of the Moredun Institute who outlined priorities for local food production, food security, and improved population health.

An overview was given on previous work on vaccines in aquaculture – particularly efforts to develop a sea lice vaccine. The development of such a vaccine would be highly beneficial to the industry. As a group, there are two possible courses of action:

1. A 'wait and see' approach where development of a sea lice vaccine is left for other organisations and interests. However, this could prove expensive as companies aim to collect the return on their investment.

2. Develop a vaccine in Scotland. We have the skill base in Higher Education Institutes *etc.* and MSS has a testing facility. Funding could be problematic but we could make use of increases in UK funding for innovation (Defra, VMD) and 'levelling up', public-private partnerships, or partner with the sector in an EU country to access Horizon Funding.

The following points were raised in the discussion.

- Public perception of the industry, environmental impact of medicine residues, and the impact on wild populations of salmon are key drivers for the development of a sea lice vaccine – as well as a desire from the industry.
- Technological developments and the impact of Covid 19 on vaccine innovation means we are better placed to develop novel vaccines than ever before.
- A vaccine approach is preferred to a treatment approach, but the efficacy of a potential vaccine is a key consideration when it comes to investment.
- More could be made of knowledge sharing opportunities, especially with the sector in Norway.
- Other infections are also important to the sector and vaccine for disease such as amoebic gill disease need to be considered.
- VMD highlighted the work of FishMedPlus, and suggested that vets with an interest in autogenous vaccines and / or fish biology be invited to attend the group.
- SAIC highlighted its work on an in-feed vaccine to boost mucosal immunity, and that this work will be presented at the Sea Lice Conference in May in the Faroe Islands.
- IP and patents were discussed particularly as a barrier to innovation. Such issues would need to be addressed before any collaborative work or research

on vaccine development begins. The benefits of an 'open science' approach were highlighted by the CSA.

- CA highlighted the Annual Production Survey and data available on vaccine use in Scottish Aquaculture.

Action 3: SSF / SaIScot to explore increased collaboration with the sector in Norway on vaccine development.

Action 4: MS to consider MOU with Norway, and how this could be developed.

Action 5: [Redacted R. 10 (3)]. to share details of what is available at MSS pathogen bank, and how this could be developed.

Action 6: MS to explore how vaccine / treatment data could be better represented on the Annual Production Survey

3. Next steps

After the discussion with the CSA, the chair suggested that there would be value in putting together a workshop on vaccines which SAIC has volunteered to organise. The following points were made:

- The objectives of the workshop need to be clearly defined.
- Cleaner fish must also be considered in future work.
- SAIC could hold a workshop in June at the earliest.
- The group needs to think about other areas that we should focus on.

Action 7: MS to seek funding for a vaccines workshop.

Action 8: [Redacted R. 10 (3)]. / medicines working group to liaise with SAIC and MS to plan the workshop.

Supplementary information

1. Key contacts at Moredun:

[Redacted R. 10 (3)].

[Redacted R. 10 (3)].

[Redacted R. 10 (3)].

2. Links shared:

[FishMedPlus – more medicines for fish – FVE – Federation of Veterinarians of Europe Barriers-and-Solutions-table-CVMP-responses.pdf \(fve.org\)](#)
[Scottish Fish Farm Production Survey 2020 - gov.scot \(www.gov.scot\)](#)
[Patent law affects innovation in aquaculture - Responsible Seafood Advocate \(globalseafood.org\)](#)
