ANNEX A

INDEX OF ENCLOSURES

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01	Email from SEPA to Scottish Government.	22 May 2020	Personal data	11(2)
02	Email to Scottish Government.	27 May 2020	Personal data	11(2)
03	Scottish Government emails.	11 June 2020	Personal data Internal communications	11(2) 10(4)(e)
04	Email to Cabinet Secretary for the Environment, Climate Change and Land Reform.	12 August 2020	Personal data	11(2)
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05	Email from SEPA to Scottish Government.	28 August 2020	Personal data	11(2)
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07	Email from SEPA to Scottish Government.	04 September 2020	Personal data	11(2)
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09	Email from Scottish Environment LINK to Scottish Government.	16 November 2020	Personal data	11(2)
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10	FMQ briefing.	23 November 2020		
11	Briefing for Fergus Ewing, Cabinet Secretary for Rural Economy and Tourism, meeting with the Rural Economy and Connectivity Committee. 32nd meeting, 2020 (Session 5). Wednesday 2 December 2020.	25 November 2020		
12	Email received from Coastal Communities Network.	19 November 2021	Personal data	11(2)
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Enclosure 01 – Email from SEPA to Scottish Government.

From: [redacted]sepa.org.uk>
Sent: 22 May 2020 11:01
To: [redacted]gov.scot>; [redacted]gov.scot>; [redacted]gov.scot' [redacted]gov.scot>
Cc: [redacted]sepa.org.uk>; [redacted]sepa.org.uk>
Subject: Aquaculture media coverage - for information

Good morning,

For information given policy interests please find below SEPA's response to an enquiry from The Ferret regarding aquaculture and formaldehyde.

Peter Pollard, Head of Ecology at the Scottish Environment Protection Agency, said:

"Fish farm operators require an authorisation from us before they can use formalin to treat their fish. When granting authorisation, we place strict limits on the quantities that can be used. The limits are set to keep discharges to levels that the receiving rivers and lochs can accommodate without compromising environmental quality standards. We routinely carry out audits of farms authorised to use formalin to check that operators are complying with the limits."

"We share an aspiration with the sector for a future where fish farmers are increasingly less reliant on chemical and medicine based controls."

NOTES:-

- Formalin (active ingredient, formaldehyde) is used to treat a range of conditions including white spot and bacterial gill disease.
- Discharges to rivers and lochs from fish farms are controlled under the Water Environment (Controlled Activities) (Scotland) Regulations 2011
- Formaldehyde, the active ingredient of formalin, is readily biodegradable with no potential for bioaccumulation in the aquatic environment.
- In Scotland, the environmental standards for the protection of freshwater are 5 micrograms per litre (ug/l) (annual average) of formaldehyde and 50ug/l (maximum allowable concentration).
- Strict limits on the use of products containing formaldehyde (e.g. formalin) are set using river and fresh water loch modelling to identify the environmental capacity of each water course.
- SEPA audits these authorisation limits as part of routine compliance checks.

SEPA can confirm an investigation is ongoing into a complaint regarding the use of formaldehyde at Loch Tralaig fish farm.

Kind regards

[redacted]

Scottish Environment Protection Agency, Strathallan House, Castle Business Park, Stirling, FK9 4TZ
t: [redacted] e: [redacted]sepa.org.uk web: www.sepa.org.uk

Enclosure 02 – Email to Scottish Government.

From: MS Communications
Sent: 27 May 2020 11:38
To: [redacted]yahoo.com
Subject: RE: E - Formaldehyde in the lochs - [redacted]

Good morning [redacted]

Thank you for your email which was passed onto ourselves from the Central Enquiry Unit.

I have now forwarded your email onto the relevant department within Marine Scotland. They will be in contact in due course, although there may be delays due to our response to COVID commitments.

MS Communications

Marine Scotland Directorate
The Scottish Government

In 2020 we are showcasing Scotland's coasts, rivers, canals, lochs and inland waters and the work we are doing to protect our marine environment and wildlife.

Join the conversation #YCW2020

From: [redacted]yahoo.com>
Sent: 24 May 2020 14:13
To: Central Enquiry Unit <CEU@gov.scot>
Subject: Formaldehyde in the lochs

Hello:

I'm writing from [redacted] I am disheartened and angry about the situation described in this article, which I have shared freely on social media...

Toxic fish farm pesticide polluted ten lochs across Scotland

[redacted]

1.1 Pkt e_ beed bj ri l aope_è a l khqpa` paj hk_do ] _rkoo O_kpj j `

Ten lochs across Scotland have been polluted by a toxic pesticide used by fish farms to control fungus, parasites and disease.

The government simply must do more to protect the natural assets in its care!

Sincerely,

[redacted]

Sent from Yahoo Mail on [redacted]

Enclosure 03 – Scottish Government emails.

From: [redacted]
Sent: 11 June 2020 14:09
To: [redacted]gov.scot>
Cc: [redacted]gov.scot>
Subject: RE: Formalin clarification

Thank you [redacted]

This is useful.

[redacted]

Regards,

[redacted]
Marine Scotland – Science
Scottish Government | Marine Laboratory, PO Box 101| 375, Victoria Road | Aberdeen AB11 9DB
Tel: +44 (0)131 244 [redacted]
S/B: +44 (0)131 244 [redacted]
Mob:+44 (0)777 [redacted]
Fax: +44 (0)1224 [redacted]
e: [redacted]gov.scot
w: http://www.scotland.gov.uk/marinescotland

From: [redacted]gov.scot>
Sent: 11 June 2020 12:19
To: [redacted]gov.scot>
Cc: [redacted]gov.scot>
Subject: Formalin clarification

Hi [redacted]

As discussed, a bit of background to the roles in relation to formalin. This is my understanding of the current situation.

Restrictions on the use of formaldehyde changed from 1 January 2016 when it was classified as a category 1B carcinogen. The regulatory roles are complicated as formalin can be administered as a medicinal treatment or as a biocide e.g. for disinfection.

The use of formalin as a medicinal treatment falls under the remit of the Veterinary Medicines Directorate (VMD). There are currently no formalin treatments authorised for fish within the UK i.e. no companies have a UK marketing authorisation. However, there are authorised products within the EU which can be brought into the UK under a Special Import Certificate (issued by the VMD). These products require to be prescribed by a veterinary surgeon. Formalin administered on a farm as a medicinal treatment requires to be recorded in a treatment record in accordance with

the Veterinary Medicines Regulations 2013. During inspections by the Fish Health Inspectorate (FHI), treatment records are inspected and recently administered treatments are recorded in case information. There is no requirement for farms to report medicinal treatments to the FHI.

The use of formalin as a biocide falls under the remit of the Health and Safety Executive (HSE). Formalin administered as a biocide does not require to be recorded in the treatment/medicine records. The FHI have no remit in relation to formalin administered as a biocide. Whilst there is no requirement to record biocide use in the treatment records some farms do record it in this way. This has perhaps led to some confusion regarding whether a record relates to a medicinal treatment or a biocide application.

SEPA licence activities under the Water Environment (Controlled Activities) (Scotland) Regulations 2011. The licence will specify which substances or products are permitted to be used and may include conditions for use. This is based on the substance or product itself, rather than how it is administered. SEPA will be able to advise on any reporting requirements they have for formalin use.

Happy to discuss.

Cheers

[redacted]

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

Tel: +44 (0)131 [redacted]
S/B: +44 (0)131 [redacted]
e: [redacted]gov.scot
w: https://www.gov.scot/marine-and-fisheries/

In 2020 we are showcasing Scotland's coasts, rivers, canals, lochs and inland waters and the work we are doing to protect our marine environment and wildlife. Join the conversation #YCW2020

Enclosure 04 – Email to Cabinet Secretary for the Environment, Climate Change and Land Reform.

From: [redacted] issf.org.uk <info@issf.org.uk>
Sent: 12 August 2020 15:18
To: Cabinet Secretary for the Environment, Climate Change and Land Reform <CabSecECCLR@gov.scot>
Cc: Scottish Ministers <Scottish_Ministers@gov.scot>
Subject: Formaldehyde use in freshwater fish farms

Please find attached a letter from Inside Scottish Salmon Feedlots for the attention of the Cabinet Secretary for Environment, Climate Change and Land Reform.

Please don't hesitate to contact me if you require any further information.

Yours sincerely,

[redacted]
--
[redacted]
www.issf.org.uk
[redacted]

Enclosure 04.1 – Attachment.

Roseanna Cunningham
Cabinet Secretary for Environment, Climate Change and Land Reform
scottish.ministers@gov.scot

Gillian Martin
Convenor, Environment, Climate Change and Land Reform Committee
ecclr.committee@parliament.scot

12 August 2020

Ref: Formaldehyde use in freshwater fish farms

Dear Roseanna & Gillian,

Alerted by local community groups as well as Freedom of Information investigations it was reported in the media that salmon farming companies have been discharging large quantities of Formaldehyde into freshwater lochs in the North and West of Scotland, in a largely uncontrolled and unrestricted manner. Given the chemical is classified as "cancer causing" as well as being toxic to ecosystems there is considerable, and understandable, concern about this activity on both public and environmental health grounds. As a leading campaigning organisation, critical of the environmental impacts of open cage salmon farming, we were approached by locals and community groups to seek support from the wider public in Scotland to call for a ban on the use of Formaldehyde in freshwater lochs by all fish farming companies until a public consultation on its safety and use can be held.

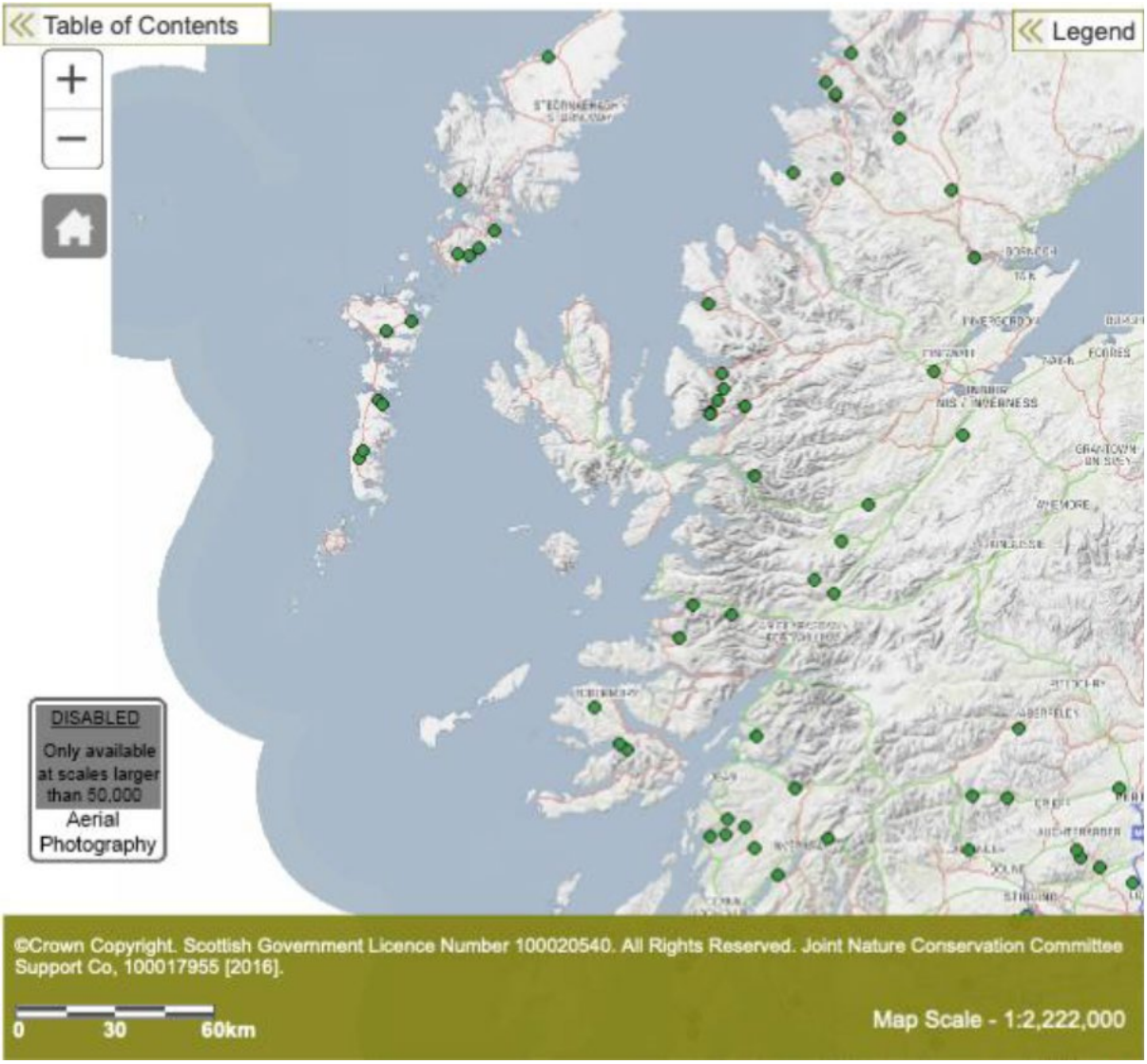
In a very short space of time 9,500 people have signed the following petition:

https://you.38degrees.org.uk/petitions/stop-toxic-salmon-farm-chemicals-polluting-scottish-lochs

Signatures were limited to UK residents only, who had to supply a valid post code and email address. The petition circulated organically on social media. Understandably there is scepticism about the veracity of signatures and the true level of support concerning online petitions. For our part we considered this a local issue and sought support on that basis, as a small community led campaign. For reference, more information on who signed the petition and how they interacted with it is contained in Appendix 1 below.

Minister, we now respectfully call on you to ban the use of Formaldehyde in freshwater lochs by all fish farming companies until a public consultation on its safety and use can be held.

We do of course recognise that Formaldehyde has been used in terrestrial farming for many years and also that the chemical does breakdown relatively rapidly in water. However, the effects of its use in a freshwater ecosystem in the quantities reported are not well researched or understood and many people would expect a more precautionary approach to have been taken and far greater consultation, given the potential for widespread use in a number of lochs and river catchments throughout North and West Scotland.



Freshwater fish farms (North and West of Scotland)

Having reviewed existing literature it is not clear or well understood to what extent Formaldehyde on freshwater fish farms will directly impact wild fish, of any species, at the alevin, fry or parr stages or indeed aquatic invertebrates and other foundation organisms that are in proximity to freshwater fish farms. The extent to which its effects may cascade through an entire ecosystem, diminishing biodiversity, is therefore not well understood and the risks are unquantified.

In terms of the regulation of the use of Formaldehyde on freshwater fish farms it is not clear who the relevant authority is or if the substance is considered a medicine or a biocide for the purposes of regulation. There is no public register of use, nor a process for independently auditing the self-reported figures of fish farm operators contained in FOI disclosures. It is not clear under what circumstance operators are required to report use and whether this would capture all usage.

Clearly local communities are not routinely consulted on the introduction and usage of such chemicals. In locations where the public has a right to roam and no physical barrier exists between the use of a cancer causing chemical and the public, the lack of consultation seems inadequate. Wild swimmers for example, unaware of the issue, will no doubt freely interact with the chemical, potentially at high concentrations.

From a lack of proper regulation flows public uncertainty and mistrust. Without proper regulation of toxic chemicals, which should include independent and transparent monitoring and reporting, fish farming will never be able to allay the fears of the public about the use of this chemical in very large quantities in freshwater bodies, sometimes forming part of public water supplies.

This raises a wider question, the extent to which the Scottish Government has made any proactive efforts to better understand the environmental impact of fish farming on the freshwater environment since it was raised as a significant issue by the ECCLR committee in its detailed report on the Environmental Impacts of Salmon Farming (2018).

https://www.parliament.scot/S5_Environment/Inquiries/20180305_GD_to_Rec_salmon_farming.pdf

Overall the Committee concluded:

351. Scotland needs an ecosystems-based approach to planning the industry's growth and development in both the marine and freshwater environment, identifying where salmon farming can take place and what the carrying capacity of that environment is. A cohesive framework is needed.

347. The Committee is deeply concerned that the development and growth of the sector is taking place without a full understanding of the environmental impacts. The Committee considers an independent assessment of the environmental sustainability of the predicted growth of the sector is necessary

In respect of Research, the committee held the view that,

328. There are knowledge gaps in:

- the environmental impacts on freshwater lochs

In respect of Additional Environmental Issues, the committee noted that,

331. The Atlantic Salmon Trust (AST) considers the report largely neglects impacts in freshwater ecosystems through salmon smolt production intended for coastal aquaculture. In particular they suggest cage farming of fin-fish, particularly in freshwater lochs, has the potential to generate significant amounts of organic waste which can result in alterations to the fish population structure.

Convenor, it is for this reason that we are also formally calling for a firm commitment that there will be ample opportunity for scrutiny by the ECCLR Committee in both this and the next parliamentary session of the Scottish Government's progress in assessing and regulating salmon farming's impacts on the freshwater environment.

We trust you will give these requests the consideration they deserve given the concern of local communities, and I look forward to conveying your response in due course.

Yours sincerely,

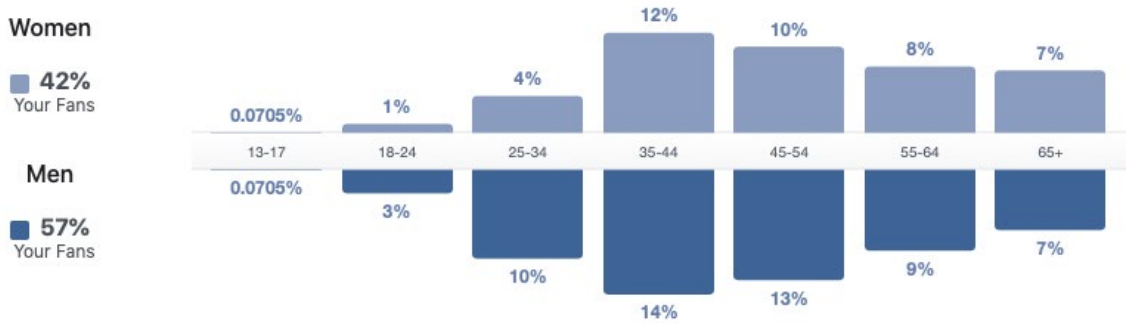
[redacted]
www.issf.org.uk

Appendix 1

Natural Weekly Engagement with all issf.org.uk content on Facebook

Page		Total Page Likes	From last week	Posts This Week	Engagement This Week
1	Scottish National Party (...	321.1K	0%	11	190.4K
2	Surfers Against Sewage	139.2K	▲0.2%	21	56.5K
3	Scottish Green Party	61.4K	0%	9	4.3K
4	Scottish Labour Party	28.7K	▼0.1%	4	1.8K
5	Scottish Conservatives	28.1K	▲0.1%	18	29.7K
6	Scottish Liberal Democr...	4.4K	0%	13	436
YOU 7	Inside Scottish Salmon ...	4.3K	▲1.1%	6	5.5K
8	Scottish Sea Farms Ltd	3.4K	▲0.9%	12	2.9K
9	Mowi Scotland	3.2K	▲0.3%	8	1K
10	Proud to farm Scottish ...	1.7K	▲0.1%	3	167
11	Salmon Business	1.4K	▲0.3%	39	623

Demographics of issf.org.uk Facebook page followers



Location of those engaging with sample Formaldehyde campaign content below

City	Your Fans
Glasgow, Scotland	171
Edinburgh, Scotland	157
London, England	143
Aberdeen, Scotland	104
Inverness, Scotland	104
Perth, Scotland	57
Stornoway, Scotland	49
Dublin, Ireland	45
Manchester, England	44
Dundee, Scotland	43
Falkirk, Scotland	33
Portree, Scotland	32
Stirling, Scotland	32
Elgin, Scotland	30
Fort William, Scotland	28
Paris, Île-de-France, Fr…	27
Belfast, Northern Ireland	27
Ayr, Scotland	25
Derry, Northern Ireland	24
Birmingham, England	24
Oban, Scotland	24
Pitlochry, Scotland	23
Bristol, England	23
Rouen, Haute-Norman…	23
Lamlash, Scotland	23

Formaldehyde campaign supporting organisations

Like · Follow · Share · Sign Up · Send Message

View 1 more comment

Compassion in World Farming
@farm.animals

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Posts
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Photos
Videos
Fundraisers
Instagram
Reviews
House Rules
Community

Create a Page

Compassion in World Farming
20 June at 20:45 ·

Last year in Scotland 22 tonnes of formaldehyde, which causes cancer, were poured into cages to disinfect farmed salmon.

Please speak out and sign this petition.

YOU.38DEGREES.ORG.UK
Stop Toxic Salmon Farm Chemicals Polluting Scottish Lochs
More than 22 tonnes of formaldehyde, which causes cancer and is used...

658 · 130 comments 353 shares

Like · Comment · Share

Most relevant

Write a comment...

[redacted]

4.5 **4.5 out of 5** · Based on the opinion of 310 people

Campaigning for a food and farming revolution.

Compassion is recognised as the leading international farm animal welfare organisation. Our vision i...

See more

Community See all

Invite your friends to like this Page
139,912 people like this
136,399 people follow this
179 check-ins

[redacted]

Liked · Following · Share · Learn More

Patagonia
@PatagoniaUK

Home
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Events
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Shops

Create a Page

Patagonia
28 May ·

SCREENING UPDATE: Hi everyone, this screening has now been rescheduled for next week, Wednesday June 10th - 7pm BST. Thanks

–

Join us for a screening of "Artifishal" – a film about people, rivers and the fight for the future of wild fish.... See more

14,915 Views

Patagonia
10 June at 19:00 ·

Like Page

Join us for a screening of "Artifishal" – a film about people, rivers and the fight for the future of wild fish.

Starting in North America and then heading ac...
See more

Community See all

Invite your friends to like this Page
1,697,822 people like this
1,699,193 people follow this

[redacted]

About See all

eu.patagonia.com/enGB/home
Clothing (brand)
Suggest Edits

Page transparency See More

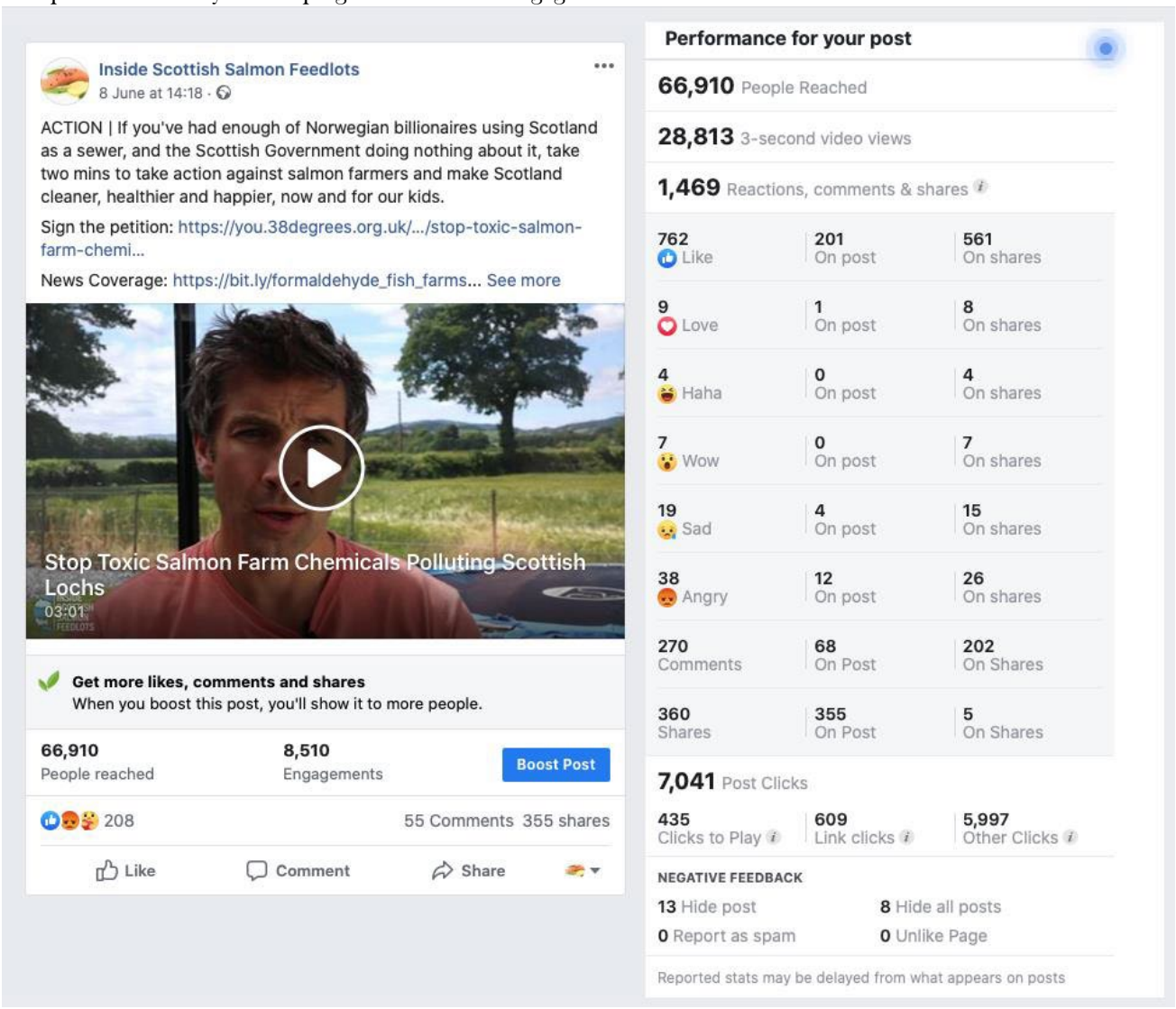
Facebook is showing information to help you better understand the purpose of a Page. See actions taken by the people who manage and post content.

Confirmed Page owner: Patagonia Europe Coöperatief U.A.

English (UK) · English (US) · Polski · Español · Português (Brasil)

Information about Page Insights data
Privacy · Terms · Advertising · AdChoices · Cookies · More
Facebook © 2020

Sample Formaldehyde campaign content and engagement



[redacted]
[redacted]
11 June at 09:14 ·

Farming salmon in sea lochs is incredibly harmful/toxic to the environment. Please read this, sign the petition and stop buying farmed salmon. Thank you!

Show Attachment

[redacted]

5 Comments 1 share

Like Comment Share

View 1 more comment

[redacted] most salmon in the shops is farmed and it does terrible harm to the local aquatic environment because of the food that they are fed and the chemicals that they are given to suppress disease. They harbour huge numbers of lice that go on to i... See more

1

Like · Reply · 2w

[redacted] replied · 4 Replies

[redacted] Done 1

Like · Reply · 2w

[redacted] Likewise, signed. I haven't eaten salmon in years, farmed or otherwise. Firstly because of the damage it does, and secondly because it seems to me that pretty much all freshwater fish are riddled with parasites... even saltwater fish require some thought in selection and cooking..

2

Like · Reply · 2w · Edited

[redacted] replied · 6 Replies

[redacted] The damage to wild salmon AND sea trout is undisputed by those in the know. [redacted] I have seen it for myself in the [redacted]. The Scottish Parliament has to take action; how can they let this go on?

1

Like · Reply · 2w

Comment as Inside Scottish Salmon Feedlots

[redacted] ▶ [redacted]

10 June at 13:36 ·

Please sign this petition to stop Norwegian billionaires polluting and destroying scottish lochs and fresh water!

Show Attachment

Like Share

[redacted]

10 June at 11:55 ·

Show Attachment

[redacted] 1 Comment 1 share

Like Comment Share

[redacted] Signed and shared 1

Like · Reply · 2w · Edited

Comment as Inside Scottish Salmon Feedlots

[redacted]

10 June at 10:35 ·

Hope this is ok to post but feel it's important to listen to and sign 😀

Show Attachment

[redacted] and 23 others 3 Comments 7 shares

Like Share

[redacted] Signed 1

Like · 2w

[redacted] Signed

Like · 2w

[redacted] Signed

Like · 2w

[redacted]

9 June at 08:45 ·

Please support & sign the petition... shocking this is going on...

Show Attachment

[redacted] and 4 others 2 Comments 1 share

Like Comment Share

[redacted] Thanks [redacted] xx

Like · Reply · 2w

[redacted] Completely dead seabed for around 400 metres around each cage.

2

Like · Reply · 2w

[redacted] holy sh$t! When did you see that?

Like · Reply · 2w

[redacted] Hi [redacted] We didn't expect anything like this ! [redacted] The con... See more

Like · Reply · 2w

[redacted] OMG that's crazy! Hope you're well anyhoo! Are you still in [redacted]

Like · Reply · 2w

[redacted] well and [redacted] now (well [redacted]. Life still great [redacted] ?

Like · Reply · 2w

[redacted]

8 June at 21:53 ·

Take a moment to watch, learn and hopefully sign the petition
https://you.38degrees.org.uk/.../stop-toxic-salmon-farm-chemi...
Show Attachment

[redacted] and 1 other 3 Comments

Like Comment Share

[redacted] Signed👏👏 literally you can't eat anything now without some billionaire poisoning us!! I feel an Erin brocokvitch coming on!

1

Like · Reply · 3w

[redacted] replied · 2 Replies

[redacted] Signed xx 1

Like · Reply · 2w

[redacted] Signed x 1

Like · Reply · 2w

[redacted] Write a comment...

[redacted]

8 June at 21:48 ·

Show Attachment

Like Comment Share

Comment as Inside Scottish Salmon Feedlots

[redacted]

8 June at 21:35 ·

Open-cage salmon farming in Scotland's lochs and rivers is incredibly environmentally damaging - but the effects are hard to see as they impact aquatic and marine environments. The profitability of salmon farming means the large Norwegian-owned corporations enjoy light-touch environmental regulation from the Scottish Government. This case - the dumping huge quantities of formaldehyde into Scottish lochs - is just another line in a long list of extremely polluting behaviour fr...

See more

Show Attachment

[redacted] and 18 others 2 Comments 2 shares

Like Comment Share

[redacted]

8 June at 21:21 ·

Please take a couple of minutes to listen to [redacted] and his fantastic fight for change - especially if, like me, a piece of your heart is in The Highlands 💚

Show Attachment

12 7 Comments

Like Comment Share

View 3 more comments

Inside Scottish Salmon Feedlots Thanks [redacted] and everyone else. It's appreciated.

1

Like · Reply · 2w

[redacted]

2

Like · Reply · 2w

[redacted] replied · 1 Reply

[redacted] Done!

1

Like · Reply · 2w

Video | **Post** | Shares | See Metrics for All Videos

Inside Scottish Salmon Feedlots
23 June at 10:34 ·

SO CLOSE | 8,000 have signed the petition, 2,000 to go.

If you've had enough of Norwegian billionaires using Scotland as a sewer, and the Scottish Government doing nothing about it, take two mins to take action against salmon farmers and make Scotland cleaner, healthier and happier, now and for our kids.

Sign the petition:https://you.38degrees.org.uk/.../stop-toxic-salmon-farm-chemi..... See more

Get more likes, comments and shares
When you boost this post, you'll show it to more people.

31,463	4,666	Boost Post
People reached	Engagements	

155 | 24 Comments 216 shares

Like | Comment | Share

Performance for your post

31,463 People Reached

14,929 3-second video views

907 Reactions, comments & shares

473 Like	149 On post	324 On shares
15 Love	7 On post	8 On shares
1 Haha	0 On post	1 On shares
3 Wow	0 On post	3 On shares
4 Sad	1 On post	3 On shares
5 Angry	1 On post	4 On shares
190 Comments	41 On Post	149 On Shares
218 Shares	216 On Post	2 On Shares

3,759 Post Clicks

241 Clicks to Play	465 Link clicks	3,053 Other Clicks

NEGATIVE FEEDBACK

4 Hide post	2 Hide all posts
0 Report as spam	1 Unlike Page

Reported stats may be delayed from what appears on posts

[redacted]

25 June at 09:56 ·

Please sign and share - [redacted]petition needs to reach 10,000 signatures for the Scottish Government to take notice. We do not want formaldehyde in our lochs and seas. Our seas are not a sewer for fishfarms. Let's smash this.

Show Attachment

[redacted] 8 Comments 3 shares

Like Comment Share

View 5 more comments

[redacted] Done

Like · Reply · 4d

[redacted] Signed.

Like · Reply · 3d

[redacted] Thanks everyone! 1

Like · Reply · 2d

Comment as Inside Scottish Salmon Feedlots

[redacted]

24 June at 23:26 ·

Show Attachment

[redacted]

Like Comment Share

Comment as Inside Scottish Salmon Feedlots

[redacted]

24 June at 18:54 ·

[redacted]

Show Attachment

Like Comment Share

Comment as Inside Scottish Salmon Feedlots

[redacted]

24 June at 18:26 ·

Show Attachment

Like Comment Share

[redacted]

24 June at 17:07 ·

Show Attachment

Like Comment Share

[redacted]

Write a comment...

[redacted]

24 June at 15:26 ·

Show Attachment

[redacted] and 2 others

Like Comment Share

Comment as Inside Scottish Salmon Feedlots

[redacted]

24 June at 07:47 ·

Show Attachment

[redacted] 1 Comment

[redacted]
23 June at 18:57 ·

If you eat farmed salmon, (check the label) you are part of a very destructive intensive farming practise that is destroying areas of open water in Scotland.
Please help by signing.

Show Attachment

[redacted]

Like Comment Share

Comment as Inside Scottish Salmon Feedlots

[redacted]
23 June at 18:51 ·

Show Attachment

[redacted]

Like Comment Share

Comment as Inside Scottish Salmon Feedlots

[redacted]
23 June at 18:38 ·

Show Attachment

[redacted] 2 shares

Like Comment Share

[redacted]

Write a comment...

[redacted]
23 June at 18:27 ·

Show Attachment

[redacted] 1 Comment 2 shares

[redacted] **Spearfish Scotland**
23 June at 17:19 ·

Using formaldehyde on caged fish can not be a good thing. Worth looking in to this campaign especially if you care about where your food is coming from. Maybe sign & share...

Show Attachment

[redacted] and 2 others

Like Comment Share

[redacted] [redacted]
23 June at 15:59 ·

Show Attachment

9 4 Comments 2 shares

Like Comment Share

[redacted] If this was beef and antibiotics there would be far more uproar about this. So why can fish and the surrounding environment be polluted with antibiotics. I suppose the £148m export tag on it.

2

Like · Reply · 6d

[redacted] Signed and shared 1

Like · Reply · 6d

[redacted] Signed and shared. 1

Like · Reply · 6d

[redacted] Signed

Like · Reply · 4d

Comment as Inside Scottish Salmon Feedlots

[redacted]

23 June at 12:35 ·

In just over 2 weeks they have gathered 8,000 signatures. They need 10,000 to really make it work. Please take 2 mins to sign the petition and ask others to do so.It is very important. Clean Scottish sea lochs or industrial dumping grounds, it's a simple choice and it effects us all and our children's future.

Show Attachment

[redacted] and 2 others 4 shares

Like Comment Share

Comment as Inside Scottish Salmon Feedlots

[redacted]

23 June at 12:31 ·

Hi Everyone,

I hope you don't mind me using this page for [redacted]

Salmon are sacred to many indigenous people around the world, and indeed, were once sacred to the people who first settled [redacted] Sacred meaning they carried a significant mythological function, holding together the bio', psycho', social values of the [redacted] ...

See more

Show Attachment

[redacted] 7 Comments 1 share

Like Comment Share

Salmon Free

23 June at 12:23 ·

Sign here....

Show Attachment

Like Comment Share

The Seas Rich Harvest

23 June at 12:11 ·

Show Attachment

Like Comment Share

Enclosure 04.2 – Attachment.

From: Ask <Ask@sepa.org.uk>
Sent: 28 August 2020 14:33
To: [redacted]gov.scot>
Cc: [redacted]SEPA.org.uk>; [redacted]sepa.org.uk>
Subject: EXT05-A-F0192278 - Formaldehyde use in freshwater fish farms

Good Afternoon [redacted]

As promised, please find SEPA's response to your enquiry regarding Formaldehyde use in freshwater fish farms. This response was drafted and approved by [redacted] and [redacted]

Statement

Salmon farming companies have been discharging large quantities of formaldehyde into freshwater lochs in the North and West of Scotland, in a largely uncontrolled and unrestricted manner.

Response

Fish farm operators require an authorisation from us before they can use formalin to treat their fish. When granting authorisation, we place strict limits on the quantities that can be used. The limits are set to keep discharges to levels that the receiving rivers and lochs can accommodate without compromising environmental quality standards.

Notes:-

• Formalin (active ingredient, formaldehyde) is used to treat a range of conditions in farmed fish including white spot and bacterial gill disease.
• Discharges to rivers and lochs from fish farms are controlled under the Water Environment (Controlled Activities) (Scotland) Regulations 2011
• Formaldehyde, the active ingredient of formalin, is readily biodegradable with no potential for bioaccumulation in the aquatic environment.
• In Scotland, the environmental standards for the protection of freshwater are 5 micrograms per litre (ug/l) (annual average) of formaldehyde and 50ug/l (maximum allowable concentration).
• Strict discharge limits on the use of products containing formaldehyde (e.g. formalin) are set using river and fresh water loch modelling to identify the environmental capacity of the receiving loch or river.

Statement

The effects of its use in a freshwater ecosystem in the quantities reported are not well researched or understood and many people would expect a more precautionary approach to have been taken and far greater consultation, given the potential for widespread use in a number of lochs and river catchments throughout North and West Scotland.

Response

The environmental standards SEPA applies in to protect freshwaters are based on scientific data on the effects of formaldehyde on freshwater organisms, including species native to Scottish freshwater lochs.

Statement

It is not clear or well understood to what extent formaldehyde on freshwater fish farms will directly impact wild fish, of any species, at the alevin, fry or parr stages or indeed aquatic invertebrates and other foundation organisms that are in proximity to freshwater fish farms. The extent to which its effects may cascade through an entire ecosystem, diminishing biodiversity, is therefore not well understood and the risks are unquantified

Response

The environmental standards SEPA applies to protect freshwaters are based on scientific data on the effects of formaldehyde on freshwater organisms, including species native to Scottish freshwater lochs. The derivation of the standard took account of scientific toxicology data for fish species, including Atlantic salmon and brown trout as well as other freshwater animals.

Statement

It is not clear who the relevant authority is or if the substance is considered a medicine or a biocide for the purposes of regulation.

Response

All discharges to freshwater are regulated by SEPA, including discharges of formaldehyde from freshwater fish farm operations. Formaldehyde is used as a fish medicine and its use as a medicine is regulated by the Veterinary Medicines Directorate.

Statement

It is not clear under what circumstance operators are required to report use and whether this would capture all usage. There is no public register of use, nor a process for independently auditing the self-reported figures of fish farm operators contained in FOI disclosures.

Response

All farm operators discharging formaldehyde are required to keep details of each occasion of formaldehyde use and to make these records available to SEPA staff for auditing purposes. Currently, not all farms are required to submit reports to us on their formaldehyde use. For farms that are required to submit reports on their formaldehyde use, the information is available on SEPA's public register. In due course, we will be standardising reporting requirements for all farms.

I trust this clarifies SEPA's position and if we can be of further assistance, please do get in touch.

Best wishes

Ask@sepa.org.uk – *dedicated mailbox for enquiries from MPs, MSPs, MEPs, Government Ministers and staff from the Scottish or UK Parliaments*

Enclosure 04.3 – Attachment.

Cabinet Secretary for Environment, Climate Change
and Land Reform
Roseanna Cunningham MSP
T : 0300 244 [redacted]
E : scottish.ministers@gov.scot
[redacted]issf.org.uk

Our Reference: 202000077335
Your Reference: Formaldehyde use in freshwater fish farms
03 September 2020

Dear [redacted]

Thank you for your letter about your concerns of the use of formaldehyde at freshwater fish farms.

I would seek to assure you that salmon farming companies do not discharge large quantities of formaldehyde into freshwater lochs in the North and West of Scotland, in a largely uncontrolled and unrestricted manner.

My officials inform me that formaldehyde is used as a fish medicine and its use as a medicine is regulated by the Veterinary Medicines Directorate. Formalin (active ingredient, formaldehyde) is used to treat a range of conditions in farmed fish.

All discharges to freshwater are regulated by the Scottish Environment Protection Agency (SEPA) including discharges of formaldehyde from freshwater fish farm operations. Discharges to rivers and lochs from fish farms are controlled under the Water Environment (Controlled Activities) (Scotland) Regulations 2011.

Fish farm operators require an authorisation from SEPA before they can use formalin to treat their fish. When granting authorisation, SEPA places strict limits on the quantities that can be used. The limits are set to keep discharges to levels that the receiving rivers and lochs can accommodate without compromising environmental quality standards. The discharge limits on the use of products containing formaldehyde (e.g. formalin) are set using river and fresh water loch modelling to identify the environmental capacity of the receiving loch or river.

The environmental quality standards for the protection of freshwater used to set the discharge limits for formaldehyde are 5 micrograms per litre (µg/l) (annual average) and 50 µg/l (maximum allowable concentration). These environmental standards are based on scientific data on the effects of formaldehyde on freshwater organisms, including species native to Scottish freshwater lochs. The derivation of these environmental standards took account of scientific toxicology data for fish species, including Atlantic salmon and brown trout as well as other freshwater animals. Formaldehyde is readily biodegradable with no potential for bioaccumulation in the aquatic environment.

All farm operators discharging formaldehyde are required to keep details of each occasion of formaldehyde use and to make these records available to SEPA staff for auditing purposes. Currently, not all farms are required to submit reports to SEPA on their formaldehyde use. For farms that are required to submit reports on their formaldehyde use, the information is available on SEPA's public register. In due course, SEPA will be standardising reporting requirements for all farms.

Whilst I have considered and understand the points that you raised in your letter regarding the use of formaldehyde at freshwater fish farms I hope the above information reassures you that there are already effective regulations and controls in place.

Yours sincerely,

Roseanna Cunningham
Scottish Ministers, special advisers and the Permanent Secretary are covered by the terms of the Lobbying (Scotland) Act 2016. See
www.lobbying.scot
St Andrew's House, Regent Road, Edinburgh EH1 3DG
www.gov.scot

Enclosure 05 – Email from SEPA to Scottish Government.

From: [redacted]sepa.org.uk>
Sent: 28 August 2020 16:42
To: Communications Covid-19 [redacted]gov.scot>; [redacted]gov.scot>; [redacted]gov.scot>; [redacted]gov.scot>; [redacted]gov.scot>
Cc: [redacted]sepa.org.uk>; [redacted]sepa.org.uk>
Subject: Loch Tralaig - formaldehyde use - SEPA holding lines

Good afternoon,

Following some social media posts we were made aware of earlier in the week about formaldehyde use at Loch Tralaig, we've drafted the below holding lines which we'll also use for social posts over the weekend.

Thanks,

[redacted]

Loch Tralaig

"There are a number of uses of Loch Tralaig, including fish farming. We conduct regular compliance checks on regulated activities and will continue to monitor formaldehyde use by the Loch Tralaig fish farm.

"Fish farm operators require an authorisation from SEPA before they can use formalin to treat their fish. When granting authorisation, we place strict limits on the quantities that can be used. The limits are set to keep discharges to levels that the receiving rivers and lochs can accommodate without compromising environmental quality standards."

NOTES:-
• Formalin (active ingredient, formaldehyde) is used to treat a range of conditions including white spot and bacterial gill disease.
• Discharges to rivers and lochs from fish farms are controlled under the Water Environment (Controlled Activities) (Scotland) Regulations 2011
• Formaldehyde, the active ingredient of formalin, is readily biodegradable with no potential for bioaccumulation in the aquatic environment.
• In Scotland, the environmental standards for the protection of freshwater are 5 micrograms per litre (ug/l) (annual average) of formaldehyde and 50ug/l (maximum allowable concentration).
• Strict limits on the use of products containing formaldehyde (e.g. formalin) are set using river and fresh water loch modelling to identify the environmental capacity of each water course.

[redacted]

Scottish Environment Protection Agency (SEPA)

[redacted] Angus Smith Building I Eurocentral I ML1 4WQ

Enclosure 06 – Email from Christine Grahame MSP to Cabinet Secretary for the Environment, Climate Change and Land Reform.

From: [redacted]gov.scot> **On Behalf Of** Cabinet Secretary for the Environment, Climate Change and Land Reform
Sent: 02 September 2020 12:25
To: Public Engagement Unit <CorrespondenceUnit@gov.scot>
Cc: Cabinet Secretary for the Environment, Climate Change and Land Reform <CabSecECCLR@gov.scot>
Subject: FW: Formaldehyde and Scottish farmed salmon

For response please.

Thanks,

[redacted]

From: [redacted]parliament.scot> **On Behalf Of** Grahame C (Christine), MSP
Sent: 01 September 2020 15:14
To: Cabinet Secretary for the Environment, Climate Change and Land Reform <CabSecECCLR@gov.scot>
Subject: Formaldehyde and Scottish farmed salmon

Dear Roseanna,

I have been contacted by a constituent concerned about the use of formaldehyde in Scottish salmon farming following the release of a number of FOIs (reported here as well as in some locals).

My constituent states that formaldehyde causes an allergic reaction in his wife and is therefore concerned about how this is (or is not) labelled on produce as well as the potential environmental impact.

I appreciate the Government's position that formaldehyde, as regulated by SEPA, can be safely used in fish farming and does not pose a risk to food safety. Can I ask however if any research has been undertaken into possible adverse reactions or allergies in certain people on consuming treated fish and whether there are any plans to review the licensing of formaldehyde use in view of environmental concerns?

Any comment you could offer on this would be helpful.

Best wishes,

Christine Grahame MSP
Constituency Member for Midlothian South, Tweeddale and Lauderdale
****

Enclosure 07 – Email from SEPA to Scottish Government.

From: SEPA Media Team <media@sepa.org.uk>
Sent: 04 September 2020 18:01
To: [redacted]gov.scot>
Subject: Weekend media briefing 4 September 2020

[redacted]

All media enquiries

Enquiries marked as * have not yet had responses returned - often due to a longer deadline time.

Date	Outlet	Enquiry
31 August	The Scottish Sun	Bathing waters data
31 August	Dunfermline Press & West Fife Advertiser	Bathing waters - Silver Sands
31 August	Falkirk Herald	Flooding - Main Road, Maddiston
31 August	BBC Scotland (Online)	NHS medical waste
31 August	The Scottish Sun	Potential major cyanide leak/spillage at DSM's chemical plant in Dalry
31 August	First News	Purple water, Tollcross Park
31 August	Scottish Daily Mail	Polluted beaches
1 Sept	Shooting Times & Country Magazine	Loch Tralaig - Formalin

2 Sept	Fife Free Press	Pollution limits on Fife beaches
2 Sept	Sunday Post (Online)	Flood risk management
2 Sept	Edinburgh Live	Water of Leith basin - petition re sewage

[redacted]]

Enclosure 08 – Farmed fish escapes initial notification.

FARMED FISH ESCAPES – INITIAL NOTIFICATION

This form is to be submitted immediately following **any circumstance** which caused or might have caused an escape of fish from a fish farm site.
Please refer to "WHAT TO DO IN THE EVENT OF AN ESCAPE OF FISH FROM A FISH FARM" for further guidance on how to complete this form: www.scotland.gov.uk/Topics/Fisheries/Fish-Shellfish

1.Please supply details of the authorised aquaculture production business (APB) and farm site **(Read our privacy notice to find out what we do with your information.)***:*

Site Name:	Kinlochmoidart	Site No:	FS0146
APB Name:	Scottish Salmon Company	APB No:	[redacted]
Contact Name:	[redacted]	Telephone No:	[redacted]
Fax No:		Email Address:	[redacted]

2. Please supply the following details regarding the fish escape:

Date & time of incident (nearest estimate)	TBC – occurred with last 7 days	OS grid reference:	tbc
Site location:	Kinlochmoidart	Estimated number of fish lost:	Suspected less than 20
Species:	Atlantic salmon	Average weight:	75g
Age in months:	9 months in FW	Growth stage:	Parr
Please supply details of any treatments administered for which the fish are in withdrawal:		N/A – received antibiotic treatment mid-September (ERM), then formalin treatment end September (low level fungus)	
Please confirm whether the fish were healthy at the time of the escape, or the nature of any disease:		Healthy – low level fungus	
Please confirm mortality rates on site and the reasons for mortality:		Low – less than 0.3% per week for last 4 weeks	

3. Please provide details of the circumstances surrounding the fish escape or potential escape (if necessary continue on a separate sheet):

Circumstances Surrounding the Escape or potential Escape Consider: Human error, predation, suspected foul play, failure or wear and tear of equipment (mooring, ropes, netting, cages or pens, boats), weather conditions (wave height, wind speed and tidal strength):	*Suspected act of vandalism/foul play. Investigation ongoing into incident.*
Suspected Primary Reason for Escape or potential Escape	Vandalism

Suspected Underlying Cause of Reason for Escape or potential Escape(if applicable)	

Completed by:	[redacted]	**The form should be sent to**:
Position in Organisation:	[redacted]	The Duty Inspector Fish Health Inspectorate Marine Scotland Science PO Box 101 375 Victoria Road Aberdeen AB11 9DB Email: ms.fishhealth@gov.scot
Date:	22.10.2020	Tel: 0131 [redacted] Fax: 0131 244 [redacted]

Enclosure 09 – Email from Scottish Environment LINK to Scottish Government.

From: [redacted]scotlink.org>
Sent: 16 November 2020 13:53
To: Scottish Ministers <Scottish_Ministers@gov.scot>
Subject: FAO Cabinet Secretaries Michael Russell and Roseanna Cunningham - public petition hand-in

AO [redacted]
Dear Cabinet Secretaries,

Please find attached a letter from Scottish Environment LINK regarding a recent petition we have held to demonstrate public support for strengthening the proposals of the UK Withdrawal from the European Union (Continuity) (Scotland) Bill. Over 6,000 members of the public have supported LINK's calls for the bill to be strengthened to ensure that the new Environment Standards Scotland is fully independent of government and is empowered to take enforcement action in response to individual complaints about environmental damage.

Please also find a spreadsheet with details of the petition supporters along with their additional comments.

We hope this can feed into your discussions on the bill ahead of Stages 2 and 3.

With kind regards,

[redacted]
Scottish Environment LINK
Dolphin House, 4 Hunter Square, Edinburgh EH1 1QW

[redacted] ***please contact on*** [redacted]
Mob [redacted] Email [redacted]scotlink.org
Web www.scotlink.org, www.savescottishseas.org | Email [redacted]scotlink.org

Enclosure 09.1 – Extract of “Petition signatories and messages.csv” attachment.

Name	Last Name	Postcode	Comment
[redacted]	[redacted]	[redacted]	It's high time Scotland did MORE for our environment and ensured we continue to do more,we have a planet to save, a planet WE have destroyed ! We MUST plant more trees, regenerate many areas,in particular the moors, grouse shooting MUST be banned along with farmed salmon,we should be looking to improve our waterways for wild salmon,not allowing tonnes of formaldehyde to be dumped and farmed salmon released into the waters,we need to see an end to grouse estates, where we know that raptor persecution is rife ! The burning of the heather is doing our planet no good what so ever,plus,any mamals,insect eggs,reptiles in that heather is burned ! dead, gone ! As we know,many of our species are in SERIOUS decline,we have to reverse the damage done,we need wildflower meadows, the Plantlife Roadverge Campaign is excellent,planting wildlfower verges increases insect populations,in turn increasing bird and other wildlife populations and means that it only needs to be cut once per year,saving time and money for local councils. Scotland can lead the way,ensuring HIGH standards of protection for our environment and playing a MASSIVE part in

			helping to increase populations of wildlife.Biodiversity is key to OUR survival,but, we must act now ! Imagine the tourists our country could attract for wildlife tours,I've spoken to people on social media who will NOT visit as long as we continue to allow our amazing wildlife to be used to quench blood lust,ie,blood sports, photographers who will not come to our country until such time as changes are made.These changes need to be made , not only to encourage these tourists,but, to encourage a better balance for nature,without nature we will die,it is THAT simple,we need nature to survive,the time has come to make sure nature and the environment are at the forefront of ALL discussions,not just for us, but for our children,grandchildren,great grandchildren etc. Our country is beautiful,it's beauty though is filled with ugliness,that ugliness within the blood sports industry,farmed salmon etc.Scotland has a future,but, we can make that future far brighter, cleaner, full of biodiversity with a solid guarantee of EXTREMELY high Environment Protection Laws,Higher than they have been previously, and with the right people behind it all,ensuring there is scrutiny at every turn by an independent watchdog,a

			watchdog who will listen to complaints and act on them immediately .Do what is right, for the people of Scotland, for the future of our country,it's wildlife and nature.

Enclosure 09.2 – Attachment.

To Michael Russell MSP, Cabinet Secretary for the Constitution, Europe and External Affairs:

We need strong laws to protect Scotland's nature after Brexit. The Continuity Bill must be amended to empower the new watchdog to take enforcement action on complaints about specific decisions affecting people's environment, and to strengthen its independence to ensure it has the teeth to enforce environmental protections.

[Additional comments could be added added by signatory]

Enclosure 09.3 – Attachment.

Scottish Environment LINK

13 Marshall Place
Perth
PH2 8AH

T 01738 630804
E enquiries@scotlink.org
W www.scotlink.org

16 November 2020

Dear Cabinet Secretary for the Constitution, Europe and External Affairs,
Cc Cabinet Secretary for the Environment, Climate Change and Land Reform,

Over 6,000 people support measures for a strong, independent environmental watchdog.

With the UK Withdrawal from the EU (Continuity) (Scotland) Bill making its way through the Scottish Parliament, please find enclosed details of signatories to a recent Scottish Environment LINK petition calling for improvements to proposals to establish the new Environment Standards Scotland (ESS) watchdog.

Our environmental laws are only as good as the institutions which uphold them, and a watchdog can only be robust and effective if it is truly independent of government. The signatories share our concerns that at a time when 1 in 9 species in Scotland is at risk of national extinction, we must have a strong, independent watchdog that is able to take steps to protect and restore our amazing natural environment.

The bill must also be amended to empower ESS to take enforcement action on complaints about specific decisions affecting people's environment. The European Commission has played a critical role in the oversight and enforcement of environmental protections by receiving complaints on potential failures to apply or the misapplication of EU environment law, investigating these complaints and taking enforcement action where necessary. This has included receiving and acting upon representations that concern individual decisions with the potential to affect the environment, such as planning applications or licensing decisions. Such cases have played a critical role in identification of more systemic problems with the application and interpretation of environmental law.

The arrangements for ESS must replicate the ability for citizens to raise complaints about their local environment and for ESS to be empowered to force public authorities to take action as a result. Unless the limitations are removed the ESS will not provide continuity with existing EU arrangements and would represent a significant erosion of environmental governance in Scotland, as well as Scots' rights and ability to take action on the environment.

We hope you can take these concerns into account ahead of the bill's Stage 2 debate.

With kind regards,

[redacted]

Enclosure 10 – FMQ briefing.

Issue: A report in the media (Daily Mirror) claims to expose 'putrid' conditions including the presence of sea lice on Scottish marine fish farms, which threatens both the welfare of farmed fish and the environment.

Such statements reflect those of the anti-fish farming lobby which use a range of social media to disseminate their opinion of farmed fish practices.

Top Lines

We dispute claims that conditions on Scottish fish farms are 'putrid' – Scottish salmon is farmed to high standards and within a tightly managed regulatory framework.

We recognise that aquaculture is vitally important to Scotland's economy and provides thousands of jobs directly and indirectly - but we also recognise the need to protect the environment and the health and welfare of marine farmed animals. We take this very seriously.

Sea lice: government, regulators and the industry remain motivated to continually progress sea lice management – that is why we have recently reviewed our sea lice policy and have made significant improvements to sea lice reporting processes and SG's intervention in the management of sea lice on farms.

We recognise that a healthy marine environment is fundamental to our many uses of our seas and to coastal communities – in relation to fish farming a series of changes to regulation have been made, not least SEPA's strengthened regulatory framework.

Scottish Government remains committed to its high animal welfare standards - Farmed fish are protected from 'unnecessary suffering' by the Animal Health and Welfare (Scotland) Act 2006 and the Animal and Plant Health Agency will investigate welfare concerns fully and take enforcement action where appropriate

[redacted]

Environmental management

- Ministers have regularly reiterated their commitment to sustainable development and growth of the aquaculture industry – this fully recognizes the need to take account of impacts on the marine environment, as is the case for all marine industries.

- In June 2019, SEPA published its strengthened regulatory framework for marine pen fish farms followed by its first Finfish Aquaculture Sector Plan. This represents a significant shift in the

modernisation of fish farm regulation. Since then, SEPA has worked very closely with other regulators and a range of stakeholders to continue to develop and deliver effective and efficient environmental regulation.

[redacted]

Use of formaldehyde in the marine area

- We understand the concern that people have regarding the use of various chemical treatments and medicines in the marine area.
- Let me reassure you that the use of Formaldehyde and other chemicals is strictly regulated by the independent Scottish Environment Protection Agency, and it can be safely used in fish farming. Formaldehyde use in fish farming, as regulated, does not pose a risk to the marine environment or to food safety.

Enclosure 11 – Briefing for Fergus Ewing, Cabinet Secretary for Rural Economy and Tourism, meeting with the Rural Economy and Connectivity Committee. 32nd meeting, 2020 (Session 5). Wednesday 2 December 2020.

SEPA Aquaculture Regulation

Background

SEPA regulates the impacts of the aquaculture sector on the water environment through the Water Environment (Controlled Activities) (Scotland) Regulations 2011. It controls the discharge of organic wastes (fish faeces and uneaten food), used fish medicines and other chemical treatments into the marine environment that can impact on the seabed and marine wildlife by restricting fish farm size (biomass) and medicine usage.

Top lines

- Controlled Activity Regulation (CAR) licences issued by SEPA for aquaculture sites set strict conditions on operators to deliver appropriate environmental protections by controlling the discharges to the water environment
- In November 2018, SEPA tightened controls on the discharge of the sea-lice medicine SLICE at any new fish farm sites; and the safe level of use at existing sites is actively under consideration by a UK expert advisory group.
- SEPA has now launched its new regulatory framework and sector plan for finfish aquaculture, including measures to improve environmental compliance to ensure the size of fish farms is better matched to environmental capacity.
- The need to strike an appropriate balance between the sustainable growth of aquaculture industry and the associated environmental impacts is recognised.
- The Scottish Government and its agencies are working with the sector and with others to develop a policy and regulatory framework that enables sustainable growth while maintaining the right balance across our economic, environmental and social responsibilities.

SEPA's Strengthened Fish Farming Framework

- In June 2019, SEPA launched its new finfish regulatory Framework which strengthens the protection of Scotland's marine environment.
- The new Framework uses the best modelling available to better predict and monitor the environmental effects of fish farms.
- In addition to the introduction and the enforcement of a tighter organic waste standard, improved modelling means that risks to the local environment will be better understood and managed.
- The new approach allows the assessment of larger scale impacts - including interactions with other farms – to be carried out.

- This more effective regulation will ensure that farms are sited in the most appropriate areas.

SEPA Aquaculture Regulation Q & A

What actions has SEPA undertaken since the ECCLR and REC Committee recommendations in 2018 on the environmental regulation of salmon farming?

In June 2019, SEPA published its strengthened regulatory framework for marine pen fish farms followed by its first Finfish Aquaculture Sector Plan a month later in August. This represented the biggest shift in regulation of fish farms in a generation. Since then, SEPA has worked very closely with other regulators and a range of stakeholders to deliver effective and efficient environmental regulation.

SEPA took account of the ECCLR and REC Committees' findings from their inquiries into aquaculture, and incorporated several key components:

- A new process for pre-application engagement with the applicant and communities
- The introduction of new modelling tools to ensure deposition of waste into the marine environment is better understood and controlled
- Bringing the application of environmental standards into line with those required for other discharges to the marine environment
- Enhanced sampling/monitoring requirements for operators and SEPA
- A strengthened regime for compliance checking, including unannounced environmental surveys of farms and a new quality assurance scheme to provide greater confidence in monitoring information provided by operators.
- A multi-stakeholder Finfish Aquaculture Advisory Panel, bringing together a broad range of stakeholders with interest in the sector, from operators and regulators to community and environmental groups and supermarket buyers.
- A major internal re-organisation to create a new, national permitting team, new nationally accountable environmental performance teams and a new specialist enforcement team.

Since the ECCLR and REC inquiries of 2018 made recommendations that regulatory responsibility for sea lice interactions with wild fish should be introduced what actions have been undertaken?

SEPA and Marine Scotland have been jointly engaged in developing a spatial framework to help guide new fish farm developments to locations where sea lice are less likely to pose a risk to wild salmonids.

The spatial framework will take account of the best available science and the precautionary principle, and will underpin future planning advice.

It is anticipated that the Scottish Government will publish a consultation on these proposals within the next few weeks.

Environmental standard for sea lice medicine SLICE (Emamectin benzoate)

- SEPA regulates chemicals to treat sea lice, the main one of which is SLICE (active ingredient emamectin benzoate). In November 2018 SEPA published a revised regulatory position introducing an interim tighter standard for SLICE for all new fish farms and existing farms that plan to increase their use of the medicine.
- A UK Technical Advisory Group (UKTAG) comprised of environmental regulators from across the Nations of the UK is currently undertaking work which will lead to the development of a longer term EQS. That process has involved both SEPA and the aquaculture industry submitting evidence that is currently under consideration as part of a consultation UKTAG carried out in 2019. UKTAG is expected to publish its findings in spring 2021.
- The longer term standard determined by UKTAG will be subject to consultation by the Scottish Government as to how it should be phased in.

What has been SEPA's Aquaculture Regulation response to COVID-19?

SEPA responded to support the aquaculture sector during the early stages of Covid-19 by establishing two temporary position statements relating to biomass and the use of sea lice treatments.

SEPA currently has one active dispensation available to aquaculture operators to reflect disruption caused by the pandemic:

- The "biomass position" allows operators to exceed their permitted biomass under certain circumstances. This helps operators manage through a period where the market has been disrupted and fish may need to stay in the water for longer. This position does not have an expiry date and there are no plans to change it as SEPA accepts that market disruption is still an issue.

The second dispensation called the "medication position" allowed operators to undertake sea lice treatments over a shorter period than the permit normally allows and it expired on 31 August.

The medication position has only been used by operators a handful of times - 4 times out of 75-80 treatments that have taken place in the period the position has been in force.

The medication position was put in place to reflect restrictions on manpower and movements in the early stages of the pandemic. As the constraints on workforce have eased significantly as a result of the gradual easing of lockdown, SEPA did not renew or extend the duration of the medication position.

Following expiry of the 'medication position' SEPA has advised that it is willing to discuss with operators on a case by case basis where they may need to make use of such a flexibility around for a specific site or sites. This is similar to the approach SEPA has taken to other regulated sectors.

SEPA has also advised that, should greater restrictions be reimposed that would impact on the aquaculture workforce on a local or national basis, then it would reconsider the position in that context.

[redacted]

Following public concern how is Formaldehyde (product name Formalin) use at freshwater fish farms regulated in Scotland?

In August 2020 the campaign group Inside Scottish Salmon Feedlots sent a letter to the Cabinet Secretary for Environment, Climate Change and Land Reform stating that formaldehyde use at fish farms is uncontrolled and unrestricted. It requested formaldehyde use is banned until a public consultation on its safety and use can be held following an online petition to support this proposal signed by 9,500 people.

Formaldehyde (Formalin) is used as a fish medicine used to treat a range of conditions in farmed fish and its use as a medicine is regulated by the Veterinary Medicines Directorate.

All discharges to freshwater are regulated by the SEPA including discharges of formaldehyde from freshwater fish farm operations. Discharges to rivers and lochs from fish farms are controlled under the Water Environment (Controlled Activities) (Scotland) Regulations 2011.

Fish farm operators require an authorisation from SEPA before they can use formalin to treat their fish.

All farm operators discharging formaldehyde are required to keep details of each occasion of formaldehyde use and to make these records available to SEPA staff for auditing purposes.

SEPA places strict limits on the quantities of formaldehyde that can be used. The limits are set to keep discharges to levels that the receiving rivers and lochs can accommodate without compromising environmental quality standards.

The environmental quality standards are based on scientific data on the effects of formaldehyde on freshwater organisms, including species native to Scottish freshwater lochs.

Formaldehyde is readily biodegradable with no potential for bioaccumulation in the aquatic environment.

Enclosure 12 – Email received from Costal Communities Network.

From: info@communitiesforseas.scot <info@communitiesforseas.scot>
Sent: 19 November 2021 14:32
To: Cabinet Secretary for Rural Affairs and Islands <CabSecRAI@gov.scot>; Minister for Environment and Land Reform <MinisterELR@gov.scot>
Cc: [redacted]googlegroups.com
Subject: Thank-you from the Coastal Communities Network

Dear Ms Gougeon; Ms McAllan

Many thanks to you both, and your colleagues, for meeting with the Coastal Communities Network on Tuesday 16th November.

We greatly appreciate your time and enjoyed the opportunity to speak with you more about the interests and activities which CCN represents. We wanted to share the attached letter of thanks, to briefly summarise the main points of our discussion, and highlight the follow-up actions identified during the meeting.

I'm also attaching a (2 page) summary of global salmon farming case studies and a recent piece from CCN member [redacted] which featured in British Wildlife.

We look forward to building a positive and constructive working relationship with you both and do hope to meet again soon.

Sincerely,

[redacted]
On behalf of
The Coastal Communities Network, Scotland

www.communitiesforseas.scot | Address: 5 Rose Street, Edinburgh, EH2 2PR
Subscribe to the CCN email newsletter.

CCN has a vision for Scotland's seas to be abundant in biodiversity and resilient to future changes, providing sustainable and diverse livelihoods to those living around them, in perpetuity.

Enclosure 12.1 – Attachment

Coastal Communities Network
Scotland

Ms Mairi Gougeon, Cabinet Secretary for Rural Affairs and Islands
Ms Mairi McAllan, Minister for Environment and Land Reform

19th November 2021

Re: meeting with the Coastal Communities Network, Tuesday 16th November 2021

Dear Cabinet Secretary; Minister

Many thanks to you both, and your colleagues, for meeting with the Coastal Communities Network (CCN) on Tuesday 16th November. We greatly appreciate your time and enjoyed the opportunity to speak with you more about the interests and activities which CCN represents. We wanted to briefly summarise the main points of our discussion, and highlight the follow-up actions identified during the meeting.

Fauna & Flora International (FFI) introduced the background to CCN and FFI's current role in providing neutral facilitation, with a view to longer-term independence for CCN. This is underpinned by a central CCN Advisory Group, selected from within CCN's membership, of which representatives within Tuesday's meeting were drawn from. The full CCN Advisory Group membership is made up of:

[redacted]

[redacted] also kindly joined the meeting, as an active member of CCN.

Members of CCN spoke initially about their own local points of focus and experience – this included the positive impact upon biodiversity which communities can make in leading Marine Protected Areas; the ongoing challenges community institutions (including Community Councils, such as is the case in the Clyde) face in securing a representation within wider fora such as Regional Marine Planning Partnerships; the lack of legal enforcement of marine wildlife laws (e.g. ongoing use of Acoustic Deterrent Devices); the need for ecosystem-based assessment of salmon farm operations in Scotland; and the challenges that exist around the salmon farming industry's loss of social licence to operate.

Later in the meeting we also spoke upon the challenges that exist around Inshore Fisheries Groups and the need to ensure their governance and composition is reformed; issues around the robustness of Government-commissioned economic reports; and we referenced the Clyde (in its highly altered state) as a representative microcosm of the deficiencies within aquaculture consenting, as well as a useful example of the negative cumulative environmental impact of other industries.

We're sure you appreciate that we had a small amount of time to cover a large and complex number of issues and would very much welcome the opportunity to unpack these issues further with you both in future meetings.

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We were therefore encouraged to hear that you would both like to meet with CCN again and we'd be happy to follow this up separately, with some suggested dates for the new year. Perhaps it would be most useful for us to dedicate future meetings to specific topics? We would like to suggest either salmon farming or Highly Protected Marine Areas for the next meeting, and would be guided by your advice in terms of what would be the timeliest. We're also keen to organise site visits and boat trips for you both, perhaps after the winter months, where you can really get a sense of the coastal areas CCN represents, first-hand.

We were incredibly encouraged to hear that you believe working with communities is critical to moving beyond the ongoing crises, and we also agree that the changes we need to make now to meet these challenges ought to be fair and just. As we stated in the meeting, we are living through a critical moment in time at present and, as such, we do also need to see big actions - we therefore implore you to be bold in delivering your respective portfolios. If your actions are taken to protect the natural environment, we can assure you that you will have CCN's – and the tens of thousands of individuals it represents - full backing.

We note here a small number of follow-up actions:

- Exploring the difficulties Fairlie Coastal Trust are experiencing in accessing the Clyde Regional Marine Planning Partnership.
- Exploring the current Clyde fish farm applications.
- Organising further engagement with CCN regarding Highly Protected Marine Areas.
- CCN and [redacted] to follow-up suggestion of a meeting - in progress.
- CCN to share a brief (2 page) comparative summary of salmon farming models which operate in other countries – attached.

Since meeting with you on both on Tuesday, CCN has been invited to meet with Professor Griggs regarding the aquaculture regulatory review, something we were unable to secure beforehand. We appreciate the speed at which you were able to move this along for us, thank-you.

We look forward to building a positive and constructive working relationship with you both. Please don't hesitate to get in touch with us at any time - both directly with CCN or with the respective organisations which it represents.

Sincerely,

[redacted]

On Behalf of the Coastal Communities Network

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Enclosure 12.2 – Attachment

Coastal Communities Network
Scotland

Salmon Farming Global Case Studies (brief high-level examples)

Canada - The Federal Government has set a goal that all salmon farming in British Columbia should take place in closed cages by 2025. 17 open net farms in the Broughton Archipelago will be emptied by 2023, to establish a farm-free migration corridor to reduce harm to wild salmon. Several farms in the Discovery Islands have not been stocked for the first time and sea lice numbers on wild salmon smolts have been much lower as a result https://alexandramorton.typepad.com/. Biologist Alexandra Morton's book ***Not on My Watch*** documents the science that supported this decision. https://seawestnews.com/a-new-era-for-salmon-farming-in-british-columbia/

USA - March 2018, the Governor of Washington State banned open net salmon farming, following the escape of 250,000 Atlantic salmon. https://www.npr.org/sections/thesalt/2018/03/26/597019406/after-three-decades-washington-state-bans-atlantic-salmon-farms

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Denmark - In 2020, the Environment Minister put forward two bills that put '*an end to the expansion of marine production*.' She said, '*the aquatic environment is in crisis and the sea should not be a dustbin*'. Land-based farming '*is the path we should take, instead of expanding marine farming at risk to the aquatic environment*.' https://salmonbusiness.com/the-sea-should-not-be-a-dustbin-says-danish-government-announcing-new-bills-to-move-production-to-land-based/

Norway - In January 2021, the Minister of Fisheries said, *'.....the goal of sustainable growth will be central. Then there must be solutions to the challenges of lice, escapes and high mortality. Among the instruments being considered is a new incentive scheme to lock more of the current fjord farming into closed facilities. The new scheme has not been decided yet. The ministry has started work on a facility, and hopes for a clarification before the summer.' 'We want a development that also facilitates closed facilities. Customers are increasingly demanding documentation on sustainability and the environment...' 'Canadian authorities have announced a phasing out of open salmon cages in their fjords by 2025, following persistent pressure from environmentalists and indigenous peoples in their farming regions. This is an iceberg that comes driving. Without customers, there will be little business. If you look at where the market is moving, with EU taxonomy and documentation requirements, then I think closed farming is something that will force itself out'* (i.e. is inevitable) https://e24.no/hav-og-sjoemat/i/kR8k4Q/varsler-ny-havbruksstrategi-vil-ha-mer-lukket-oppdrett-i-norge

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Sweden - in March 2017, as a result of the Weser-judgement from the EU Court and new environmental quality standards in water in Sweden, the Supreme Land and Environmental Court ruled to stop fish farming in cages in open water in three places and to reduce the amount farmed at a fourth site. The three banned farms would be closed within three years. The Court questioned

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whether uses open net cages was the best technique and whether the affected waters could break down the discharged nutrients without eutrophication. This judgement was seen as likely to bring an end to all fish farming in open cages, affecting waters not having reached Good Ecological Status. https://sverigesradio.se/artikel/6652202

Argentina - In June 2021, Argentina's southernmost province, Tierra del Fuego, approved a bill that bans salmon farming in open net pens. https://www.independent.co.uk/climate-change/news/argentina-salmon-farming-ban-environment-b1880503.html

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Australia - In September 2021, the Tasmania State Government announced that it would place an immediate 12-month halt on offshore salmon farm expansion. The state will cease granting new leased areas from January 2023. The Primary Industries Minister announced that the government would develop a new 10-year plan for the salmon industry over the next 12 months, including investigation of opportunities for land-based fish farming and farming further offshore. https://www.premier.tas.gov.au/site_resources_2015/additional_releases/10-year_plan_to_support_our_sustainable_salmon_industry This was in the aftermath of a clear loss of social licence, and the publication of the well-researched book ***Toxic***, by Booker prize winning author Richard Flanagan.

Chile – in November 2021 Chile announced that they will no longer cite salmon farms in marine protected areas – claiming they will not give any further concessions (of which there are currently many) to salmon farmers in MPAs and they will giving remaining sites a deadline to leave. www.elmostrador.cl/destacado/2021/11/17/no-mas-salmoneras-en-areas-protegidas-presentan-proyecto-que-prohibe-concesiones-en-zonas-de-conservacion/

Please note: there are no examples globally of open net salmon farms being environmentally sustainable. They dump all their pollution, pesticides, sea lice and diseases into the shared sea, on which others depend. They are also inherently cruel, routinely killing a quarter of the smolts that are put into the cages before harvest, with sea lice, diseases and chemical and physical treatments for. These reasons are why so many nations are phasing out or banning open net farms.

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The environmental impact of salmon-farming in Scotland

John Aitchison

There are growing concerns over the impact of an expanding salmon-farming industry on marine habitats and wild salmonids. Corin Smith

Aquaculture is widely seen as essential to feed the growing world human population (FAO 2020). Its output has more than doubled since 2000, producing 54% of the fish consumed in 2020. This should help overexploited fish stocks, but wild-capture landings also rose by about 20% during this time (Mowi 2020), one fifth of all fish caught now being used for aquaculture feed. Although 70% of their feed is plant-based (Mowi 2020), Scottish farmed salmon consume 460,000 tonnes (t) of fish annually, the same amount as the UK's human population (Feedback 2019). Salmon feed includes fish oil from 'reduction fisheries' (harvesting for the production of fishmeal/oil rather than for direct human consumption) of Peruvian Anchoveta *Engraulis ringens*, and Atlantic Greater Sand Eels *Hyperoplus lanceolatus* and Caplin *Mallotus villosus*. Algal Omega-3 oils can replace fish oil, but uptake by salmon-farmers has been limited so far, perhaps because their customers may view this diet as less natural.

Virtually all the Atlantic Salmon *Salmo salar* eaten in Britain is farmed. Scotland has 226 active farms around the west coast, Hebrides and Northern Isles. The largest holds about a million fish. Around half of Scottish salmon is exported, predominantly to the EU, Far East and North America. Six multinational companies (none of which is UK-owned) control 99% of production (Marine Scotland Science 2019), and around 2,000 people work directly on the farms, mostly in rural areas, where year-round jobs are welcome.

Marketing material often mentions Scotland's 'pristine waters', but many farms are situated relatively close to one another, discharging all their pollution, waste nutrients and parasites through net cages into the sea. Increasingly, people are questioning whether the cumulative impacts of these large industrial farms meet 'the needs of the present without compromising the ability of future generations to meet their own needs' (World Commission on Environment and Development 1987). Marine Scotland's officials shy away from this widely accepted definition of sustainability. Aquaculture companies and Scottish government ministers say that farmed salmon have a relatively low carbon footprint, but this advantage is squandered when fish are airfreighted abroad or die prematurely. Whether the farming of salmon will help to alleviate the global climate and biodiversity emergencies or will make these problems worse depends on how the farming is done.

This article provides a summary of current knowledge of the remarkably wide-ranging environmental impacts of salmon-farming in Scotland, and asks what hope there is for a more sustainable future.

The industry

In just half a century since its beginnings in the 1970s, salmon-farming in Scotland has expanded to sell more than 200,000t of fish per year. Concerns about the impacts from pollution, eutrophication and parasitic sea lice have increased as the industry has transformed from just a few pens to large-scale industrial farms. There is strong political support for doubling its value by 2030, but the Scottish Government has not assessed whether Scotland's coastal environment can assimilate twice as much pollution, sea lice or escaped farmed salmon – and doubling the value would probably mean doubling these impacts. The industry claims that it is strictly regulated, but there are numerous examples of special treatment. In 2018, for example, a Scottish parliamentary inquiry recommended that 'urgent and meaningful action needs to be taken to address regulatory deficiencies as well as fish health and environmental issues before the industry can expand', yet little has changed since then. Meanwhile, 33,000t of new fish-farm biomass have been consented, with another 18,221t likely to be permitted soon.

Scotland's planning framework instructs local authorities to favour fish farms. The Scottish Government's aquaculture 'working arrangement' prohibits local planners from questioning statutory advice or asking for cumulative-impact assessments, giving them little scope for action unless other regulators object, and these regulators are also inhibited: 2014 legislation obliges the Scottish Environment Protection Agency (SEPA) to contribute to achieving sustainable economic growth. The Scottish Regulators' Code binds SEPA and NatureScot to 'be enablers and carry out their activities in a way that helps businesses and regulated bodies to comply and also grow sustainably', and the farms' landlord, Crown Estates Scotland, has also had the promoting of economic growth added to its role. Even NewDEPOMOD, a computer model that SEPA uses to predict the environmental impact of fish-farm pollution, was developed 'to support industry expansion'.

The environmental non-compliance rate for fish farms is the highest of any industry regulated by SEPA. Companies monitor their own impacts on the seabed, analysing faunal diversity and sediment oxygen levels in grab samples taken every two years. SEPA audits these and occasionally checks sites. It now requires a few more samples to be collected, but so far only around new farms. If seabed standards are unsatisfactory for several years, SEPA may force farms to reduce their fish biomass, but self-submitted monitoring data are inadmissible in court and prosecutions for environmental breaches are vanishingly rare. Commercially caught crustacean species are never monitored, even though salmon farms discharge all their pesticides into waters used by fishermen.

Farmed fish

A few companies farm their own native strains (genetic variants) of salmon, but almost 90% of ova are 'derived from foreign sources' (Marine Scotland Science 2019), bred for faster growth, which 'may push the boundaries for how fast fish can grow, and cause production-related disorders relating to physical deformities and cataracts' (Mowi 2020). The young fish are vaccinated against some diseases and transferred to freshwater cages, or are grown on in recirculated aquaculture-system (RAS) facilities on land. Formalin, used to treat fungal disease, is discharged into watercourses and lochs.

Smolts (juvenile salmon) are transferred to sea cages when they weigh 100–150g (a total of 53 million fish reached this stage in 2019: Marine Scotland Science 2019), and then individuals are gradually removed to ensure that farm-biomass caps, set by SEPA to limit organic pollution, are not exceeded. The remaining fish are slaughtered after 20 months. Stocking is coordinated between clusters of farms in Farm Management Areas, with the cages left empty for at least 42 days between production

cycles to limit parasites and disease. Nevertheless, the mortality rate in Scotland's salmon farms remains stubbornly high. A total of 26% of the smolts put into sea cages in 2017 died before harvest (Marine Scotland Science 2019). Mowi (2020) reported that treatments for sea lice and disease were the most common non-infectious causes of death in its farms, globally, in 2020. Some companies now aim to put older, heavier smolts to sea for less time, hoping that this will reduce mortality, but these larger fish may host more sea lice (see below).

Pollution of the marine environment

Netted cages are the cheapest way to farm salmon, providing free disposal of pollution and pesticides. When other industries discharge effluent to sea, SEPA allows a 100m radius 'mixing zone' around each outfall pipe, within which pollution standards may be exceeded. For fish farms, however, SEPA adds a 100m margin around each cage, then merges the total area into a large ellipse. Thus, while an effluent pipe's mixing zone measures 31,415m², a ten-cage 2,500t fish farm can pollute an area almost five times as large, equivalent to 21 football pitches. SEPA confirms that fish-farming now contributes more pollution to Scotland's seas than any other industry. Its organic particulate waste alone (mostly fish faeces) is currently equivalent to the sewage from about 2.5m people (SAMS Research Services Ltd 2018).

Within these mixing zones SEPA permits particulate waste to smother benthic life, so long as at least 1,000 individual polychaete worms of two species survive to aerate each square metre of sediment. Elsewhere, the ecological quality of the seabed should not fall below the EU Water Framework Directive's (WFD) 'good' status. SEPA bases each farm's biomass limit on NewDEPOMOD modelling, which predicts how currents will distribute the impact of particulate pollution on the seabed. Crucially, though, SEPA no longer sets upper biomass limits for fish farms, so that in principle these can repeatedly expand the area that they pollute by adding more, larger cages, until the WFD's maximum allowance of 15% of a waterbody is degraded below 'good' status.

Fish farms use significant quantities of pesticides to treat sea lice, this being the only industry permitted to dump all the pesticides that it uses into the sea. SEPA licenses five fish-farm pesticides, including an organophosphate and two synthetic pyrethroids. It sets Environmental Quality Standards (EQS) to limit their impacts and caps the quantities discharged – except for hydrogen peroxide, 5.2 million litres of which were used in 2018. Research shows that all these chemicals are deadly to crustaceans, particularly their planktonic larvae. The argument for discharging them in crab, lobster and prawn fishing grounds is that dilution will ensure that any harm is short-lived. The in-feed pesticide emamectin benzoate, however, persists for more than four years on the seabed. A 2017 government-funded study (Wilding *et al.* 2017) in Shetland found that use of emamectin benzoate correlated with >50% average declines in crustacean abundance and diversity outside the areas that fish farms were allowed to pollute. Despite this, SEPA dropped a proposed ban, allowing farms with pre-existing licences to carry on using emamectin as before. Fewer than 20 new farms have had their emamectin use limited by a lower interim environmental standard. Scottish ministers will have the final say on whether and when to apply any lower limit to the others.

The body that conducted the Shetland research (SARF) has since been shut down.

High stocking densities and selective breeding for faster growth can lead to poor health in farmed fish. Mortality rates remain high, this due primarily to parasites and disease, and the interventions used to treat them. Corin Smith

As farms expel all their waste into the sea, those situated in sheltered sea lochs can create high concentrations of pollutants in the surrounding water and on the seabed. Corin Smith

Currently, the industry is lobbying to use neonicotinoids, claiming that their acute toxicity is unimportant because they can be filtered from the water after treatment onboard specialised ships. What happens if the filtration process fails has not been disclosed.

Dissolved nutrients from fish farms sometimes contribute to harmful algal blooms (HABs) which can starve fish of oxygen. Nutrients can also promote the growth of marine bacteria (Navarro *et al.* 2008). Organisms in some blooms can produce toxins and damage the gills of fish. Although Scotland's farmed salmon excrete around 14,500t of dissolved nitrogen per year, the 2018 parliamentary inquiry was told that all HABs are triggered offshore. This cannot be true of the 2019 bloom that killed thousands of farmed fish in upper Loch Fyne, which is far from the open sea. SEPA's hydrodynamic modelling reveals that water flushes slowly in some coastal areas, for instance around the Isle of Skye, where hydrozoan jellyfish helped to kill 670,000 farmed salmon belonging to Grieg Seafood in 2020. The company is now quitting operations in Scotland. The link between eutrophication and hydrozoa has not been fully explored. SEPA monitors HABs by remotely sensing chlorophyll-a, as a measure of the quantity of algae, but it does not yet sample blooms. Bacterial and jellyfish blooms do not contain chlorophyll. HABs will be exacerbated by rising sea temperatures and threaten the future of open-net fish-farming.

Wild salmon

Wild Atlantic Salmon populations are in crisis, Fisheries Management Scotland (FMS) reporting the lowest rod-catch on record in 2018. In 2014, IUCN reassessed their status as Vulnerable, given a 27% population decline within the span of three generations (to the mid-2000s). The fastest declines have been in Scotland (ICES 2019). In 2018, ICES estimated the Scottish adult salmon population as 546,472 (NASCO 2020), of which around 10% breed in the 'aquaculture zone'. Degraded river habitats, impassable weirs, changes at sea and climate change are all having an impact (Marine Scotland 2019), but it is unsurprising that parasitic sea lice have also become a serious problem in the aquaculture zone, where farmed salmon outnumber wild fish by more than a thousand times.

The Scottish Government discourages fish-farm development on the north and east coasts, 'as a precautionary measure to safeguard migratory fish species' (Developmental Department Scottish Executive 2007), obliquely acknowledging that farming does pose a risk to wild salmon in the west. This was expressly recognised by the industry and its regulators in 2020 (Salmon Interactions Working Group 2020), and by the 2018 parliamentary inquiry (Rural Economy and Connectivity Commit-

Populations of wild Atlantic Salmon are in a perilous state, with fish farms suggested to be one of the primary drivers of decline. Fergus Gill

Fish farms support high densities of sea lice, which cause huge economic loss and can have severe negative impacts on wild salmonid populations. Eva Thorstad

tee 2018), but so far only one farm has been closed to help wild fish.

Interbreeding between farmed and wild fish poses an additional threat. As pollution can accumulate in sheltered sea lochs, some companies have developed very large farms in exposed locations in order to disperse their waste. Fish-farm licences supposedly require these farms to be equipped to withstand a once-in-50-years storm. In recent years, however, there have been four major escapes of fish from Mowi's exposed farms during storms. In August 2020, 48,834 fish escaped from its Carradale farm, and 3,000 of these are estimated to have entered 17 different rivers, as far away as Cumbria (Fisheries Management Scotland 2021). A Mowi-funded genetic study will investigate whether they breed. The Norwegian authorities say that genetic introgression (the result of interbreeding and backcrossing) is the most pressing threat to wild Norwegian salmon, along with sea lice (Forseth *et al.* 2017). A 2013 Scottish Government-funded study found farmed-fish genes in 25.1% of wild west-coast salmon, 'significantly higher than that seen for the east coast "wild" baseline' (Coulson 2013). It is likely that climate change and the associated increase in frequency of severe storms will increase the risk of escapes in future.

Sea lice

The salmon louse or sea louse *Lepeophtheirus salmonis* is a parasitic copepod that feeds on salmonid fish. Planktonic larvae can be carried more than 30km by currents, before infesting new hosts. Cumulatively, farms can release billions of larvae, even if louse numbers on farmed fish are kept to the industry's voluntary Code of Good Practice target levels, according to Marine Scotland. Fish-farmers have for long denied that this causes significant harm, but recent research findings from Scotland, Ireland and Norway contradict this view. A 2018 Norwegian analysis (Thorstad & Finstad 2018) states: 'scientific studies indicate that salmon farming increases the abundance of salmon lice in the marine habitat and that salmon lice in the most intensively farmed areas have negatively impacted wild Atlantic Salmon and Sea Trout populations', while in 2021 NatureScot confirmed that 'there is now significant scientific evidence to conclude that population-level impacts are possible'. According to experts advising the Norwegian government, at larval (copepodid) densities of 2 lice/m² of sea surface, salmon held in sentinel cages in order to test infestation rates at sea each acquired around one sea louse per day (Sandvik *et al.* 2020). Modelling suggests that higher louse densities occur in some Scottish waterbodies: when sea-louse densities rise, infestation happens more quickly.

A burden of 2–4 sea lice can kill 20% of 20g salmon smolts, with 100% killed by >6 lice. When 30% of the smallest smolts have >2 lice each, deaths will have a high 'population regulating effect' on wild salmon (Taranger *et al.* 2015). Louse burdens on migrating salmon smolts are hard to sample because the fish leave the coast, but levels of infestation can be estimated by counting lice on Sea Trout *Salmo trutta*, the marine phase of Brown Trout. Irish, Norwegian and Scottish studies have found elevated numbers of lice on Sea Trout relative to naturally occurring levels within 30km of the nearest farms. In Loch Fyne and the Firth of Clyde, 'at some sites, in some years, a significant proportion… carry sea lice burdens that have been demonstrated to cause mortality' (Argyll District Salmon Fishery Board letter to Argyll and Bute Council 2021, unpublished). The industry's Code of Good Practice farm-louse levels there were exceeded 71 times between January 2018 and June 2020 (*ibid*).

In Norway, louse infestation is several orders of magnitude higher in farm-intensive areas compared with farm-free areas (Taranger *et al.* 2015). Norway is estimated to have lost 10% of its wild salmon population each year from 2010 to 2014 owing to sea lice (Norwegian Scientific Advisory Committee for Atlantic Salmon 2017). The louse-infestation-associated reduction in numbers of salmon returning to Irish rivers can be as high as 46%, with a mean of 33%, in the period immediately after the biomass of fish in nearby farms reaches its peak (Shephard & Gargan 2020). Over seven production cycles in Loch Shieldaig, Marine Scotland Science (2014) consistently found sea-louse levels sufficient to kill a high proportion of Sea Trout during the second year of salmon production at the closest farm (Figure 1).

Images of louse-ridden farmed fish are undermining the industry's claims to have high welfare standards. These infestations result from its use of open nets. Tarpaulin skirts can exclude some lice, and one Scottish farm is trialling 'snorkel' cages (with net 'ceilings' to prevent the fish from spending much time in surface waters, where lice are concentrated), but the standard treatments are pesticides, cleaner fish (see below) and the practice of pumping the salmon rapidly through 'physical treatment' devices, which warm them or pummel them with freshwater. All have serious welfare concerns and cost tens of millions of pounds per year in treatments and dead salmon (Overton *et al.* 2018). So far, louse prevention has not extended to using closed-containment methods in Scotland, which would prevent the parasites from entering and leaving the cages. These sorts of farms would also capture particulate waste, which can be used as fertiliser or to produce biogas, although they would still discharge substantial amounts of dissolved nutrients. Closed-containment farms at sea and closed systems on land are being developed in many other countries.

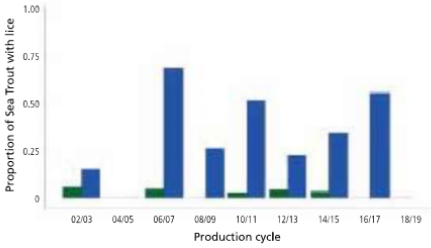
Regulatory protection of wild salmonids

Even a small additional mortality due to sea lice can push the salmon populations of some rivers towards extinction. Norway uses coupled hydrodynamic and biological modelling to forecast sea-louse infestation and to regulate farm production to protect wild fish. Scotland has no such system, instead relying on local planning authorities to do this, despite their having no specialised knowledge and no means to enforce changes in fish-farm management. Planning permission is granted in perpetuity, and mistakes therefore have long-term consequences.

Atlantic Salmon and Sea Trout are Scottish Government Priority Marine Features (PMFs), which should protect their national population, but local authorities do not assess whether the cumulative impact of lice from multiple fish farms threatens these wild fish, because fish-farm proposals are considered one at a time. This ignores the impact of lice from existing farms, run by other companies. The local authorities' statutory consultees regarding wild fish are Marine Scotland, the District Salmon Fishery Boards and NatureScot (particularly when Special Areas of Conservation (SACs) for salmon or Freshwater Pearl Mussels *Margaritifera margaritifera* are involved). Marine Scotland's non-committal advice may be a consequence of its dual role as regulator and the Scottish Government's champion for fish-farming. The Fishery Boards, in contrast, are robust in objecting to many developments, but their advice is mostly ignored by local authorities.

Marine Scotland maintains that Scotland's salmon population is largely protected because most smolts come from north- and east-coast rivers, where there are no farms. This downplays the losses from genetically distinct populations in rivers in the aquaculture zone. In March 2021, Marine Scotland

Figure 1. The proportion of trout sampled in the lower Shieldaig exhibiting louse burdens above the threshold level with regard to fish-farm production cycle. Green bars are those in the first year of production, and blue are in the second year. From Marine Scotland Science (2014)



Science accepted that 'the body of scientific information indicates that there is a risk that sea lice from aquaculture facilities negatively affect populations of salmon and sea trout on the west coast of Scotland', but Marine Scotland Science is still reluctant to ascribe impacts to individual farms. Its recent advice on one development was that it 'has the potential to increase the risks to wild salmonids. This is not to say that it will be a risk' (Marine Scotland letter to Argyll and Bute council 2020, unpublished).

When a Scottish Government-funded study on sea-lice risk (Rivers and Fisheries Trusts of Scotland 2013) found that 57% of salmon farms were in the most important areas for wild Atlantic Salmon and Sea Trout, Marine Scotland instructed local authorities to ignore the results. The 2018 Scottish parliamentary inquiry recommended that salmon farms should be sited away from wild salmon migration routes and breeding rivers. Three years on, a Scottish Government working group has yet to report on a new planning framework. It suits the companies and politicians for salmon production to double in this piecemeal way, without assessing its overall impact.

A few breeding rivers for salmon have greater protection as SACs. For these, local authorities must be sure beyond reasonable doubt that fish farms will not compromise wild salmon but, even then, cumulative impacts are largely ignored. Smolts from the Endrick Water SAC must pass through the Greater Clyde, which already has 16 salmon farms, holding 25,500t of fish. Six more farms are proposed. Initially, NatureScot advised the local authorities that they should assess the cumulative risk of lice from multiple farms, but retracted this advice within days, saying instead that each new farm could be considered separately. When there is uncertainty about risk to any SAC the precautionary principle should apply, but Argyll and Bute Council's planners have commented that 'it would not be appropriate to routinely refuse applications on a precautionary basis simply because definitive information was not available' (letter to Friends of the Sound of Jura, unpublished). The council has never turned down a fish-farm proposal to protect wild fish, despite multiple objections from FMS and others.

Impacts on other marine life

SEPA accepts that waste from multiple farms may accumulate outside their mixing zones, possibly impacting maerl, seagrass *Zostera*, Northern Sea Fan *Swiftia pallida* and other PMFs. Risks to PMFs should be flagged by NatureScot, resulting in proposed new farm biomass being refused or reduced if necessary. This sometimes happens, but NatureScot's map of PMFs is incomplete, omitting data from fish-farm surveys for instance. Community groups are working with NatureScot to fill some of the gaps.

SEPA does not regulate for seabed recovery, which can take many years. The 2020 Scottish Marine Assessment (www.marine.gov.scot/sma) details severe PMF losses over the previous decade, including a 35% decline in the beautiful *Serpula vermicularis* (polychaete worm) reefs in Loch Creran, Argyll, despite its designation as a Marine Protected Area (MPA). Pollution from the loch's fish farms is not mentioned as a possible contributory factor. New farms close to PMFs are still being proposed, for example in the Wester Ross and Small Isles MPAs.

The problem of sea-louse infestation has generated a new and currently unregulated fishery for 'cleaner-fish' such as Ballan Wrasse *Labrus bergylta*. FLPA/Alamy Stock Photo

Prior to a ban in 2020, fish farms could shoot seals in order to prevent damage to nets and fish. Ben Queenborough/Alamy Stock Photo

Another more recent impact comes from the wild harvesting of 'cleaner fish'. In 2019, 660,000 Lumpsuckers *Cyclopterus lumpus* and 59,000 wrasse were bred to pick lice from salmon (Marine Scotland Science 2019), but many more wild wrasse are still caught for this purpose. These cleaner fish can carry diseases, so hundreds of thousands are slaughtered each year, along with the salmon. No other type of farming sacrifices other species to deal with a problem of its own making.

Seals, which bite holes in nets, harming fish and causing escapes, were previously shot under licence, but this was recently banned to prevent the US Marine Mammal Protection Act from blocking Scottish salmon exports to the USA. Some companies are installing seal-proof nets at their farms, but members of the Scottish Salmon Producers Organisation (SSPO) are also demanding compensation from the Scottish Government.

Fish farms also use acoustic deterrent devices (ADDs) to scare seals away, but ADDs disturb cetaceans, which is illegal in Scotland. For years, Marine Scotland has turned a blind eye, even after 2017, when Scottish Natural Heritage (now NatureScot) pointed out that all fish-farm ADDs were likely to be disturbing cetaceans. European Protected Species licences would allow this if there was no viable alternative, but fish farms using tougher nets operate successfully without ADDs in Scotland and elsewhere. The SSPO is pinning its hopes on new acoustic startle devices, said to avoid problems of seal habituation without disturbing cetaceans, but laboratory trials show that Bottlenose Dolphins *Tursiops truncatus* are also startled. A petition to ban ADDs on fish farms has gathered more than 31,000 signatures, and in March 2021 the industry announced that it had turned them off, one day before Marine Scotland reported to the Scottish Parliament on their use. In another apparent example of the special treatment reserved for fish-farming, the UK's Marine Noise Register includes ADDs but excludes those on fish farms.

Several NGOs certify fish farms, claiming that this encourages good practice, while helping supermarkets and others to advertise 'responsibly produced' salmon, but these labels should be treated with caution. The RSPCA Assured welfare standards still permit seal-shooting in some circumstances, thermolicers (a form of physical treatment for sea lice) and the killing of all cleaner fish (RSPCA 2021). WWF helped to set up the Aquaculture Stewardship Council, which also allows thermolicers, cleaner-fish slaughter and pesticide discharges (ASC 2017), while the Soil Association organic certification allows these, too, including some pesticide use (twice a year, but not organophosphates) (Soil Association 2021).

Alternative futures

Salmon-farmers have made some progress towards sustainability, but some companies still argue for less strict regulations on pollution and the use of pesticides, and all their farms use open nets. The assessments commissioned and quoted by the Scottish Government's previous Cabinet Secretary for Rural Economy, Fergus Ewing, count only the economic benefits of fish-farming (including pesticide sales of £16.5m in 2016), while the cumulative impacts and cost to other jobs have never been assessed. In Norway, the cumulative risk of sea lice to wild salmon is central to fish-farm regulation, but the Scottish Government has repeatedly delayed giving better guidance to local authorities. Expanding salmon-farming without assessing its collateral damage does not help people in coastal communities, whose jobs will go if the industry implodes. These jobs are valuable, but more responsible methods could support just as many. Elsewhere, billions are being invested

in farming salmon in tanks on land, while rising licence costs in Norway are making open-net farming at sea more expensive than land-based farming (EUMOFA 2020). In Scotland, the same companies and their political allies do not want their costs to rise.

In time our warming seas could make Scottish salmon-farming unviable, but the industry needs to change direction before it reaches that point. It needs better regulation, by regulators who do not have to facilitate growth. Reforming Crown Estates seabed leases could encourage more responsible fish-farming, as has happened in Norway, where discounts favour less damaging methods. If Scotland becomes independent, it will need its key assets – including the sea – to be in good shape. Government and industry must strive for genuine sustainability if there is to be any future for aquaculture, for healthy marine wildlife communities, including wild salmonids, and for Scottish coastal communities, too.

As consumers, if we want a particular outcome and enough of us choose to spend accordingly, we can make this future more likely. On this basis, I gave up eating farmed salmon some time ago.

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John Aitchison is a wildlife filmmaker and chair of the charity Friends of the Sound of Jura (www.friendsofthesoundofjura.org.uk), a member of the Coastal Communities Network, Scotland (www.communitiesforseas.scot). He lives on the west coast of Scotland.

Enclosure 13 – Scottish Government emails.

From: [redacted]gov.scot>
Sent: 14 January 2022 14:34
To: [redacted]gov.scot>; [redacted]
[redacted]gov.scot>; [redacted]gov.scot>;
[redacted]gov.scot>; [redacted]gov.scot>;
[redacted]gov.scot>; [redacted]gov.scot>;
[redacted]gov.scot>; [redacted]gov.scot>;
[redacted]gov.scot>; [redacted]gov.scot>;
[redacted]gov.scot>; [redacted]gov.scot>;
[redacted]gov.scot>; [redacted]gov.scot>;
[redacted]gov.scot>
Subject: Aquacen

Hi all,

Just to provide some follow up info to what I said at the meeting with regards to Aquacen. You can see in the Products Catalog (cenavisa.com) that there are a number of products that appear under the Aquacen name. None of these have a Market Authorisation (MA) in the UK but can be prescribed under cascade. Which is how the Formaldehyde is being used, which is the product most of you will be familiar with under the Aquacen name. This is acceptable use under the cascade as there is no product with MA available in the UK with the same active ingredient. Going forward I am not sure how that is liable to change with view to us no longer being part of the EU.

However, they do need a special import certificate from VMD to be able to import and use these products. And if there is a products that has a MA in the UK such as Aquatet (Oxytetracycline) then that should be preferentially used. VMD grant the special import certificated on a case by case basis.

[redacted]

Thanks,

[redacted]
Marine Scotland - Science

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

Tel: [redacted]
S/B: [redacted]
Mobile: [redacted]
e: [redacted]gov.scot
w: https://www.gov.scot/marine-and-fisheries

Enclosure 14 – Scottish Government emails.

From: [redacted]gov.scot>
Sent: 08 March 2022 10:24
To: [redacted]gov.scot>
Cc: [redacted]gov.scot>
Subject: Mortality issue at Torhouse Mill

Hi [redacted]

[redacted]and myself visited Torhouse Mill last week. During the remote inspection we picked up an unreported mortality from July 2021; 20% loss for site due to White Spot and water temp of 29oc. Aerators were used and formalin to reduce the white spot.

The [redacted]told us [redacted]had spoken to you about it at the time and I was wondering if you can recall the conversation.

Thanks

[redacted]
Marine Scotland - Science

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

Tel: [redacted]
S/B: [redacted]
Mob: [redacted]

e: [redacted]gov.scot
w: https://www.gov.scot/marine-and-fisheries/

Enclosure 15 – Email to Scottish Government.

From: [redacted]btinternet.com>
Sent: 16 May 2022 07:50
To: First Minister <firstminister@gov.scot>
Subject: Scottish Intensive Fish Farming

AO [redacted]

Hi Nicola

[redacted]

[redacted] next to the beautiful loch. One morning there was a disgusting smell and the loch was a cloudy colour. The odor lingered for a few days and I watched as families stood on the edge of the loch but did not venture in to paddle as the water looked disgusting. This was due to the effluent from the fish farm 20 miles away building up at the head of the loch.

Since my return from that trip I have been reading about the pollution generated by intensive fish farming in our lochs. The slurry from so many fish, the dioxins used in the fish food sourced from the Baltic sea. The gallons of formaldehyde sprayed into our lochs to reduce fish lice. The use of antibiotics and layres of dead fish sinking to the base of the cages. Not to mention the heavy metals and damage to the natural fish population. This is all quite alarming and I am not even interested in fishing.

I used to enjoy what I thought was fresh natural Scottish salmon, but no more. I would not touch it.

I appreciate that there are a large number of Scottish jobs and income which rely on intensive fish farming. Maybe now is the time to clean up our act while we still have a positive reputation in the world market. I think this is an opportunity to lead the way as Scotland does in so many other areas. We may not be in the cut price high volume farmed salmon market but rather move to the sustainable, enviromentally responsible end of the price range.

I can foresee that if the industry does not change they will ultimatly destroy their own reputation, market and damage our tourist industry. This cannot be in Scotlands best long-term interests.

I am not seeking a reply as I realise how busy you and your team must be. It was just to express my concern on the matter.

[redacted]

Sent from my [redacted] - Powered by [redacted]

Enclosure 15.1 – Attachment.

DIRECTORATE FOR MARINE SCOTLAND
DMARINE : Aquaculture and Recreational Fisheries
[redacted]

Our Reference: 202200300380
1 June 2022

Dear [redacted]

Thank you for your letter of 16 May to Nicola Sturgeon MSP, First Minister of Scotland, highlighting your concerns about the environmental impact of fish farms. I have been asked to respond.

We support the sustainable development of aquaculture which, as you note, is a significant employer and economic contributor, especially in many of our most remote and fragile rural communities. However, we are clear that growth of the aquaculture industry must be sustainable and this includes the need to consider the natural marine environment and to have high regard for the health and welfare of farmed fish. In Scotland, fish farming is overseen by a number of regulators, including Marine Scotland, the Scottish Environmental Protection Agency (SEPA), and local authorities.

All fish farms in Scotland have to meet strict environmental standards, set out within licence, and these are regulated by SEPA with the aim of ensuring that the environmental impacts from the industry are assessed and managed safely. SEPA continues to implement its finfish regulatory framework, which ensures development is in the right place, and with sufficient environmental assessments. The framework uses enhanced modelling techniques and as well as the regular monitoring of impacts and compliance.

Scottish fish farms are regularly inspected by Marine Scotland fish health inspectors. They will report any significant case of poor welfare to the veterinarians in the Animal and Plant Health Agency (APHA), who are responsible for overseeing the requirements of the Animal Health and Welfare (Scotland) Act 2006. Through various work-streams, we are committed to working collaboratively with a range of key stakeholders on improving fish health and related welfare including the use of medicines and other treatments for treating sea lice.

Food Standards Scotland works closely with the Scottish Government, Local Authorities, and UK authorities to ensure that feed produced, distributed and sold is safe and meets legislative requirements. The aim of legislation is to ensure that feed is put into circulation only if it is sound, genuine and does not represent any danger to human health, animal health or the environment. Legislation prohibits the dilution of contaminated feed materials and it includes maximum limits for heavy metal presence such as arsenic, lead, mercury and cadmium as well as for arsenic, dioxin, aflatoxin, certain pesticides, and botanical impurities.

We are committed to going beyond the status quo and have recently undertaken an independent review of aquaculture regulation. We are clear that the sector must aim

to minimise its environmental impact to ensure a sustainable future and maintain the right balance across our economic, environmental and social responsibilities.

We appreciate the time you took to write to us with your concerns. While I hope that we have demonstrated that fin-fish aquaculture is a highly regulated sector with environmental controls in place, we always encourage members of the public to contact Scottish Environment Protection Agency (SEPA) where they are concerned about possible environmental pollution so it can have investigated and, where appropriate, take action.

Yours sincerely

[redacted]

DMARINE : [redacted]

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www.gov.scot