

FOI Backgrounder (May 2017):

Seal-Killing at Freedom Food/RSPCA Assured Salmon Farms



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Summary:

Documents disclosed via FOI by SNH to the [Global Alliance Against Industrial Aquaculture](#) on 25 April 2017 ([Download SNH FOI 25 April 2017 document #3](#); [Download SNH FOI 25 April 2017 document #4](#); [SNH FOI 25 April 2017 document #5](#) and [SNH FOI 25 April 2017 document #7](#)) reveal:

RSPCA Assured/Freedom Food accredited salmon farms accounted for almost 70% of the seals shot by salmon farms in 2014 (an increase from 26% in 2011 before falling to 52% in 2015).

The biggest individual seal shooting companies in 2015 were both RSPCA Assured/Freedom Food accredited salmon producers that supply both Sainsbury's and Waitrose.

RSPCA Assured/Freedom Food accredited companies Marine Harvest and Scottish Sea Farms shot 18 and 15 seals respectively in 2015 with Waitrose supplier Scottish Salmon Company shooting 11 seals.

Waitrose are looking at individual salmon farms and producing region statistics re. seal numbers shot to assess any hotspots of their suppliers. They are aiming to produce guidelines for their suppliers to benchmark what they consider to be best practice, with the aspiration of zero shootings.

The RSPCA approached Marine Scotland in 2016 to discuss the definition of 'last resort'.

In 2016, only 31% of salmon farms used anti-predator nets including many Marine Harvest farms which claim to adhere to a "last resort" seal-killing policy (at least this was an increase on the 18% of salmon farms which used anti-predator nets in 2015).

- Note The Herald [reported](#) in December 2015:

New Marine Scotland figures show the percentage of fish farms that had made use of anti-predator nets, seen as a way of deterring seals, has risen from 13 per cent in 2011/12 to 79 per cent in 2014/2015.

Note that [a letter from Marine Scotland to GAAIA dated 31 December 2015](#) included:

All seal licences include a requirement to follow the [Code of Practice](#) on Seal Management which sets out the principal that seals should be shot as a last resort.

Almost all fish farms included in applications for a seal licence already employ at least one and many a range of non-lethal alternatives and shooting is only to be used as a last resort. In addition to this, almost half of these fish farms use Acoustic Deterrent Devices (ADDs), a third seal blinds and a fifth anti-predator nets.

As we explained in our response to your Freedom of Information request from 20 November 2015, this information comes from the published report of the 2011/12 Survey. This showed that 20% of fish farms had anti-predator nets and 33% of fish farms had seal blinds. In the former case 13% of the anti-predator nets were deployed all the time and 7% of them were held in storage for deployment in case of seal incidents, making 20% in total.

In subsequent years, there is no published data on anti-predator nets or seal blinds. We have access, however, to provisional unpublished data as follows:-

2012/13
62% anti-predator nets at fish farms
29% seal blinds at fish farms

2013/14
71% anti-predator nets at fish farms
25% seal blinds at fish farms

2014/15
79% anti-predator nets at fish farms
18% seal blinds at fish farms

We hope to publish a report on the latest incomplete survey for 2015/16 in due course.

Note that a letter from Richard Lochhead, Cabinet Secretary for Rural Affairs, Food & the Environment (22 October 2015) to Roderick Campbell MSP includes the statement that "a third (of fish farms) use seal blinds and a fifth use anti-predator nets":

As Dr McLeod mentioned during the debate, all fish farms included in applications for a seal licence already employ at least one and many a range of non-lethal alternatives. All use tensioned nets, almost half use Acoustic Deterrent Devices (ADDs), a third use seal blinds and a fifth use anti-predator nets.

Read the letter in full [online here](#) (p1) and [online here](#) (p2) and read more via "[Scottish Salmon Blinded by Seal Killing: 80% of farms do not use anti-predator nets; 67% do not use seal blinds](#)".

Note that Marine Scotland's ['Guidance Notes: Health & Welfare of Farmed Fish'](#) (September 2015) state:

Note:- Even where a licence has been granted, shooting of a seal should always be undertaken as a last resort. This is in accordance with the Scottish Salmon Producers' "A Code of Good Practice for Scottish Finfish Aquaculture".

Reasons provided by salmon farm companies not to use anti-predator nets include "operational", "practicality", "tides too strong" and "no required" (sic).

The latest data ([published online by the Scottish Government](#)) on seals killed by salmon farms during 2016 reveals that at least 26 salmon farms killed seals but have not reported the use of Anti-Predator Nets (APN) in the last two licensing periods (encompassing 2015 and 2016 - as defined by [SNH FOI 25 April 2017 document #5](#) and [SNH FOI 25 April 2017 document #7](#)) casting doubt on the definition of "last resort" (i.e. salmon farmers are reaching for bullets before nets):

Bight of Bellister (Scottish Sea Farms)
Cairidh (Marine Harvest)
Camas Glas (Marine Harvest)
Colonsay (Marine Harvest)
Creag an t Sagairt (Marine Harvest)
Eilean Grianain (Marine Harvest)
Gometra (The Scottish Salmon Company)
Greshornish (Marine Harvest)
Hellisay (Marine Harvest)
Holms Geo (Scottish Sea Farms)
Isle Ewe (Marine Harvest)
Kingairloch (Marine Harvest)
Linnhe (Marine Harvest)
Lochalsh (Marine Harvest)
Loch Carnan (Marine Harvest)
Maol Ban (Marine Harvest)
Marulaig (Marine Harvest)
Ornish (Marine Harvest)
Shapinsay (Scottish Sea Farms)
Slocka Ronas Voe (Scottish Sea Farms)
Spelve A (Scottish Sea Farms)
Sound of Harris (Loch Duart)
Swarta Skerry (Balta Island Seafare)
Taranaish (The Scottish Salmon Company)
Vidlin North (Scottish Sea Farms)
Winna Ness (Cooke Aquaculture)

Additionally, five more salmon farms may have not used APNs during 2016 (it is impossible to say for sure given the lack of synchronicity between the data sets):

Djubawick (Cooke Aquaculture)
Fuinary (Scottish Sea Farms)

Kishorn West (Scottish Sea Farms)

Stead of Aithness (Cooke Aquaculture)

Walters/East Lismore (Scottish Sea Farms)

- Note that all but one (Balta Island Seafare's Swara Skerry site) of the 31 salmon farms listed above are accredited to the SSPO's Code of Good Practice (as member companies of the SSPO: [Cooke Aquaculture \(Scotland\)](#); [Loch Duart Ltd](#); [Marine Harvest \(Scotland\)](#); [The Scottish Salmon Company](#); and [Scottish Seafarms](#)) which claims that killing of seals "must only ever be as an act of last resort".

- If "all the fish are farmed to RSPCA Freedom Food standards" [as claimed by Scottish Sea Farms](#) then why are seals killed at the following sites where anti-predator nets are NOT used?:

Bight of Bellister; Holms Geo; Shapinsay; Slocka Ronas Voe; Spelve A and Vidlin North

- If Marine Harvest abides by "last resort" seal-killing (as it [claimed in The Herald newspaper in April 2017](#)) then how does Marine Harvest explain the 22 seals it killed during 2016 at the following sites where anti-predator nets were NOT used ("bi catch concerns" (sic) was the reason given)?:

Cairidh; Camas Glas; Colonsay; Creag an t Sagairt; Eilean Grianain; Greshornish; Hellisay; Isle Ewe; Kingairloch; Linnhe; Lochalsh; Loch Carnan; Maol Ban; Marulaig and Ornish

- Note that one of the people Marine Harvest has to persuade is the RSPCA's newly appointed certifier of salmon farms - Ian Michie (who conveniently "[was a fish farm manager for Marine Harvest for many years](#)").

- Note that the [RSPCA Assured/Freedom Food standards](#) also demand "the humane culling of seals as a last resort". Here's [key changes to the RSPCA welfare standards for farmed Atlantic salmon](#) within the September 2015 version of the standards:

<p>New standard HP 7.16 The humane dispatch of any seal must only be undertaken as a last resort in order to protect the welfare of the fish and where all non-lethal methods have failed to do so.</p>
<p>New standard HP 7.17 Before the humane culling of seals as a last resort can be considered, the following must have been implemented:</p> <ul style="list-style-type: none">a) nets are adequately tensionedb) top nets secured to deny ingress by predators into the enclosurec) dead fish have been regularly removedd) where appropriate, ADDs/ASDs have been mobilised and are working properlye) predator nets/curtains/screens have been deployed where it is appropriate to do so.
<p>New standard HP 7.18 The producer must be able to demonstrate to the Freedom Food Assessor or the RSPCA Farm Livestock Officer, that all of the steps leading up to a last resort scenario have been implemented.</p>

Of the 26 salmon farms where anti-predator nets were certainly NOT used but which still killed seals in 2016, all except three (Swarta Skerry, Balta Island Seafare; Taranaish and Gometra, The Scottish Salmon Company) were operated by a company claiming to be accredited by [RSPCA Assured/Freedom Food](#); namely: [Loch Duart](#), [Marine Harvest](#), [Cooke Aquaculture](#) and [Scottish Sea Farms](#).

Data obtained from SNH ([Download SNH FOI 25 April 2017 document #7](#)) does at least name seven Freedom Food salmon farms - including Marine Harvest's Colonsay salmon farm which did not use either Acoustic Deterrent Devices (ADDs) or APNs yet [shot one grey seal in 2016](#):

ApplicationPeriod	FishFarmName	Reg #	SchemeAffiliation	SiteOwner	ADDUsed	APNUsed
01/10/2016 - 30/09/2017	North Sandwick	FS/0710	FreedomFood	Cooke Aquaculture Scotland	FALSE	FALSE
01/10/2016 - 30/09/2017	Balta Island	FS/0717	FreedomFood	Cooke Aquaculture Scotland	FALSE	FALSE
01/10/2016 - 30/09/2017	Kirkabister	FS 0802	FreedomFood	Cooke Aquaculture Scotland	FALSE	FALSE
01/10/2016 - 30/09/2017	Westerbister	FS1305	FreedomFood	Scottish Sea Farms Orkney and Eriboll	FALSE	TRUE
01/10/2016 - 30/09/2017	Hamnavoe	FS1144	FreedomFood	Hjaltland Seafarms Ltd		
01/10/2016 - 30/09/2017	Snarraness	FS0400	FreedomFood	Scottish Sea Farms Ltd	TRUE	FALSE
01/10/2016 - 30/09/2017	Colonsay	FS1296	FreedomFood	Marine Harvest (Scotland) Ltd	FALSE	FALSE

- Note from a report - "[RSPCA/Freedom Food certification of Scottish farmed salmon](#)" - published by the Salmon & Trout Association in 2013:

Does it cost anything to be certified?

5.1 The Freedom Food certification scheme applies a tariff to salmon farms and farmers must pay a minimum membership fee of £475 per farm site plus a licence fee of 0.7 pence per kilogram of gutted weight made available for sale⁶.

⁴ Freedom Food Limited Articles of Association, 4th February 2010, Companies House

⁵ www.rspca.org.uk/sciencegroup/farmanimals/standards/salmon, as at 20th September 2012

⁶ CMI Certification Freedom Food Scheme Minimum Membership Fee and Licence Fee, undated

5.2 This appears to mean that, for example, the typical farm production, over a two year cycle, of 300,000 fish at 3 kilograms gutted weight each, would trigger a licence fee of £6,300 for that one farm.

5.3 It is however difficult to put a figure on Freedom Food's income from certification of farmed salmon.

5.4 The annual salmon production of the Scottish salmon-farming industry was 158,013 tonnes in 2011⁷ and is slowly rising. The Scottish Salmon Producers Organisation (SSPO) states that more than 90% of Scottish salmon will be farmed to RSPCA Freedom Food welfare standards within the next two years⁸. Allowing for a 25% difference between the weight of fish harvested and of gutted fish, this would imply a revenue stream to Freedom Food of between £800,000 and £1 million per annum.

FOI Documents Disclosed by SNH (25 April 2017):



Documents disclosed by Scottish Natural Heritage (SNH) via FOI in April 2017 (online via [Download SNH FOI 25 April 2017 document #3](#) and [Download SNH FOI 25 April 2017 document #4](#)) reveal:

In November 2016, the agenda of a meeting of the [SASWG \(Salmon Aquaculture & Seals Working Group\)](#) at the RSPCA's head office in Horsham included an update from Freedom Food/RSPCA on "post mortem investigations" and discussions on "seal trapping for translocation" and "welfare implications of seal shooting".

In April 2016, there was a meeting of the [SASWG \(Salmon Aquaculture & Seals Working Group\)](#) at Marine Harvest's office in Rosyth (attendees included Freedom Food, RSPCA, SSPO and Waitrose). A paper circulated before the meeting - authored by [named redacted] of the Sea Mammal Research Unit at the University of St. Andrews included:

% seals shot by aquaculture by FF accredited farms

- **In 2011: c 60+ seals* c26%**
- **In 2015: 41 seals 52%**

*(no definite figure provided)

During 2015 the greater number of seals shot were by:

1. Moray Firth Management Group:	28
2. Usan Fisheries (Scottish Wild Salmon Company):	22
3. Marine Harvest (FF accredited)	18
4. Scottish Seafarms: (FF accredited)	15
5. Scottish Salmon Company: (supply Waitrose)	11

In April 2016, a three-year coastal netting ban was introduced to protect wild salmon. This will help protect wild stocks, but should also further significantly reduce shooting of seals. It will also focus more attention on aquaculture which was responsible for 49% of seals shot in 2015.

1. The biggest individual seal shooting companies in 2015 were both RSPCA - FF accredited salmon producers that supply both Sainsbury's and Waitrose
2. In 2014, (number to be provided by FF) almost 70% of seals shot by aquaculture were at FF accredited sites.
3. In 2015, 41 seals were reported shot to FF, 52% of those reported shot by aquaculture overall.

A [document circulated by the Sea Mammal Research Unit of St. Andrews University](#) to the Salmon Aquaculture & Seals Working Group in April 2016 included:

Have raised concerns about when shooting seals may be justified – and whether fish welfare is an adequate reason in the absence of any actual depredation; FF scheme requires evidence of actual damage.

Discussions have led to RSPCA revising their guidelines, and FF consequently requiring further demonstration of need to shoot seals as last resort.

Another [document circulated by the Sea Mammal Research Unit of St. Andrews University](#) to the Salmon Aquaculture & Seals Working Group in April 2016 included under 'Key issues to address and consider taking forward':

(9) **Seal trap** – develop a seal trap and possible relocation programme, tagging and release to see if animals return. Trial would mean zero kills and possibly offer solution to predation issue as habituated seal most likely to be caught and removed. Thought needed re lactating females, however capture may per se deter further attacks

Notes taken by SNH of the meeting included:

RSPCA/SMRU have approached Marine Scotland to discuss the definition of '*last resort*'. MS are open to this discussion but a meeting has not yet been arranged.

██████████ presented his review '*Analysis of seal licence returns shooting figures for 2015*'.

- Data was obtained from Marine Scotland (██████████ sent links).
- Overall reduction in seals being shot.
- Numbers appear to be plateauing. There was some discussion as to whether it was realistic to expect a continued reduction in seal shot and the question was raised as to what the next step might be if there are animals that cannot be mitigated.
- Question was raised as to whether anyone has ever looked at all available mitigation in comparison to numbers of seals shot?
 - SSPO has tried to look at this but have found it difficult to disentangle due to a number of different variables between sites.
- Comment was made that the industry have aspirations for growth and therefore the numbers may not necessary be expected to reduce.
- Suggestion was made that instead of using the metric of numbers of individuals shot it might be more informative if we looked at % of population shot.
 - ██████████ cautioned the use of % of population as this may not relate to the number of problem seals.

Waitrose/Aquascot stated that they are looking at individual farms and producing region statistics re seal numbers shot to assess any hotspots (of their suppliers). They are aiming to produce guidelines for their suppliers to benchmark what they consider to be best practice, with the aspiration for zero shootings.

FF/RSPCA (in conjunction with SSPO) are planning a meeting involving industry and predator control manufacturers (nets and ADDs). The aim is to bring together a mix of personnel of both workers and managers and have a 'sales pitch' from the manufacturers with the intention of proving the efficacy of their systems.

Draft Minutes of the meeting included:

Update from [REDACTED] on Freedom Foods progress/liaison

- In process of arranging meeting between stakeholder companies (FF have 7 company members)
- Would like to invite netmakers, ADD manufacturers etc. to 'pitch' new ideas for predator mitigation devices/techniques at this meeting
- Questions asked about what is happening to new 72-hour reporting data
 - No analysis has been done, but this may be possible in time
- [REDACTED] has spoken to 7 sites shortly after shooting has taken place, one in person, six via telephone interview
- [REDACTED] asked whether there was scope for collecting data/interviews/checking for 'last resort' status *before* shooting has taken place
 - In some cases, this does happen
 - Ramifications for not meeting protocols were serious: no precise details given
- Action [REDACTED] to organise meeting with FF members to address seal concerns

Another document disclosed by SNH ([Download SNH FOI 25 April 2017 document #1](#)) included notes from a liaison meeting in May 2016 between SNH and the salmon farming industry:

It was highlighted by industry that the requirements of some accreditation schemes such as freedom foods require operators to undertake certain management measures in order to retain accreditation. Concerns were raised that if a seal attack takes place and ADDs were not used as a form of defence that this could risk accreditation being lost.

Retaining Freedom Foods accreditation is deemed by industry to be a major barrier in reducing ADD use.

RSPCA Assured/Freedom Food have consistently refused to name the salmon farms certified via their scheme. However, one document disclosed by SNH ([Download SNH FOI 25 April 2017 document #7](#)) cites the following salmon farms as accredited by Freedom Food:

FishFarmName	RegistrationNumber	SchemeAffiliation	SiteOwner
North Sandwick	FS/0710	FreedomFood	Cooke Aquaculture Scotland
Balta Island	FS/0717	FreedomFood	Cooke Aquaculture Scotland
Kirkabister	FS 0802	FreedomFood	Cooke Aquaculture Scotland
Westerbister	FS1305	FreedomFood	Scottish Sea Farms Orkney and Eriboll
Hamnavoe	FS1144	FreedomFood	Hjaltland Seafarms Ltd
Snarraness	FS0400	FreedomFood	Scottish Sea Farms Ltd
Colonsay	FS1296	FreedomFood	Marine Harvest (Scotland) Ltd

[Note that the last salmon farm above - Marine Harvest's site at Colonsay - killed one seal in 2016 according to the latest data [published online by the Scottish Government](#) but has not reported the use of anti-predator nets]

The [SSPO claimed on their web-site in 2013](#) that "more than 90% of Scottish salmon will be farmed to RSPCA Freedom Food welfare standards within the next two years". If that is the case then there could be over 100 salmon farms certified via RSPCA Assured/Freedom Food [the [latest Scottish Government fish farm production survey 2015](#) - published in September 2016 - reported 254 salmon farm sites but only 139 were active (i.e. 115 reported zero production)].

"Last Resort" Killing - Lies, Damned Seals & Statistics!

Data collected by Marine Scotland and disclosed by SNH ([Download SNH FOI 25 April 2017 document #5](#)) reveals that in 2015*:

38 salmon farms used anti-predator nets (25 used "enclosed"; 8 used "false bottom"; 5 used "curtains" and zero used "double mesh")

169 salmon farms did not use anti-predator nets

i.e. 18% of salmon farms used anti-predator nets
82% of salmon farms did not use anti-predator nets

* Note that the exact period of data reporting is unclear: the submission date is October/November 2015 but the application period is for 1 October 2015 to 30 September 2016 and the licensing period is listed as 1 February 2016 to 31 January 2017.

Here's the 38 salmon farms which used anti-predator nets:

1	FishFarmName	Registration #	Site Owner	APN Used
2	Badcall Bay	FS0067	Northern Salmon Management	TRUE
3	Baigh Chlann Neill (Grimsay)	FS0051	The Scottish Salmon Company	TRUE
4	Bay of Cleat North	FS1080	Cooke Aquaculture Scotland	TRUE
5	Bay of Ham	FS0122	Cooke Aquaculture Scotland	TRUE
6	Bay of Vady	FS1020	Cooke Aquaculture Scotland	TRUE
7	Calbha	FS0068	Northern Salmon Management	TRUE
8	Carness Bay	FS0390	Cooke Aquaculture Scotland	TRUE
9	Chalmers Hope	FS0993	Cooke Aquaculture Scotland	TRUE
10	Drumbeg (Loch Dhrombaig)	FS0487	Northern Salmon Management	TRUE
11	East Vope Laxfirth	FS0333	Hjaltland Seafarms Ltd	TRUE
12	Gletness	FS1099	Hjaltland Seafarms Ltd	TRUE
13	Kames Bay (east)	FS0462	Kames Fish Farming Ltd	TRUE
14	Kames Bay (west)	FS0271	Kames Fish Farming Ltd	TRUE
15	Kirkabister	FS0802	Thompson Bros Salmon Ltd	TRUE
16	Kirknoust	FS0645	Cooke Aquaculture Scotland	TRUE
17	Langa Isle (East)	FS0433	Hjaltland Seafarms Ltd	TRUE
18	Loch A Chairn Bhain	FS0621	Northern Salmon Management	TRUE
19	Loch Laxford	FS0065	Northern Salmon Management	TRUE
20	Lyrawa Bay	FS0054	Cooke Aquaculture Scotland	TRUE
21	Meil Bay	FS0597	Cooke Aquaculture Scotland	TRUE
22	North Papa	FS0515	Hjaltland Seafarms Ltd	TRUE
23	Oldany	FS0933	Northern Salmon Management	TRUE
24	Ouseness	FS1209	Cooke Aquaculture Scotland	TRUE
25	Pegal Bay	FS0031	Cooke Aquaculture Scotland	TRUE
26	Quanterness	FS/0908	Cooke Aquaculture Scotland	TRUE
27	Sandwick	FS0710	Thompson Bros Salmon Ltd	TRUE
28	Score Holm	FS0948	Hjaltland Seafarms Ltd	TRUE
29	Shuna Castle	FS0465	Kames Fish Farming Ltd	TRUE
30	South Cava	FS1198	Cooke Aquaculture Scotland	TRUE
31	Spoose Holm	FS0785	Hjaltland Seafarms Ltd	TRUE
32	Taing of Railbrough Catfirth	FS0501	Hjaltland Seafarms Ltd	TRUE
33	Vestness	FS/1210	Cooke Aquaculture Scotland	TRUE
34	West Fara	FS/1017	Cooke Aquaculture Scotland	TRUE
35	West of Burwick	FS0937	Hjaltland Seafarms Ltd	TRUE
36	Wester Ross Fisheries	FS0056	Northern Salmon Management	TRUE
37	Wester Ross Fisheries	FS0057	Northern Salmon Management	TRUE
38	Wester Ross Fisheries	FS0517	Northern Salmon Management	TRUE
39	Wester Ross Fisheries	FS0675	Northern Salmon Management	TRUE

Data collected by Marine Scotland and disclosed by SNH ([Download SNH FOI 25 April 2017 document #7](#)) reveals that in 2016*:

63 salmon farms used anti-predator nets (39 used "false bottom"; 18 used "enclosed"; 8 used "double mesh" and 5 used "curtains")

142 salmon farms did not use anti-predator nets

i.e. 31% of salmon farms used anti-predator nets
69% of salmon farms did not use anti-predator nets

* Note that the exact period of data reporting is unclear: the application period is for 1 October 2016 to 30 September 2017; the licensing period is listed as 1 February 2017 to 31 January 2018 and the licence status of all the salmon farms is listed as "pending".

Here's the 142 salmon farms which did not use anti-predator nets:

1	FishFarmName	Reg #	SiteOwner	APNUsed	APNNotUsedReason
2	Ardcastle	FS0818	The Scottish Salmon Company	FALSE	ADD effective so not required
3	Ardgadden	FS0851	The Scottish Salmon Company	FALSE	ADD effective so not required
4	Ardyne	FS0559	The Scottish Salmon Company	FALSE	ADD effective so not required
5	Furnace	FS0567	The Scottish Salmon Company	FALSE	ADD sufficient so not required
6	Glenan Bay	FS0590	The Scottish Salmon Company	FALSE	ADD effective so not required
7	Gob a Bharra	FS0683	The Scottish Salmon Company	FALSE	ADD sufficient so not required
8	Lamlash Bay	FS0423	The Scottish Salmon Company	FALSE	ADD effective so not required
9	Meall Mhor	FS0091	The Scottish Salmon Company	FALSE	ADD effective so not required
10	Quarry Point	FS0698	The Scottish Salmon Company	FALSE	ADD effective so not required
11	Rubha Stillaig	FS0894	The Scottish Salmon Company	FALSE	ADD sufficient so not required
12	Sgian Dubh	FS1281	The Scottish Salmon Company	FALSE	ADD effective so not required
13	Strondoir Bay	FS1019	The Scottish Salmon Company	FALSE	ADD effective so not required
14	Strone	FS1056	The Scottish Salmon Company	FALSE	ADD effective so not required
15	Tarbert South	FS0767	The Scottish Salmon Company	FALSE	ADD effective so not required
16	Bay of Ham	FS0122	Cooke Aquaculture Scotland	FALSE	Not required
17	Lyrava Bay	FS0054	Cooke Aquaculture Scotland	FALSE	Not required during the product
18	Pegal Bay	FS0031	Cooke Aquaculture Scotland	FALSE	Not used for the last cycle though
19	Loch Ba	FS0429	Scottish Sea Farms Ltd	FALSE	seals are a rare occurrence in th
20	Bastaness	FS1279	Cooke Aquaculture Scotland	FALSE	Available but not required at pr
21	Bastavoe South	FS0074	Cooke Aquaculture Scotland	FALSE	Not required at present but ava
22	Belmont	FS0472	Cooke Aquaculture Scotland	FALSE	Not required at present
23	Bow of Hascosay	FS0477	Cooke Aquaculture Scotland	FALSE	Not required at present
24	Burkwell	FS0960	Cooke Aquaculture Scotland	FALSE	Not required at present
25	Burrastow	FS0666	Cooke Aquaculture Scotland	FALSE	Not required at present

26	Cloudin	FS0088	Cooke Aquaculture Scotland	FALSE	Available but not required at present
27	Flaeshins	FS1275	Cooke Aquaculture Scotland	FALSE	Not required at present though though
28	Hogan	FS1053	Cooke Aquaculture Scotland	FALSE	Not required during the production pe
29	Holm of Gruting	FS0166	Cooke Aquaculture Scotland	FALSE	Available but not used at present
30	Mid Taing	FS0167	Cooke Aquaculture Scotland	FALSE	Not required at present but available
31	Mula	FS/0896	Cooke Aquaculture Scotland	FALSE	Not required
32	Turness	FS0451	Cooke Aquaculture Scotland	FALSE	Not required at present but available f
33	Uyea Isle	FS0382	Cooke Aquaculture Scotland	FALSE	Not required at present but available i
34	Vatsetter	FS/0407	Cooke Aquaculture Scotland	FALSE	Not required at present
35	Vee Taing	FS/1057	Cooke Aquaculture Scotland	FALSE	Not required at present though availab
36	Winna Ness	FS0871	Cooke Aquaculture Scotland	FALSE	Not required at present
37	North Sandwick	FS/0710	Cooke Aquaculture Scotland	FALSE	Not required at present
38	Balta Island	FS/0717	Cooke Aquaculture Scotland	FALSE	Not used at present but will form part
39	Kirkabister	FS 0802	Cooke Aquaculture Scotland	FALSE	Not required at present
40	Kempie Bay	FS0359	Scottish Sea Farms Orkney and	FALSE	Potential indiscriminate trapping of wi
41	Sian Bay	FS0361	Scottish Sea Farms Orkney and	FALSE	Potential indiscriminate trapping of wi
42	Puldrite	FS0813	Scottish Sea Farms Orkney and	FALSE	Potential indiscriminate trapping of wi
43	Noust Geo	FS0823	Scottish Sea Farms Orkney and	FALSE	Not allowed by SNH or planning author
44	Shapinsay	FS0860	Scottish Sea Farms Orkney and	FALSE	are also ineffective on strong tidal site
45	Bring Head	FS1023	Scottish Sea Farms Orkney and	FALSE	Potential indiscriminate trapping of wi
46	Toyness	FS1024	Scottish Sea Farms Orkney and	FALSE	Not allowed by SNH or planning author
47	Wyre	FS1294	Scottish Sea Farms Orkney and	FALSE	net
48	Bight of Foraness	FS0292	Hjaltland Seafarms Ltd	FALSE	Not allowed by SNH or planning author
49	Bomlo	FS1076	Hjaltland Seafarms Ltd	FALSE	Not required
50	Cole Deep	FS0489	Hjaltland Seafarms Ltd	FALSE	not required
51	East of Papa Little	FS1278	Hjaltland Seafarms Ltd	FALSE	not required
52	Linga	FS1027	Hjaltland Seafarms Ltd	FALSE	not required
53	North Voe	FS0946	Hjaltland Seafarms Ltd	FALSE	not required
54	Poseidon	FS0408	Hjaltland Seafarms Ltd	FALSE	not required
55	Swinning Voe 3	FS0903	Hjaltland Seafarms Ltd	FALSE	not required
56	Corlarach	FS1287	Hjaltland Seafarms Ltd	FALSE	not required
57	Gob na Hoe	FS1175	Hjaltland Seafarms Ltd	FALSE	not required
58	Leinish	FS0800	Hjaltland Seafarms Ltd	FALSE	not required
59	Eughlam	FS1233	The Scottish Salmon Company	FALSE	ADD effective so not required
60	Gousam	FS0998	The Scottish Salmon Company	FALSE	ADD effective so not required
61	Kyles Vuia	FS0927	The Scottish Salmon Company	FALSE	ADD effective so not required
62	Taranaish	FS0752	The Scottish Salmon Company	FALSE	ADD Effective so not required
63	Vacasay	FS1091	The Scottish Salmon Company	FALSE	ADD effective so not required
64	Vuia Beag	FS0411	The Scottish Salmon Company	FALSE	ADD effective so not required
65	Vuia Mor	FS1103	The Scottish Salmon Company	FALSE	ADD effective so not required
66	Trilleachan Mor	FS1118	The Scottish Salmon Company	FALSE	ADD effective so not required
67	Strome	FS0570	The Scottish Salmon Company	FALSE	ADD effective so not required
68	Plocrapol	FS1256	The Scottish Salmon Company	FALSE	ADD Effective so not required
69	Reibinish	FS1277	The Scottish Salmon Company	FALSE	ADD effective so not required
70	Scadabay	FS1293	The Scottish Salmon Company	FALSE	ADD effective so not required

71	Gravir	FS0242	The Scottish Salmon Company	FALSE	ADD effective so not required
72	Portree	FS0708	The Scottish Salmon Company	FALSE	ADD effective so not required
73	Druimyeon Bay	FS0336	The Scottish Salmon Company	FALSE	ADD effective so not required
74	East Tarbert Bay	FS1010	The Scottish Salmon Company	FALSE	ADD effective so not required
75	Geasgill	FS0839	The Scottish Salmon Company	FALSE	ADD effective so not required
76	Gometra	FS1267	The Scottish Salmon Company	FALSE	ADD effective so not required
77	Inch Kenneth	FS0593	The Scottish Salmon Company	FALSE	ADD effective so not required
78	Tuath	FS0617	The Scottish Salmon Company	FALSE	ADD effective so not required
79	Aird	FS0594	The Scottish Salmon Company	FALSE	ADD effective so not required
80	Kenmore	FS0050	The Scottish Salmon Company	FALSE	ADD effective so not required
81	Sgeir Dughall	FS1262	The Scottish Salmon Company	FALSE	ADD effective so not required
82	Greanamul	FS1282	The Scottish Salmon Company	FALSE	ADD effective so not required
83	Outer Eport	FS1254	The Scottish Salmon Company	FALSE	ADD effective so not required
84	Petersport	FS0340	The Scottish Salmon Company	FALSE	ADD Effective so not required
85	Trenay	FS0796	The Scottish Salmon Company	FALSE	ADD effective so not required
86	Uiskevagh	FS1255	The Scottish Salmon Company	FALSE	ADD effective so not required
87	Maragay Mor	FS1304	The Scottish Salmon Company	FALSE	Site only recently stocked
88	Eilean Grianain	FS1176	Marine Harvest (Scotland) Ltd	FALSE	Bi catch concerns
89	Inverawe (East) Et	FS1067	Dawnfresh Farming Ltd	FALSE	high currents risk of entanglemer
90	Etive 3 (Port na M	FS1101	Dawnfresh Farming Ltd	FALSE	high currents, risk of entangleme
91	Etive 4	FS1112	Dawnfresh Farming Ltd	FALSE	high currents, risk of entangleme
92	Ardchattan Bay	FS0197	Dawnfresh Farming Ltd	FALSE	risk of entanglement of other ani
93	Etive 6	FS1288	Dawnfresh Farming Ltd	FALSE	risk of entanglement of other ani
94	Shuna SW (Rubha	FS1290	Kames Fish Farming Ltd	FALSE	Bi catch concerns
95	South Sound	FS0183	Scottish Sea Farms Ltd	FALSE	Operational
96	Vidlin North	FS0608	Scottish Sea Farms Ltd	FALSE	Operational
97	Loura Voe	FS0699	Scottish Sea Farms Ltd	FALSE	Operational
98	Holms Geo	FS0749	Scottish Sea Farms Ltd	FALSE	Operational
99	Slocka Ronas Voe	FS1018	Scottish Sea Farms Ltd	FALSE	Operational
100	Teisti Geo	FS1093	Scottish Sea Farms Ltd	FALSE	Operational
101	Bight of Bellister,	FS1121	Scottish Sea Farms Ltd	FALSE	Operational
102	Dury Voe	FS0033	Scottish Sea Farms Ltd	FALSE	Operational
103	Foreholm	FS0936	Scottish Sea Farms Ltd	FALSE	Operational
104	Snarraness	FS0400	Scottish Sea Farms Ltd	FALSE	Operational
105	HELLISAY	FS1261	Marine Harvest (Scotland) Ltd	FALSE	Bi catch concerns
106	Ornish	FS0531	Marine Harvest (Scotland) Ltd	FALSE	POLICY
107	SEAFORTH	FS1042	Marine Harvest (Scotland) Ltd	FALSE	BI CATCH CONCERNS
108	SOAY	FS0646	Marine Harvest (Scotland) Ltd	FALSE	bi catch concerns
109	STULAIGH	FS1259	Marine Harvest (Scotland) Ltd	FALSE	bi catch concerns
110	Tabhaigh	FS1297	Marine Harvest (Scotland) Ltd	FALSE	bi catch concerns
111	Scotasay	FS0502	Marine Harvest (Scotland) Ltd	FALSE	bi catch concerns
112	North Shore	FS1033	Marine Harvest (Scotland) Ltd	FALSE	bi catch concerns
113	Raineach	FS1263	Marine Harvest (Scotland) Ltd	FALSE	policy
114	Marulaig Bay	FS0865	Marine Harvest (Scotland) Ltd	FALSE	bi catch concerns
115	Groatay	FS1083	Marine Harvest (Scotland) Ltd	FALSE	bi catch concerns
116	Grey Horse Chann	FS1122	Marine Harvest (Scotland) Ltd	FALSE	bi catch concerns
117	Bagh Dail Nan Cea	FS0805	Marine Harvest (Scotland) Ltd	FALSE	bi catch concern
118	Polle Na Gille	FS0629	Marine Harvest (Scotland) Ltd	FALSE	bi catch concerns

119	Port Na Cro	FS0859	Marine Harvest (Scotland) Ltd	FALSE	bi catch concerns
120	ARDINTOUL	FS0245	Marine Harvest (Scotland) Ltd	FALSE	bi catch concerns
121	Ardnish	FS0249	Marine Harvest (Scotland) Ltd	FALSE	bi catch concerns
122	CAIRIDH	FS0252	Marine Harvest (Scotland) Ltd	FALSE	bi catch concerns
123	CAMAS GLAS	FS0413	Marine Harvest (Scotland) Ltd	FALSE	bi catch concerns
124	CREAG AN T SAGA	FS0605	Marine Harvest (Scotland) Ltd	FALSE	bi catch concerns
125	DUICH	FS0248	Marine Harvest (Scotland) Ltd	FALSE	bi catch concerns
126	Gorsten	FS0237	Marine Harvest (Scotland) Ltd	FALSE	bi catch concerns
127	GRESHORNISH	FS0015	Marine Harvest (Scotland) Ltd	FALSE	bi catch concerns
128	HARPORT	FS0247	Marine Harvest (Scotland) Ltd	FALSE	bi catch concerns
129	INVASION BAY	FS0212	Marine Harvest (Scotland) Ltd	FALSE	Bi Catch Concerns
130	KINGAIRLOCH	FS0241	Marine Harvest (Scotland) Ltd	FALSE	bi catch concerns
131	LEVEN	FS0244	Marine Harvest (Scotland) Ltd	FALSE	bi catch concerns
132	LINNHE	FS0240	Marine Harvest (Scotland) Ltd	FALSE	bi catch concerns
133	LOCHALSH	FS0016	Marine Harvest (Scotland) Ltd	FALSE	bi catch concerns
134	MacLean's Nose	FS0599	Marine Harvest (Scotland) Ltd	FALSE	bi catch concerns
135	MAOL BAN	FS0519	Marine Harvest (Scotland) Ltd	FALSE	bi catch concerns
136	Muck	FS1286	Marine Harvest (Scotland) Ltd	FALSE	bi catch concerns
137	SCONSER	FS0602	Marine Harvest (Scotland) Ltd	FALSE	bi catch concerns
138	Colonsay	FS1296	Marine Harvest (Scotland) Ltd	FALSE	company policy
139	Lochmaddy	FS0853	Loch Duart Ltd	FALSE	STRONG TIDES
140	Sound of Harris	FS1260	Loch Duart Ltd	FALSE	STRONG TIDES
141	Loch Carnan	FS1280	Loch Duart Ltd	FALSE	STRONG TIDES
142	ISLE EWE	FS1084	Marine Harvest (Scotland) Ltd	FALSE	BI CATCH CONCERNS
143	TORRIDON	FS0234	Marine Harvest (Scotland) Ltd	FALSE	Bi Catch Concerns

The latest data ([published online by the Scottish Government](#)) on seals killed by salmon farms during 2016 reveals that the following sites shot seals but have not reported the use of Anti-Predator Nets (APN) in the last two licensing periods (encompassing 2015 and 2016 - as defined by [SNH FOI 25 April 2017 document #5](#) and [SNH FOI 25 April 2017 document #7](#)) casting doubt on the definition of "last resort" (i.e. salmon farmers are reaching for bullets before nets):

Bight of Bellister (Scottish Sea Farms) - "operational" was the reason given why APNs were not used

Cairidh (Marine Harvest) - "bi catch concerns" (sic) was the reason given why APNs were not used

Camas Glas (Marine Harvest) - "bi catch concerns" (sic) was the reason given why APNs were not used

Colonsay (Marine Harvest) - "bi catch concerns" (sic) was the reason given why APNs were not used

Creag an t Sagairt (Marine Harvest) - "bi catch concerns" (sic) was the reason given why APNs were not used

Eilean Grianain (Marine Harvest) - "bi catch concerns" (sic) was the reason given why APNs were not used

Gometra (The Scottish Salmon Company) - "ADD effective so not required" was the reason given why APNs were not used

Greshornish (Marine Harvest) - "bi catch concerns" (sic) was the reason given why APNs were not used

Hellisay (Marine Harvest) - "bi catch concerns" (sic) was the reason given why APNs were not used

Holms Geo (Scottish Sea Farms) - "operational" was the reason given why APNs were not used

Isle Ewe (Marine Harvest) - "bi catch concerns" (sic) was the reason given why APNs were not used

Kingairloch (Marine Harvest) - "bi catch concerns" (sic) was the reason given why APNs were not used

Linnhe (Marine Harvest) - "bi catch concerns" (sic) was the reason given why APNs were not used

Lochalsh (Marine Harvest) - "bi catch concerns" (sic) was the reason given why APNs were not used

Loch Carnan (Marine Harvest) - "tide too strong" was the reason given why APNs were not used

Maol Ban (Marine Harvest) - "bi catch concerns" (sic) was the reason given why APNs were not used

Marulaig (Marine Harvest) - "bi catch concerns" (sic) was the reason given why APNs were not used

Ornish (Marine Harvest) - "bi catch concerns" (sic) was the reason given why APNs were not used

Shapinsay (Scottish Sea Farms) - "indiscriminate trapping of wildlife" was the reason given why APNs were not used

Slocka Ronas Voe (Scottish Sea Farms) - "operational" was the reason given why APNs were not used

Spelve A (Scottish Sea Farms) - "practicality" was the reason given why APNs were not used

Sound of Harris (Loch Duart) - "tides too strong" was the reason given why APNs were not used

Swarta Skerry (Balta Island Seafare) - "have been tried previously but not considered effective" was the reason given why APNs were not used

Taranaish (The Scottish Salmon Company) - "ADD effective so not required" was the reason given why APNs were not used

Vidlin North (Scottish Sea Farms) - "operational" was the reason given why APNs were not used

Winna Ness (Cooke Aquaculture) - "no required" (sic) was the reason given why APNs were not used

Additionally, these salmon farms may have not used APNs during 2016 (it is impossible to say for sure given the lack of synchronicity between the data sets):

Djubawick (Cooke Aquaculture) - "not required at present, difficult to manage in highly tidal sites" was the reason given why APNs were not used

Fuinary (Scottish Sea Farms) - "practicality" was the reason given why APNs were not used

Kishorn West (Scottish Sea Farms) - "practicality" was the reason given why APNs were not used

Stead of Aithness (Cooke Aquaculture) - "not required at present due to low predation levels" was the reason given why APNs were not used

Walters/East Lismore (Scottish Sea Farms) - "practicality" was the reason given why APNs were not used

It seems clear that the majority of salmon farms which kill seals do NOT use anti-predator nets (i.e. they are NOT shooting seals as a "last resort" as claimed by the salmon farming industry and demanded via SSPO's [Code of Good Practice](#) and the [RSPCA Assured scheme](#)).

For example, [SSPO claim on their web-site](#) that the shooting of seals in accordance with the [licensing scheme](#) introduced in the Marine (Scotland) Act 2010 "must only ever be as an act of last resort".

Marine Harvest [claimed in a report to the Aquaculture Stewardship Council in 2015](#) that at their ASC-certified salmon farm in Loch Leven "all other deterrents proved ineffective, seal shot as last resort" (the seal was shot in 2014). However, Marine Harvest's Loch Leven salmon farm did NOT use anti-predator nets in the last two licensing periods (roughly corresponding to 2015 and 2016) and it is unlikely that they used anti-predator nets in Loch Leven in 2014 either.

A [spokesman for Marine Harvest told the Herald in April 2017](#): "The industry is working hard to reduce the number of seals shot on salmon farms. Shooting is only ever carried out as a last resort when other methods of deterrence have failed to keep seals from attacking farmed stocks."

If Marine Harvest abides by "last resort" seal-killing then how does Marine Harvest explain the 22 seals it killed during 2016 at the following sites where anti-predator nets were NOT used ("bi catch concerns" (sic) was the reason given)?:

Cairidh; Camas Glas; Colonsay; Creag an t Sagairt; Eilean Grianain; Greshornish; Hellisay; Isle Ewe; Kingairloch; Linnhe; Lochalsh; Loch Carnan; Maol Ban; Marulaig and Ornish

Note that one of the people Marine Harvest has to persuade is the RSPCA's newly appointed certifier of salmon farms - Ian Michie (who conveniently "[was a fish farm manager for Marine Harvest for many years](#)"). Intrafish [reported in April 2016](#):

Former Marine Harvest veteran joins RSPCA to tackle aquaculture welfare

Animal welfare group appoints two new members.

INTRAFISH MEDIA

April 12th, 2016 13:08 GMT Updated April 13th, 2016 08:23 GMT

The RSPCA appointed two new members on Tuesday to help improve the welfare of fish farmed in the UK.



Ian Michie - RSPCA

Former Marine Harvest veteran Ian Michie joined the RSPCA as a farm livestock officer and will carry out inspections of RSPCA Assured farmed fish producers in Scotland. He will also visit laying hen farms in the country. He was a salmon farm manager for Marine Harvest for 18 years and was aquaculture

manager with Young's Seafood for 11 years.



Eoina Rodgers - RSPCA

Eoina Rodgers joined the RSPCA's farm animals department as a scientific officer specialising in aquaculture.

For more seafood news and updates, follow us on [Facebook](#) and [Twitter](#) or sign up for our [daily newsletter](#)

It appears that 100% of Marine Harvest Scotland's salmon farms are certified as RSPCA Assured/Freedom Food (according to [Marine Harvest's 'Integrated Annual Report 2015'](#)):

CERTIFICATION TABLE

BUSINESS UNIT	ACTIVITY	CERTIFICATION	% OF PLANTS CERTIFIED TO EACH SCHEME
Scotland	Juveniles	Label Rouge, GlobalGAP, ISO 9001, ISO14001, COGP, RSPCA assured, Royal Warrant Holders	100% Label Rouge
	On-growing	Label Rouge, ASC, GlobalGAP, ISO 9001, ISO 14001, PGI, COGP, RSPCA assured, Royal Warrant Holders	Approx. 20% Label Rouge dedicated farms, ASC 2 farms
	Primary processing	Label Rouge, BRC, ASC CoC, GlobalGAP, ISO 9001, ISO 14001, PGI, COGP, RSPCA assured, Royal Warrant Holders	100%

The RSPCA told ITV News in 2015:



Since the RSPCA Assured/Freedom Food refuse to name which salmon farms are certified under their scheme it is impossible to cross-check the data to see whether the RSPCA Assured/Freedom Food sites killing seals are using anti-predator nets or not.

Data obtained from SNH ([Download SNH FOI 25 April 2017 document #7](#)) does at least name seven Freedom Food salmon farms - including Marine Harvest's Colonsay salmon farm which did not use either Acoustic Deterrent Devices (ADDs) or APNs yet [shot one grey seal in 2016](#):

ApplicationPeriod	FishFarmName	Reg #	SchemeAffiliation	SiteOwner	ADDUsed	APNUsed
01/10/2016 - 30/09/2017	North Sandwick	FS/0710	FreedomFood	Cooke Aquaculture Scotland	FALSE	FALSE
01/10/2016 - 30/09/2017	Balta Island	FS/0717	FreedomFood	Cooke Aquaculture Scotland	FALSE	FALSE
01/10/2016 - 30/09/2017	Kirkabister	FS 0802	FreedomFood	Cooke Aquaculture Scotland	FALSE	FALSE
01/10/2016 - 30/09/2017	Westerbister	FS1305	FreedomFood	Scottish Sea Farms Orkney and Eriboll	FALSE	TRUE
01/10/2016 - 30/09/2017	Hamnavoe	FS1144	FreedomFood	Hjaltland Seafarms Ltd		
01/10/2016 - 30/09/2017	Snarraness	FS0400	FreedomFood	Scottish Sea Farms Ltd	TRUE	FALSE
01/10/2016 - 30/09/2017	Colonsay	FS1296	FreedomFood	Marine Harvest (Scotland) Ltd	FALSE	FALSE

Appendix: FOI reply from SNH (25 April 2017)

Document #3: [Download SNH FOI 25 April 2017 document #3](#)

This [15-page PDF included](#) discussions relating to the [SASWG \(Salmon Aquaculture & Seals Working Group\)](#):

From: Cathy Tilbrook [<mailto:Cathy.Tilbrook@snh.gov.uk>]
Sent: 03 November 2016 15:35
To: [REDACTED]
Cc: Caroline Carter; Suzanne Henderson; Liam Wright
Subject: RE: SASWG 17 Meetings dates

Hi [REDACTED]

Is there a draft agenda and timings for SASWG yet? We would like to provide a quick verbal update on SNH discussions on ADD use with industry and others, but this would not be a formal presentation due to the difficulties of joining remotely. I note your recent email re linking to the meeting by laptop / webcam and will need to check with our IT support whether we have the technology to enable this (back-up plan might be via a telephone link!). I'm afraid I can't join you on that date but (depending on agenda), we will confirm who will join you.

Thanks, Cathy

Cathy Tilbrook
Head of Coastal & Marine Ecosystems Unit (job-share)
Scottish Natural Heritage, Battleby, Redgorton, Perth, PH1 3EW

Direct tel: 01738 458620
Mobile: [REDACTED] | please note new number

Salmon Aquaculture and Seal Working Group Meeting 17

11th November 2016

10:30-15:00*

RSPCA Wilberforce Road Horsham

Attendees:

Confirmed attendees:

1. [REDACTED]
2. [REDACTED]
3. [REDACTED]
4. Cathy Tilbrook + n (Skype?)
5. [REDACTED]
6. [REDACTED]
7. [REDACTED] (Skype?)
8. [REDACTED]
9. [REDACTED]
10. [REDACTED]
11. [REDACTED] (Skype)
12. [REDACTED] (?)
13. [REDACTED] (late)
14. [REDACTED]
15. [REDACTED]

Apologies

1. [REDACTED] - Marine Scotland
2. [REDACTED] - Crown Estates
3. [REDACTED]
4. SNH ??

1. **Opening matters (standing items):**
 - a. Introductions and Housekeeping
 - b. Minutes from Meeting 15
 - c. Previous Actions.
2. **Latest SG Seal Shooting Figures**
 ??? who will table???
3. **Update from Marine Harvest (█)**
 Anything to report ?? Latest shooting figures and salmon losses –
 █ to supply
4. **Update from FF/RSPCA (█)**
 Post mortem investigations

(Lunch provided by RSPCA - around 1pm

5. **Seal trapping for translocation – █**
6. **Welfare implications of seal shooting (█)**
7. **Any Other Business**
- 9 **Next meeting**

Actions from last meeting August 2015

Draft Consolidated Action Points from SASWG 16

1. **Action █** to find regional figures for PBR calculations and circulate to group. **DONE**
2. **Action █** to check dates the ADD system was changed at Sconser in 2015– did seal depredation cease once a new ADD system was installed – or before, or after? ??
3. **Action █** to circulate PDF of MHS presentation **DONE (I have not circulated yet!)**
4. **Action █** to take suggestions for further analysis of shooting incidents back to MHS **(Any?)**
5. **Action █** to organise meeting with FF members to address seal concerns **???**
6. **Action █** to circulate a copy of presentation, report and link to the videos **DONE**
7. **Action █** to circulate his own timeline on startle response device **??**
8. **Action █** to make enquires about state of developments on the startle device within the University of St Andrews - **not so easy.....**
9. **Action █** to approach Knox nets and/or other net manufacturers to try to build on previous studies examining net deformation by seals in captivity ...
10. **Action █** to consult with group on suitable dates later, and with █ about venue availability **DONE**

From: [REDACTED]@st-andrews.ac.uk
Sent: 29 September 2016 08:43
To: Cathy Tilbrook
Subject: RE: SASWG 17 Meetings dates

Hi Cathy – I have assumed Caroline, Suzanne and yourself will be unable to attend as per your email below. I think there is an option for having people connect remotely as there is a big screen I am told in the room, though it may involve using skype.
Is that okay and how many of you would be likely to want to join?
I appreciate this may be hard without an agenda – I will endeavour to get that sorted asap – is there anything you might be able to contribute?
I gather SNH has done some work on ADDS and potential impacts on porpoises? Are there other ongoing projects of relevance to SASWG?

Best wishes,

[REDACTED]

[REDACTED]
Sea Mammal Research Unit
University of St Andrews
Bute Building
Queens Terrace
St Andrews
Fife KY16 9TS
[REDACTED]

From: Cathy Tilbrook [mailto:Cathy.Tilbrook@snh.gov.uk]
Sent: 20 September 2016 09:52
To: [REDACTED] International Animal Rescue; [REDACTED]@thecrownestate.co.uk); [REDACTED]@campaign-whale.org); Caroline Carter; [REDACTED] Marine Scotland; [REDACTED]@rspca.org.uk); [REDACTED] SSPO; [REDACTED]@waitrose.co.uk); [REDACTED]

2

[REDACTED]@freedomfood.co.uk); [REDACTED]@bornfree.org.uk); [REDACTED] Suzanne Henderson
Subject: RE: SASWG 17 Meetings dates

Hi [REDACTED]

I assume RSPCA HQ is in London? I'm afraid it's highly unlikely we'd be able to send an SNH representative in person due to current travel budget constraints. Would there be a v/c or t/c option?

Thanks, Cathy

Cathy Tilbrook
Head of Coastal & Marine Ecosystems Unit (job-share)
Scottish Natural Heritage, Battleby, Redgorton, Perth, PH1 3EW

Direct tel: 01738 458620

From: Liam Wright
Sent: 29 March 2016 10:11
To: Cathy Tilbrook; Suzanne Henderson; Jane Dodd; Caroline Carter
Subject: RE: SASWG No 16

Thanks Cathy. I've never heard of Pulcea Ltd so it would be interesting to have someone present to hear what they have to say. I see their company is based in Inverness so I'm quite surprised I haven't heard of them before now – maybe others have?

Cheers
Liam

Salmon Aquaculture and Seal Working Group – Meeting 16
6th April 2016
Marine Harvest – Rosyth

Meeting notes

Drafted by Caroline Carter

Associated documents:

Email ([A1933802](#))
Analysis of seal return shooting figures ([A1933805](#))
Research themes and discussion points ([A1933804](#))
SASWG meeting 16 draft agenda ([A1933803](#))

These notes are not the meeting minutes; minutes were taken down by [REDACTED] and will follow. These are my notes from the meeting for our info.

RSPCA/SMRU have approached Marine Scotland to discuss the definition of 'last resort'. MS are open to this discussion but a meeting has not yet been arranged.

[REDACTED] presented his review '*Analysis of seal licence returns shooting figures for 2015*'.

- o Data was obtained from Marine Scotland ([REDACTED] sent links).
- o Overall reduction in seals being shot.
- o Numbers appear to be plateauing. There was some discussion as to whether it was realistic to expect a continued reduction in seal shot and the question was raised as to what the next step might be if there are animals that cannot be mitigated.
- o Question was raised as to whether anyone has ever looked at all available mitigation in comparison to numbers of seals shot?
 - SSPO has tried to look at this but have found it difficult to disentangle due to a number of different variables between sites.
- o Comment was made that the industry have aspirations for growth and therefore the numbers may not necessary be expected to reduce.
- o Suggestion was made that instead of using the metric of numbers of individuals shot it might be more informative if we looked at % of population shot.
 - [REDACTED] cautioned the use of % of population as this may not relate to the number of problem seals.

FF/RSPCA (in conjunction with SSPO) are planning a meeting involving industry and predator control manufacturers (nets and ADDs). The aim is to bring together a mix of personnel of both workers and managers and have a 'sales pitch' from the manufacturers with the intention of proving the efficacy of their systems.

- Meeting to be linked with a technical working group for each of the RSPCA standards.
- Also a separate meeting with RSPCA trustees to communicate understanding and awareness of this issue.
- FF/RSPCA have a 72 hour reporting system where a report must be sent to them within 72 hours of a seal being shot. This enables them to investigate the shooting to make sure that all correct procedures were followed.
 - Currently data is just being collated, but there may be option for this to be analysed at some point in the future.

Presentation by Pulcea – [REDACTED]

- Pulcea is a partnership organisation with Score Group Plc (branches in 30 countries worldwide). Score group is largely an engineering company and mainly involved with the oil and gas industry.
- Proposed device is at the prototype stage – the presentation gave very little information as to how the device actually works.
- In conversation with the 'inventor' at lunch it seems that the intention is to generate an asymmetric pulse with similar amplitude (volume) to existing ADDs. He suggested that the benefit of an asymmetric pulse is that it should not interact with following pulses (constructive and destructive interactions as found in existing ADDs) which means essentially means that it should not propagate as far into open water. It would be a physically longer pulse than other ADDs, with a longer inter-pulse time, and therefore fewer pulses emitted in comparison to traditional devices. The intention here is to reduce the noise pollution into the environment.
- Low frequency (but they did not state at what frequency).
- They advertised this as species specific – but it can't be and on challenge they admitted that it would 'work' on any animal within the range, so it can't be considered species specific based.
- Idea is not to target hearing thresholds, but to generate a shock wave (but not one powerful enough to injure the target).
- They intend the device to exclude target animals within a 500m range.
- They are calling it a 'seal persuader'.
- No technical detail presented and no evidence as yet as to whether this would work.

Presentation by SMRU

- SARF 97- 'Plugging the gaps – Improving our knowledge of how predators impact salmon farms'
 - Tested how seals eat fish through netting using captive trained seals at their pool facility in St Andrews.

- All seals tested found it difficult to feed on salmon through the net. They had to be trained using small pieces of salmon and worked up to trying to take whole fish.
- Stereotypical gashes and abdominal bite marks were not observed in these trials and are probably indicative of fish being live at the point of attach. Only dead fish were able to be used in this experiment.
- Seals exhibited great patience in waiting for the fish to be close enough to the net in order for them to take it.
- Seals could depress a tensioned net by ~30cm in order to reach the fish. The net tested was nylon which is more stretchy in comparison to newer netting materials.
- Seals would hold station by the net using their hind flippers, with their nose on (or close to) the net, and then use an explosive push forward to move the net to reach the fish using their neck muscles.
- Also deployed an underwater camera at four sites.
 - No seals were observed in these locations.
 - Recording period of ~90 days.
- Report should be available on the SARF website after 8th April and the intention was to include links to video clips of the captive seal feeding techniques, but they were not sure whether this would be direct links or links to YouTube.
- It was stressed that more work needs to be done to assess this in the 'real world' situation.
- Study into sound propagation around fish farms.
 - Used multiple recorders situated around a fish farm cage approx. 10m away from each transducer.
 - Scenario recorded where one of the transducers was not operating at the same level as the others (it was much quieter).
 - However on analysis the recordings could not differentiate any difference in sound level (this would therefore not be a useable technique to assess ADD operation in the field).
 - They also tested the received levels around a steel square fish farm pen where only one ADD was being used at one corner. Mapping the output suggests that the cage does shadow the acoustic output and they noted a 3dB reduction in the shadow zone.

Meeting minutes taken by [REDACTED] to follow.

No date was given for the following meeting – but it was suggested that it should be held south of the border next time. A further suggestion was made for two locations connected by VC.

Comment [CC1]: What this suggests to me is that numerous ADDs deployed around a fish farm cage does not necessarily increase the noise levels by much more than would be observed by one ADD, but will increase the time that the noise is emitted over – i.e. makes it continuous rather than having gaps between the pulses.

Comment [CC2]: This could make a difference in the seal approaching the net from the 'quieter' direction.

From: Cathy Tilbrook
Sent: 29 March 2016 10:02
To: Suzanne Henderson; Jane Dodd; Liam Wright; Caroline Carter
Subject: FW: SASWG No 16

Hi all

Please see draft agenda (pasted below) for SASWG meeting next Wed in Rosyth (Marine Harvest). There's not much detail yet, but note the presentation by new ADD company and the report on sound field mapping. I am available that day but wondered if one of you might be interested to attend instead (e.g. Caroline's input to sound mapping might be useful to the group, but would then need briefing from others re any points we want to raise on seal licensing issues?). Happy to discuss. Thanks, Cathy

PS Note that one [REDACTED] is attending for RSPCA!

Draft Agenda to include

1. Freedom Food –

- progress on liaison/discussions with members
- improving information gathering on seal incidents

2. Pulcea – “ADD's - can we learn from the lessons of the past?”

3. Marine Harvest – results of investigations into factors underlying seal shooting in 2015

4. SMRU

- Report on sound field mapping of a site with ADDs and ongoing seal depredation
- Report on captive seal behaviour with nets & salmon, & tests on netting properties

[Download SNH FOI 25 April 2017 document #3](#)

Document #4: [Download SNH FOI 25 April 2017 document #4](#)

The [23-page PDF included](#):

From [REDACTED]
To: SASWG Members

Please find my analysis for SASWG 17 of the Seal Licence figures provided by Marine Scotland 2011-15 inclusive, and my predictions for 2016:

1. Total Seals reported shot 2011-15 = 1,531
 - **Total seals shot: 1,245 Grey and 286 common**
 - **Average number shot is 306 seals per year**

2. Reported shootings fell from 461 in 2011 to 160 in 2015
 - **Overall reduction in seals shot 2011-15 is 65%**

3. Total licences granted: 66 in 2011 to 53* in 2015
*(incl 2 pending in 2015 (POSD))
 - **The overall reduction in licences granted 2011-15 is 20%**

2011: 66 licences: 32 PHW and 34 PSD
2015: 53 licences: 29 PHW and 24 PSD

 - **Reduction in licences: 9% for POHW and 29% for PSD**

4. Reductions in grey and common shootings are:

2011: 368 grey and 93 common (461)

2015: 118 grey and 42 common (160)

- **Reduction in grey seals shot is 68%**
- **Reduction in common seals shot is 64%**

5. In 2011, 241 (52%) seals were shot across 235 fish-farms
In 2011, 218 (48%) seals shot over 40 fisheries and netting stations.

In 2015, 79 (49%) were shot across 214 fish farms

In 2015, 81 (51%) were shot at over 40 fisheries and netting stations

6. % seals shot by aquaculture by FF accredited farms

- **In 2011: c 60+ seals* c26%**
- **In 2015: 41 seals 52%**

*(no definite figure provided)

7. During 2015 the greater number of seals shot were by:

1. Moray Firth Management Group:	28
2. Usan Fisheries (Scottish Wild Salmon Company):	22
3. Marine Harvest (FF accredited)	18
4. Scottish Seafarms: (FF accredited)	15
5. Scottish Salmon Company: (supply Waitrose)	11

8. In 2011, 32% of licence holders shot no seals
In 2015, 44% of licence holders shot no seals.

- **Number of licence holders not shooting seals has risen from 32% - 44%**

9. Total shooting by area and species 2011-15, with % increase or decrease:

<u>Area</u>	<u>Species</u>	<u>%+-</u>
East Coast:	133 grey + 0 common	(-87%)
Moray Firth:	159 grey + 30 common	(+68%)
Orkney and North Coast:	497 grey + 9 common	(-77%)
Shetland:	234 grey + 7 common	(-86%)
SW Scotland:	9 grey + 23 common	(-91%)
W Scotland:	115 grey + 201 common	(-42%)
W Isles:	98 grey + 16 common	(-67%)

10. Shooting per area and species comparison 2011 to 2015:

	<u>2011</u>	-	<u>2015</u>
East Coast:	46 grey + 0 common	-	6 grey + 0 common
Moray Firth:	16 grey + 6 common	-	32 grey + 5 common
Orkney/N.Coast:	167 grey + 4 common	-	39 grey + 0 common
Shetland:	69 grey + 2 common	-	10 grey + 0 common
SW Scotland:	4 grey + 12 common	-	1 grey + 0 common
W.Scotland:	36 grey + 58 common	-	18 grey + 36 common
W Isles:	28 grey + 11 common	-	12 grey + 1 common

11. Shooting per area as % of total 2011-15 (1,531) and 2015 (160):

	<u>2011-15</u>	<u>2015</u>
Orkney/ N.Coast:	33%	24%
W Scotland:	21%	34% (+)
Shetland:	16%	6%
Moray Firth:	12%	23% (+)
W Isles:	7%	8% (+)
E Coast	9%	4%
SW Scotland	2%	0.6%

12. In April 2016, a three-year coastal netting ban was introduced to protect wild salmon. This will help protect wild stocks, but should also further significantly reduce shooting of seals. It will also focus more attention on aquaculture which was responsible for 49% of seals shot in 2015.

1. The biggest individual seal shooting companies in 2015 were both RSPCA - FF accredited salmon producers that supply both Sainsbury's and Waitrose
2. In 2014, (number to be provided by FF) almost 70% of seals shot by aquaculture were at FF accredited sites.

3. In 2015, 41 seals were reported shot to FF, 52% of those reported shot by aquaculture overall.
4. It would be a useful to compare the numbers reported shot on licence returns to Marine Scotland with the 41 reported to FF and SASWG members for 2015 to see if they correlate.

13. 2016 analysis 1st and 2nd quarters:

46 Seal Licences were granted in 2016: 28 for Protection of Health and Welfare (PHW) from 29 in 2015 (-3%), 18 for Prevention of Serious Damage (PSD) from 24 in 2015 (-25%)

- **46 Seal Licences were granted in 2016 (53 in 2015) a reduction of 13%**
- **PHW represents 63% of all licences granted in 2016**
- **PHW represented 48% of all licences granted in 2011**
- **PSD represents 37% of all licences granted in 2016**
- **PSD represented 52% of all licences granted in 2011**

Seal Licences for aquaculture**:

29 licences for PHW + 1 for PSD in 2015,
28 licences for PHW + 1 for PSD in 2016

*(**across 214 fish farms both years)*

- **PHW now represents 97% of all licences granted for aquaculture in 2016, only 3% for PSD**
- **PHW represented 48% of all licences granted for aquaculture in 2011, 52% for PSD**

Seals reported shot 1st and 2nd quarter of 2016:

- **36 grey + 7 common in 2016 = 43**
- **86 grey + 24 common in 2015 = 110**
- **This represents a reduction of 61% on 2015**

Prediction for 2016, total using quarters 3/4 (40 grey and 18 common) from 2015 as guide:

- **Predicted total for 2016 = 101 seals shot**
- **If correct, this would represent a 72% reduction on 2011 figures, but reduction may be greater still due to netting ban.**

Analysis of Seal Licence return shooting figures for 2015.

According to Scottish Government figures a total of 160 seals were shot under licence in 2015: 118 grey and 42 common or harbour seals

The new figures represent a 22% reduction from the number of seals shot in 2014 (205) and a 67% reduction on those shot in 2011 (459) when the scheme began. They also reveal a total of 1,531 seals have been shot during the first five years of the Seal Licence scheme, an average of 306 seals each year.

Highlights of the figures show:

- **reported shootings by aquaculture have declined from 241 in 2011 to 79 in 2015, a reduction of 67%**
- **reported shootings by fisheries and netting companies have declined from 218 in 2011 to 81 in 2015, an overall reduction of 63%.**

The new figures do not show any reduction in shooting by the fish-farming sector in the past two years, 2014 and 2015, when 80 and 79 seals were reported shot respectively.

During 2015 greatest numbers of seals shot were:

- 1. Moray Firth Management Group: 28 seals (Sports fishing)**
- 2. Usan Fisheries (Scottish Wild Salmon Company) of Montrose: 22 seals (Salmon netting)**
- 3. Marine Harvest: 17 seals Fish-farmers (Freedom Food label)**

- 4. Scottish Seafarms: 15 seals Fish-farmers (Freedom Food label)**
- 5. The Scottish Salmon Company: 11 seals (Waitrose)**

In April 2016, a three-year coastal netting ban will be introduced to protect wild salmon. This will help protect wild stocks of salmon and should lead to a further significant fall in the number of seals being shot. It will also focus more attention on the aquaculture sector.

Remarks:

1. The biggest individual seal shooting aquaculture companies in 2015 were both RSPCA-FF approved salmon producers that supply both Sainsbury's and Waitrose.
2. In 2014, almost 70% of seals shot by aquaculture were at RSPCA approved Freedom Food farms.
3. Would be useful to compare these numbers with the 2015 shooting figures reported to Freedom Food.

From: [REDACTED]@st-andrews.ac.uk>
Sent: 09 February 2016 10:52
To: [REDACTED] International Animal Rescue; [REDACTED], Sainsbury's;
[REDACTED]@thecrownestate.co.uk); [REDACTED] (Seal Protection Action Group); Cathy Tilbrook; [REDACTED]
Marine Scotland; [REDACTED]
[REDACTED]@waitrose.co.uk); [REDACTED]@rspca.org.uk); [REDACTED]
SSPO; [REDACTED]@bornfree.org.uk); [REDACTED]
Subject: Progressing SASWG

Dear SASWG,

When we last met in August we agreed to meet again – possibly by teleconference in February. I regret that this has not been and won't now be possible for me due to teaching commitments this month. However I am about to circulate a Doodle Poll for dates that are possible for me at present in March and half of April. Please could people fill in the poll and also advise whether a teleconference is feasible or desirable, and if not what alternatives people might have in mind.

I attach again the draft minutes of the last meeting FYI.

Action points were as follows:

Actions:

1. RSPCA/SMRU to organise a meeting with marine Scotland to discuss FF 'last resort' requirement and its applicability to government license conditions
2. FF/SSPO to consider ways of improving information gathering on seal predation mitigation techniques and dissemination within industry
3. [REDACTED] to circulate list of issues, group to comment on points worth seeking industry feedback on
4. FF to circulate questions to industry members based on agreed key issues with a view to getting responses in time for December STAG meeting
5. FF (in consultation with MH/SMRU) to approach ADD manufacturers to follow-up on feedback on device innovation and monitoring, and arrange a meeting
6. MH to report back to group on its investigations into increased seal shooting incidents in 2015, and to feed back to FF on how standards might evolve in light of its findings
7. [REDACTED] encourage Waitrose/Aquascot to participate in the group
8. FF to inform the group on the agenda and outcomes of its October meeting with its members

At least some of these actions points have been progressed; I attach the notes from a FF meeting held in November (AP8) and forwarded to me by [REDACTED] I gather FF will be organising another meeting soon that will explore seal issues in more detail with industry partners.

Waitrose/Aquascot have indeed agree to join the SASWG and have been included in this email (AP7).

Other news:

- Sainsbury's and MHS have agreed to fund us (SMRU) to do a small study to look at the issue of sound shadowing – that is to see if we can find areas around a farm site with ADDs where sound shadows might exist, and which seals might exploit. We have taken extensive acoustic measurements from one MHS site and my research assistant is currently working these data up – and is nearly done.

- We (SMRU) have just submitted a draft final report to SARF looking at seal behaviour in relation to nets in captivity –some interesting findings I hope we can share at the next meeting.
- I understand [REDACTED] has been to Canada and has asked industry people there about their approach to damage caused by seals – I understand from [REDACTED] that anti-predator nets are widely used; not so clear about ADDs.

If others have any news on the action points above – or any other issues of relevance to SASWG – please advise me or the group and I can prepare a draft agenda.

With best wishes

[REDACTED]

[REDACTED]
Sea Mammal Research Unit
University of St Andrews
Bute Building
Queens Terrace
St Andrews
Fife KY16 9TS
[REDACTED]

From: [REDACTED]@st-andrews.ac.uk>
Sent: 05 April 2016 17:24
To: [REDACTED], International Animal Rescue; [REDACTED] Sainsbury's; [REDACTED] (Seal Protection Action Group); Cathy Tilbrook; [REDACTED] Marine Scotland; [REDACTED]@waitrose.co.uk); [REDACTED]@rspca.org.uk); [REDACTED] SSPO; [REDACTED]@bornfree.org.uk); [REDACTED]@freedomfood.co.uk); [REDACTED]@rspca.org.uk); [REDACTED]
Cc: [REDACTED]
Subject: Caroline Carter
SASWG 16

Dear All – a little later than I had hoped – please find attached a slightly revised version of the draft agenda I circulated two weeks ago.

I also attach three documents that address two of the action points from the last meeting and one of the current agenda items:

- First – a summary of the latest shooting figures – compiled by [REDACTED]
 - Second– a report of the Freedom Food Members meeting was circulated some months ago
 - Third - a compilation of two documents I have circulated in the past – intended to address an action point on me to summarise the research options that the group has discussed over the years.
- It represents my views only and much of it was initially drafted you may recall in the development of our website.

Finally- the unapproved minutes of the last meeting

I look forward to seeing you all tomorrow at 10:30 in Rosyth.

[REDACTED]

[REDACTED]
Sea Mammal Research Unit
University of St Andrews
Bute Building
Queens Terrace
St Andrews
Fife KY16 9TS
[REDACTED]

Previous roundups of research items and discussion points under the SASWG

From 2014 Subgroup report: Group's Opinions on Which Methods are Most Promising

<u>METHOD</u>	<u>Average Rank</u>
1. Modifications and improvements to ADDs (including triggered devices)	3.0
2. Improved understanding of how seals are able to damage fish without holing the net	3.3
3. Measures for validating acoustic deterrents functioning properly	4.3
4. Analysis of existing data on site characteristics and seal damage and seal shooting	4.5
5. Improvements to net tensioning	4.8
6. Trialling new netting materials	5.0
7. Approaches in other countries	5.3
8. Use of lower frequency transducers (maybe should be included in mods to ADDs above)	6.0
9. Use of electric fields as a deterrent	6.5
10. Lighting or not lighting as a deterrent	9.0
11. Aversive tastes	9.8

From paper circulated

Main themes and benefits of SASWG (SN view (2012)):

ToRs drafted and agreed. Built confidence and understanding among various interested parties. Improved dialogue to help better address the issues. Membership expanded to include Scottish Government, SSPO, other fish farming companies.

Focused attention on a wide variety of concerns about how and why seals cause damage to farms.

Explored numerous ideas and options for minimising seal damage and the motivation for seal shooting: these have included -

- Use of ADDs
- Novel acoustic measures (██████████ device)
- Dummy killer whales and killer whale noises (no effect – ██████████)
- Best practice in using ADDs (check they are working)
- Anti-predator nets
- Net tensioning
- New netting materials – Dyneema – Aquagrid and Micanti, copper nets (MH)
- Avoiding proximity to seal haul out sites
- Bubble curtains
- Emetics
- Electric fields ...

Explored factors that may contribute to elevated damage levels and risk of shooting:

- Proximity to seal haul outs
- Wider geographical location
- Stage of production cycle
- Season
- Species?

Monitoring and encouraging:

- Industry trials of new procedures / equipment
- Licencing scheme process and RSPCA guidelines and Freedom Food verification: 'best practice'
- Relevant academic research and development

Have developed a work plan that currently includes four themes:

- Collating information (via FF and licencing scheme) on
 - o shooting incidents to understand what is not working in such circumstances and why
 - o fish farm practices at sites with and without shooting to identify what is working
- Investigating seal behaviour to better understand successful seal attacks occur
- Promote development of ADD testing kit to ensure ADDs are functioning as expected
- Promote urgent development of more effective, more porpoise friendly, ADDs.

In more detail, we:

- Have reviewed what processes seem to be most effective in reducing seal damage – these mostly involve better attention to husbandry techniques – properly tensioned nets, frequent and effective mort removals, use of seal blinds, proper use and maintenance of ADDs etc.
- Included Marine Scotland in the group and discussed with them the information being collected on the licence application forms and how that might be analysed.
- Have reviewed and commented on the licencing process that controls the number of seals salmon farms are allowed to shoot, and in particular made recommendations about the need to collect information on seal damage and net types as part of the licencing procedure. Specifically – details of the numbers of fish damaged or killed, whether or not ADDs were being used and what type, what methods of tensioning are in use and what cage type is being used.
- Had hoped to help and follow the commercialisation of a new acoustic deterrent system: this has become mired in problems concerning finance, engineering and patents, but is ongoing.
- Noted and followed work of the containment group – a part of the Marine Scotland Aquaculture Framework Review process. Draft report now produced and is being discussed by SASWG.
- Encouraged trials on electric fields – now funded by SARF.
- Contacted SSPO to see if we could build a better picture through them of what measures are being used at each site and how those measures are related to damage levels.
- We have engaged with WWF and SNH about possible curtailment of ADD use, which might result in increased levels of depredation, damage and shooting.
 - Have followed up questions about why anti-predator nets are generally not in favour.
 - Have pressed for the development of a testing device to check that ADDs are functioning correctly.
 - Have reviewed trends in kill numbers and damage levels over recent years and explored why these have been coming down so rapidly.
 - Have pressed for timelier reporting under the seal licence scheme
 - Have noted an apparent change in the seal haulout of numbers close to farm sites in the Strathclyde region – though no overall decline – which deserves closer investigation.
 - Have investigated differences in damage levels between and among farm sites; proximity to seal haul outs does not seem to be related to damage levels; damage most frequent after

first 7 or 8 months in a production cycle; damage appears to be most prevalent in certain areas. Peak damage is around month 10 of the cycle. No obvious relationship between how long a site has been operational and damage levels.

- Have focused on why and how seal attacks occur. Have noted stereo typical bite types suggesting attack from below – further suggesting bottom of the nets are the weak point, and noted that contrary to previous speculation, seals are not specifically targeting salmon livers; more likely they bite the easiest part of the fish they can reach.
- Have raised concerns about when shooting seals may be justified – and whether fish welfare is an adequate reason in the absence of any actual depredation; FF scheme requires evidence of actual damage.
- Discussions have led to RSPCA revising their guidelines, and FF consequently requiring further demonstration of need to shoot seals as last resort.
- Have agreed that it is important to collate information on what has happened each time it is deemed necessary to shoot a seal to better understand what goes wrong when seals are shot. Discussing how best to do this.
- Have agreed that it is also useful to see what is being done on sites and at times when no damage is being caused; ongoing discussion.
- Have agreed that research into how, why and when seals attack salmon pens is important and useful.
- Have agreed that where ADDs are deployed it is very important to know if they are functioning correctly and that suitable testing equipment needs developing
- Have funded development of a prototype testing device to measure source level (output volume) for each transducer (FF funded).
- Have agreed that new designs of ADD that are less disturbing to cetaceans are needed and have tried to assist in the market development of one such device.

Seal shooting: Key issues to address and consider taking forward

Funding

- 1) How do we go about managing funds for getting research done?
 - Possible routes – use RSPCA as a front for funding – to hold funds on an ad hoc basis
 - See if SASWG itself could be a funding body – what legal admin constraints
 - SARF – possible links – could we co-opt them
 - ***Best option may be to fund a PhD studentship (an experienced candidate is available) – which would have advantages of :***
 - a) probably being cheaper than commissioned research
 - b) enabling one person to get to grips with several issues at the same time

Other issues

- 2) **Carcass collection** – can we improve the carcass collection scheme – but maybe via Marine Scotland?
- 3) **Investigative team** - What do we do to investigate promptly when high levels of damage occur at a site precipitating shooting.... who will or can investigate and how? What resources are needed or available? What are the constraints?

Research topics

- 4) Analysis of data on damage and shooting
 - Company records - analyse data going back years (don't forget effect of lights)
 - Ongoing data collection / interviews by FF / RSPCA
 - Licencing scheme data from Marine Scotland
 - Feedback from companies about other approaches e.g. Econet

Explore funding some research analysis on each and all of the above areas by, or in co-operation with, Industry / RSPCA / Scot Gov.

- 5) **Cameras on site** - Get cameras on sites with problems to find out more about seal behaviour. This would require complete cooperation from industry and would need to address any industry concerns about footage of seals damaging fish, but there are ways of doing so.

6) **Net trials** - Do more trials in the SMRU seal pool to explore how different netting materials affect the ability of seals to take fish from behind them (e.g. net stretchiness or how easy it is to manipulate) -

7) **ADD testing stick** – explore this further and get a better prototype developed for wider use.

8) **Electric fields** - Possible further work either testing or developing deterrent

7) **Taste or texture aversion** - Can we make nets taste or feel bad enough that seals do not want to touch them.

8) **Computer modelling** – to look at net design, deformation and tensioning

(9) **Seal trap** – develop a seal trap and possible relocation programme, tagging and release to see if animals return. Trial would mean zero kills and possibly offer solution to predation issue as habituated seal most likely to be caught and removed. Thought needed re lactating females, however capture may per se deter further attacks

(10) **Other countries** - What's going on in other countries –something the aforementioned student could undertake as part of a PhD programme? Methodical search required – personal contacts needed. This work would be best focused on countries that do not allow lethal control.

Salmon Aquaculture and Seal Working Group Meeting 16

6th April 2016

10:30-15:00*

Marine Harvest Scotland, Admiralty Park
Admiralty Road, Rosyth, Fife KY11 2YW

Attendees:

Confirmed attendees

1. [REDACTED] - Marine Harvest
2. [REDACTED] - Waitrose
3. [REDACTED] - Aquascot
4. [REDACTED] - Born free Foundation
5. [REDACTED] - International Animal Rescue
6. [REDACTED] - Seal Protection Action Group
7. Caroline Carter as alternate for Cathy Tilbrook - Scottish Natural Heritage
8. [REDACTED] - Freedom Food
9. [REDACTED] - Freedom Food
10. [REDACTED] - RSPCA
11. [REDACTED] - RSPCA
12. [REDACTED] - RSPCA
13. [REDACTED] - RSPCA
14. [REDACTED] - Sea Mammal Research Unit
15. [REDACTED] - Sea Mammal Research Unit
16. [REDACTED] - SSPO

Making a presentation: [REDACTED] : Pulcea Ltd

Apologies

1. [REDACTED] - Marine Scotland
2. [REDACTED] - Crown Estates
3. [REDACTED] - Sainsbury's

DRAFT AGENDA

1. **Opening matters (standing items):**
 - a. Introductions and Housekeeping
 - b. Minutes from Meeting 15
 - c. Working Group Operation and Membership
 - d. Previous Actions.
2. **Latest SG Seal Shooting Figures**
Discussion paper by [REDACTED] circulated
3. **Update from Marine Harvest ([REDACTED])**
Results of investigations into factors underlying seal shooting in 2015
4. **Update from FF/RSPCA ([REDACTED])**
 - a. Progress on liaison/discussions with members
 - b. Improving information gathering on seal incidents
5. **Progressing the aims of the SASWG – future directions.**
6. (about 12:30) – “ADD’s - can we learn from the lessons of the past?”
Presentation by Pulcea – [REDACTED]

(Lunch provided by MHS - around 1pm or after Item 6)
7. **Recent Research Results - SMRU ([REDACTED])**
 - a. Report on captive seal behaviour with nets & salmon, & tests on netting properties
 - b. Report on sound field mapping of a site with ADDs and ongoing seal depredation
8. **Any Other Business**
9. **Next meeting**

Actions from last meeting August 2015

1. RSPCA/SMRU to organise a meeting with marine Scotland to discuss FF 'last resort' requirement and its applicability to government license conditions
2. FF/SSPO to consider ways of improving information gathering on seal predation mitigation techniques and dissemination within industry
3. ■ to circulate list of issues, group to comment on points worth seeking industry feedback on (document attached – research themes and discussion points)
4. FF to circulate questions to industry members based on agreed key issues with a view to getting responses in time for December STAG meeting
5. FF (in consultation with MH/SMRU) to approach ADD manufacturers to follow-up on feedback on device innovation and monitoring, and arrange a meeting
6. MH to report back to group on its investigations into increased seal shooting incidents in 2015, and to feed back to FF on how standards might evolve in light of its findings
7. ■ encourage Waitrose/Aquascot to participate in the group
8. FF to inform the group on the agenda and outcomes of its October meeting with its members (document attached - FF members meeting)

Salmon Aquaculture and Seals Working Group Meeting No 16

April 6th 2016, Marine Harvest, Rosyth

Draft Minutes for Approval at 17 meeting

Present:

██████████ (SMRU – Chair), ██████████ (Marine Harvest – Host), ██████████ (RSPCA), ██████████ (Aquascot), ██████████ (Waitrose), ██████████ (RSPCA), ██████████ (Seal Protection Action Group), ██████████ (RSPCA), ██████████ (Born free Foundation), ██████████ (International Animal Rescue), ██████████ (RSPCA), ██████████ (Freedom Food), ██████████ (Freedom Food), Caroline Carter (standing in for Cathy Tilbrook – Scottish Natural Heritage), ██████████ (SSPO), ██████████ (SMRU – minutes), ██████████ (SNH – remote)

Previous minutes:

██████████ had pointed out that AP 4 should not have been directed at FF. The substance of AP 4 is anyway subsumed into a wider initiative by FF to organise a workshop with members to address key issues.

Minutes approved subject to above.

Actions arising from previous meeting as listed:

1. RSPCA/SMRU to organise a meeting with marine Scotland to discuss FF 'last resort' requirement and its applicability to government license conditions
2. FF/SSPO to consider ways of improving information gathering on seal predation mitigation techniques and dissemination within industry
3. ██████████ to circulate list of issues, group to comment on points worth seeking industry feedback on (document attached – research themes and discussion points)
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7. ██████████ encourage Waitrose/Aquascot to participate in the group
8. FF to inform the group on the agenda and outcomes of its October meeting with its members (document attached - FF members meeting)

[REDACTED]

Update from [REDACTED] on Freedom Foods progress/liaison

- In process of arranging meeting between stakeholder companies (FF have 7 company members)
- Would like to invite netmakers, ADD manufacturers etc. to 'pitch' new ideas for predator mitigation devices/techniques at this meeting
- Questions asked about what is happening to new 72-hour reporting data
 - No analysis has been done, but this may be possible in time
- [REDACTED] has spoken to 7 sites shortly after shooting has taken place, one in person, six via telephone interview
- [REDACTED] asked whether there was scope for collecting data/interviews/checking for 'last resort' status *before* shooting has taken place
 - In some cases, this does happen
 - Ramifications for not meeting protocols were serious: no precise details given
- Action [REDACTED] to organise meeting with FF members to address seal concerns

Presentation from [REDACTED] (PULSEA)

- Will be developing a new pulse emitting device to deter seals
- Will be looking for sites to test device and run studies

Presentation from [REDACTED] on recent research at SMRU – University of St Andrews

- SARF funded project using SMRUs captive seal facility to examine how seals manipulate fish through nets
 - Seals difficult to train to take fish through netting – not innately obvious to them
 - Seals prefer to use flippers to manipulate fish
 - Very hard to bite fish through meshes unless they can also hold them in a fold of netting ...
 - Seals able to exert a surprising amount of force (up to 1000N)
 - Mechanism mainly uses head lunges – neck/shoulder muscles not 'ramming'
 - Even smaller animals expected to be able to move base of a typical net by around 30cm do to nylon elasticity.
- Marine Harvest & Sainsbury's funded project looking at sound propagation of an Airmar and Ace-Aquatec device
 - Single transducer showed that sound shadowing can occur – a 3dB loss was found from one side of the site to the other due to netting and other infrastructure
 - But when 8 transducers in use – site was effectively saturated with signal
- Action [REDACTED] to circulate a copy of presentation, report and link to the videos

AOB

- [REDACTED] raised question of porpoise SACs – will they prevent the use of ADDs?
 - CC – SNH is currently consulting on plans for SAC, see website for consultation details and to contribute
 - See Management Options Paper (MOP) on website for reference as to where discussions have got to
 - SNH internal noise propagation modelling exercise considered the scale of potential HP disturbance zones.
 - Modelled disturbance zones were not large in comparison to the extent of the HP SAC – but highlighted potential barrier zones within narrows and straits (eg Sound of Mull)
 - They believe that there is no need to alter the status quo in any significant manner in response to the SAC
 - But they would like to continue to push toward more targeted devices, and SNH are currently supporting a project through SARF with this intention
- [REDACTED] asked for details on progress with startle response device
 - Concern that public money had been spent and the device is still not available
 - No-one aware of any progress since this was last discussed
 - [REDACTED] asked for a summary of history events – who should the group be asking/leaning on for details and to produce results?
 - Action [REDACTED] to circulate his own timeline on startle response device
 - Action [REDACTED] to make enquires about state of developments on the startle device within the University of St Andrews
- Future Directions for SASWG
 - AO concerned the group was not revisiting previous suggestions for research themes

- Eleven themes discussed*
 - It was felt that there is no suitable mechanism for the group to take action
- Action [redacted] to approach Knox nets and/or other net manufacturers to try to build on previous studies examining net deformation by seals in captivity
 - It was felt this could be an area where progress could be made

Next SASWG Meeting

- RSPCA offered facilities in Sussex for next meeting
- About 6 months' time
- Action [redacted] to consult with group on suitable dates later, and with [redacted] about venue availability
- [redacted] emphasised need for members to make extra effort to attend with the group's new biannual schedule.

Meeting closed at 1500

Draft Consolidated Action Points from SASWG 16

1. Action [redacted] to find regional figures for PBR calculations and circulate to group.
 2. Action [redacted] to check dates the ADD system was changed at Sconser in 2015– did seal depredation cease once a new ADD system was installed – or before, or after?
 3. Action [redacted] to circulate PDF of MHS presentation
 4. Action [redacted] to take suggestions for further analysis of shooting incidents back to MHS
 5. Action [redacted] to organise meeting with FF members to address seal concerns
 6. Action [redacted] to circulate a copy of presentation, report and link to the videos
 7. Action [redacted] to circulate his own timeline on startle response device
 8. Action [redacted] to make enquires about state of developments on the startle device within the University of St Andrews
 9. Action [redacted] to approach Knox nets and/or other net manufacturers to try to build on previous studies examining net deformation by seals in captivity
 10. Action [redacted] to consult with group on suitable dates later, and with [redacted] about venue availability
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* The eleven themes or areas for further work previously identified by the Group are:

Working Group's Opinions on Which Methods are Most Promising

METHOD	Average Rank
1. Modifications and improvements to ADDs (including triggered devices)	3.0
2. Improved understanding of how seals are able to damage fish without holing the net	3.3
3. Measures for validating acoustic deterrents functioning properly	4.3
4. Analysis of existing data on site characteristics and seal damage and seal shooting	4.5
5. Improvements to net tensioning	4.8

6. Trialling new netting materials	5.0
7. Approaches in other countries	5.3
8. Use of lower frequency transducers (maybe should be included in mods to ADDs above)	6.0
9. Use of electric fields as a deterrent	6.5
10. Lighting or not lighting as a deterrent	9.0
11. Aversive tastes	9.8

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