

Agreed Minutes of working group meeting SASWG

Present: [REDACTED], [REDACTED], [REDACTED], [REDACTED].

At MHS, Ratho, Edinburgh. 11th March 2014

Opening Discussion focused on the fact that MHS has reduced the level of lethal removal to just 5 animals in 2013, that this represents about 17% of all operating sites (but a much higher proportion of total production) – and so if all sites were operating in a similar way the annual total seal removal level would be expected to be around 30 seals, whereas the total is more likely around 150¹.

So how do we persuade other companies to adopt predator control strategies like MHS? It was pointed out that much of the shooting is now taking place in the Northern Isles where conditions (grey seal density) may be substantially different from the west coast.

It was agreed that **the chair would contact** [REDACTED] **at Shetland Aquaculture²** to see how SASWG might engage with the Shetland sector at least.

The remit of the working group is to review and revise the SASWG Work plan. The previous meeting had led to the following work plan:

Fast track:

1. Progress with Net trials
2. Startle response ADD
3. Acoustic testing Stick
4. Data Analysis
5. Electric fields

Middle track:

6. Net aversive taste
7. Lights
8. Triggered ADDs
9. What else is being done in other countries

These actions were reviewed in turn, and the working group then tried to identify any potential new actions and prioritise a revised work plan. [REDACTED] also tabled a list of contributing factors for reduced seal shooting on MHS salmon farms with which the above list can be compared (see Annex).

¹ Actually 105 as we have recently seen, reflecting the continued downward trend.

² Has now been done - chair is following up.

1. Progress with Net trials.

These were mainly being undertaken by MHS. Four different net types are being trialled:

- a. HDPE 'knotty' mesh – also includes other polymers made by Garware and sold by Star Nets – being tested at one site currently
- b. Sapphire HDPE also being tested at one site currently (Sapphire is by Garware?)
- c. Sapphire Ultracore - very stiff- this includes a steel core – not yet being tested.
- d. Copper net trial still ongoing – very - very heavy and unlikely to be useful.

Other netting types also trialled at MHS have included:

- Dyneema which MHS still has some of but most useful in freshwater sites – it is hard to control as it floats and hard to rig onto nylon ropes too.
- Aquagrid was tested a while ago and found to be too stiff and hard to manage,

Testing nets is a trial and error process – not a scientific trial, and will depend on the eventual verdict of the site manager. Net stiffness seems to be the key. Stiffer nets might help stop seals grabbing fish through the net.

- It might be useful to test whether newer netting material like HDPE make it more difficult for seals to take fish through a net under the SARF project with captive seals.

Otherwise, stronger nets should also be good at stopping seals making holes, though this is a less frequent though potentially more damaging occurrence than biting fish through a net. It was also suggested that the knots (some meshes are knotted others knotless) may help reduce seals' ability to grab fish, especially if they are moribund or resting on the bottom).

Press reports that Hjaltsland are testing a new netting material called Econet (from Akva made from Polyethylene Terephthalate – see <http://www.akvagroup.com/products/cage-farming-aquaculture/nets/econet>) were also noted, and again the lack of contact between SASWG and Shetland companies was noted. It would be useful to find out more about Econet and how well it performs.

It was agreed that **SASWG needs to adopt a watching brief**, as such trials cannot easily be fast tracked. **The chair would also contact [REDACTED] at Shetland Aquaculture for further information.**

2. Startle Response ADD

A continuing sense of frustration that the 'novel' startle response deterrent may not be any closer to deployment was noted. Two potential approaches were suggested

- Check with SSPO to find out if any Scottish company had agreed to test the device (as claimed by Banker's Capital) – AP from SASWG 13 too.
- Expose manufacturer to public pressure via the SASWG website or via the press.

Both approaches to be discussed at next full SASWG meeting

3. Acoustic Testing Stick (ATS)

It was agreed that this action now encompasses ADD manufacturers' attempts to increase the ability of the site staff to identify faulty transducers – 'Acoustic testing' might be a better phrase to capture this extended meaning as it need not involve the ATS as such.

Disappointment was raised that the prototype ATS is not being used proactively by FF members, but rather by one inspector.

- Discussions are ongoing between JG and FF on the ATS about how it has been used and how it can be improved. **Chair to report back to main group.**
- Manufacturers are responding generally positively to the enquiry on how they are dealing with the issue of being able to check on transducer performance
- **SSC would like to test the ATS when they can.**

4. Data analysis

Analysis of existing data is ongoing at SMRU. Streamlining data collated in the seal licencing process might make it easier and quicker to find reasons why some sites are shooting more frequently than others. Discussions with Marine Scotland on the information requested on licence application forms and returns might also help address the same question. An analysis of seal shooting numbers at sites with and without ADDs was suggested.

- Trials of cetacean friendly ADDs at sites where they have not so far been allowed was suggested.
- It was suggested that the Chair speak to SNH about which sites cannot use ADDs.³
- It was also suggested that SSPO might be able to help identify sites not currently using ADDs for whatever reason.

5. Electric field studies

One study for SARF has been completed (██████████ at SMRU). ██████████ is still putting together a proposal for a follow up study. RD mentioned that the approach was also being looked into by a commercial company, but commercial confidentiality means that there are no details at present. No additional actions were suggested under this heading.

6. Aversive tastes.

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- ³ *Post meeting SN spoke to SNH Shetland – there are two Shetland sites, Yell Sound and Scapa Flow, where SNH has objected to the use of ADDs. (These are in addition to Bloody Bay in Mull, and possibly other sites). Objections are not just because of potential impacts on porpoises- but also on seals themselves if near to an SAC for seals. There is no comprehensive list of which sites have ADDs and which don't nor any list of sites where SNH has objected. SNH can object during the planning process but in many cases this may have been more than a decade ago. A comprehensive list would require going through all site licences, but these should be available online. It is also the case that some sites may have decided not to include the use of ADDs in their planning application for fear that this might conflict with conservation objectives.*

There is no industry appetite for this approach. It might either be deleted from the list or confined to research with ex-situ trials on captive animals or animals in other contexts⁴.

7. Lights

There was some ambivalence about this idea – that lights might hinder (or help) seals in taking fish. It was agreed that information on the method of attack by seals is needed first.

8. Triggered ADDs

It had been suggested that the use of triggered ADDs might make them less disturbing to cetaceans and might make ADDs more effective in minimising the chance of habituation by seals.

- Active Sonar is being tested at SSC – High Definition Multi-beam sonar is recording footage of seal behaviour up to 100 metres away, with the aim that this should be used to trigger an aversive deterrent noise by the ADD.
- It was suggested that this and other similar triggering approaches might be included in the “Startle Response ADD” task in a more general task to address “Modifications and improvements to ADDs”.

9. What else is being done in other countries?

Little progress has been made on this task – it was suggested that it would be worth trying to put a contract together to get a comparative review done.

Two further issues were discussed:

- Lower frequency transducers that might be less disturbing to odontocete cetaceans while still being effective for seals. A possible consequent impact on baleen whales was noted, and needs exploring. This might be included in ADD modifications?
- More information on how seals attack nets was also considered important. Such work is being undertaken by SMRU under a contract with SARF. More camera work on sites would be helpful.
- *(Improvements to net tensioning – not mentioned but in MHS list - added later!)*

In summary, the revised list of tasks is shown below. The Working Group ranked these approaches from most to least promising where 1 = most promising and 11 is least. Ranks were averaged and re-ordered to allow for differences of opinion.

⁴ This was discussed in the context of emetics and Conditioned Taste Aversion; post meeting the Chair realised that this was meant to refer to an earlier suggestion from SB that simply making the netting unpalatable might deter animals from trying to bite fish through it.

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

In discussion at the end of the meeting, the group returned to the issue of how best to include other companies in these discussions, and how to try to persuade them to adopt approaches similar to those used by MHS.

The approaches / factors deemed useful by MHS were tabulated by SB – see **Annex**.

It was suggested that the chair might:

- Speak to JW at SSPO to see if it would be possible to influence other companies via SSPO;
- Contact at least one other company – Dawnfresh – to ask how they are dealing with seal salmon problems (SSF, Meridian and Hjaltland have all been contacted previously with no responses);
- Speak to [REDACTED] at the Shetland Aquaculture with a view to contacting companies in Shetland

ANNEX: Contributing factors for reduced seal shooting on salmon farms

	Factor	Reason	Comment
1.	High net strength	Disposal of nets after set number of years. Usually this is four to five years after which time the net is recycled into fibre and use for other purposes.	Any breach of the net allowing a seal entry is minimised.
2.	New and stronger net materials	HDPE, Dyneema, PET	Any breach of the net allowing a seal entry is minimised.
3.	Net design incorporating seal blinds	By installing finer mesh material on the base of the net the seal is unable to see any mortality.	
4.	Regular mortality removal	Carried out on a frequent basis (one to two days) this removes the smell/taste of mortalities reaching seals nearby. The temptation to attack is thereby reduced if there are no dead salmon to eat.	
5.	Net weighting systems	Well weighted and taut nets make it harder for seals to attack fish swimming in the pens.	
6.	Restraint	Farm staff are well aware of the adverse publicity surrounding the shooting of seals.	Farmers do not wish to see their loch linked to seal shooting
7.	Administration/reporting	Internal company reporting schemes demand greater scrutiny of evidence before a seal is shot.	
8.	Public reporting of seals shot	Since 31 January 2011, any fishery or fish farm in Scotland that requires to manage seals at any time of year, to prevent serious damage to fisheries or fish	Farmers do not wish to see their loch linked to seal shooting

		farms or to protect the health and welfare of farmed fish, will need an annual Seal Management Licence. These figures are publicly reported	
9.	Seal scarers	Better equipment which is better maintained	Required to be in place and working if there is a problem with an attacking seal
10.	RSPCA Freedom Food	The RSPCA welfare standards for Farmed Atlantic salmon state clearly what is required to protect salmon from other animals that could cause them harm	Scheme is audited by Freedom Food and RSPCA farm livestock officers
11.	Larger and fewer pens on farms	The increased size of individual nets and lower stocking densities at 15kg/m ³ make it difficult for seals to attack salmon	