



Scottish Natural Heritage
Dualchas Nàdair na h-Alba

All of nature for all of Scotland
Nàdar air fad airson Alba air fad



By email: [REDACTED]

Our Ref: SIR149164/A2536453

14 February 2018

Dear [REDACTED]

Information Request – SNH’s Past and Current Policies and Practices Regarding Fish Farms, Including the Use of Acoustic Deterrent Devices (‘ADDs’)

Thank you for your information request, which we received on 18 January. We have considered your request under the Environmental Information (Scotland) Regulations 2004 (‘the EIRs’).

I would first of all like to explain how we have handled the questions in your letter. The access to information legislation gives a right of access to recorded information, for example information in documents, reports, letters, emails, models or maps. When we reviewed your letter we noted that a lot of your questions are asking us for statements of opinion or if we agree or disagree with certain points, rather than asking us for recorded information, and so these are not covered by the access to information legislation.

We have therefore reviewed your letter and identified the parts which are asking for recorded information, and we are responding to those in this information request response. We will also respond to the other matters you raise, but we will do that separately and out-with the access to information legislation. George Lees from our Coastal and Marine Ecosystems Unit will contact you regarding this.

I have listed each of the parts of your letter that ask for recorded information below, along with our responses.

Question 8:

Please provide full details of the acoustic modelling SNH undertook for Shuna Sound to inform their decisions on the Port na Cro Planning application. Please show the input values, the calculations and the predicted sound levels at distances of 0 to 20kms from the ADDs with all ADDs operating at full power. Did this modelling prove beyond all reasonable scientific doubt that no porpoise could be disturbed at any distance from 4 Terecos ADDs at Port na Cro? If your answer is in the affirmative, please explain your reasons.

Our modelling exercise was not focused on Shuna Sound specifically, but was undertaken before the Port na Cro consultation as part of our work on the designation of the harbour porpoise cSAC. The aim was to understand the potential scale of ADD influence throughout the entire cSAC.

Underwater noise propagation in shallow waters is highly complex and, although modelled, the degree of accuracy of the predictions often depends on the complexity of the model and ideally requires ground truthing measurements. There are a wide range of modelling techniques and it is possible to obtain very different predictions depending on the model selected. Simple models do not account for site specific environmental variables.

Fish farms are usually situated in relatively sheltered locations, sheltered by the mainland or by islands nearby. This topography as well as bathymetry and seabed type will have an effect on how sound propagates. Rather than model the complexity of the entire cSAC we decided to gain a broad-brush indication of the degree of disturbance that we might expect from ADDs. We modelled propagation loss using the semi-empirical expressions of Marsh and Schulkin (M&S) (Urick 1983)¹. These equations incorporate parameters for the depth of the water column, sound absorption, shallow water attenuation and near field anomalies and allow for seabed type and sea state to be considered.

The M&S model is a set of equations that cater for different ranges. Different equations are used for the different ranges to represent how the sound travels over distance relative to the distance from source and relative to the depth of water.

$$\text{Eq.1 } H=[1/8(D+L)]^{1/2} \text{ (km)}$$

Where, D= depth and L = layer depth

Where H is greater than range R, the short-range expression was used

$$\text{Eq.2 } TL=20\log R + \alpha R + 60 - KL \text{ (dB)}$$

Where, R is range, α is the absorption coefficient in dB; 60 is the conversion factor related to the change in units between source level @1m and range in km; KL is a near field anomaly obtained from a look up table.

Where H is less than or equal to R

$$\text{Eq.3 } TL=15\log R + \alpha R + aT(R/H-1) +5\log H + 60 - KL \text{ (dB)}$$

The M&S model is a general model, but is based on approximately 100,000 measurements obtained in shallow water and is therefore thought to be slightly more realistic than simplistic models. However, it is still a relatively simple model with all the usual model caveats.

Parameters used:

- Sea state 0 – as worst case; a calm sea would allow the sound to travel further and be less likely masked by the weather
- Sandy sea bed
- Layer depth of 5m
- Water depth 30m
- Sound frequency – 10 kHz

¹ Urick R.J. (1983) *Principles of underwater Sound*. 3rd Ed. McGraw-Hill, Inc. USA

We used literature source levels for the Airmar transducer, and the Terecos transducer in keeping with Lepper et al (2014)² (for levels at 10 kHz), and then estimated the area disturbed relative to a disturbance threshold. However, as stated in our letter to Mrs Ainsley of the 28th March 2017, there are no agreed disturbance thresholds because an individual's response to a noise cue is highly dependent on context. Southall et al (2007) do not present thresholds for disturbance stating that there is not enough evidence to enable definition. Similarly, the new NOAA thresholds do not define a threshold. In order to gain the broad-brush assessment this modelling exercise used the NMFS (1995) Level B harassment³ for cetaceans exposed to continuous sounds of 120 dB re 1µPa (RMS).

Disturbance radii estimated from the different devices ranged from approximately 100m for the Terecos to 2.5km for the Airmar types. We compared this with the transmission loss estimated by Lepper et al (2014) which suggested the M&S model we used to be not as conservative as the more complex model Lepper used. Coram et al (2013)⁴ presented a disturbance radius of 3.5km. Brandt et al (2013)⁵ found a disturbance effect at 7.5km from a Lofitech ADD. We therefore have used these models as guidance and context only rather than evidence of the true propagation.

For this modelling exercise, our aim was to consider the overall disturbance effect for the cSAC. We therefore estimated the percentage of the cSAC potentially disturbed from a range of active fish farms, within the cSAC and with potential connectivity to the cSAC. To estimate this, we used the radius for the louder Airmar type devices, rather than trying to replicate all types of device used.

The model output is shown in Annex 1. Although we carried out this modelling exercise, we highlight that the extent to which behavioural change and avoidance are dependent on received levels is highly variable and context specific.

We do not state that there will be zero disturbances from the use of the Terecos system at Port na Cro: it is not possible using available evidence to state that categorically. However, our understanding of the acoustic characteristics of this device type and the intermittent use led us to advise the Local Authority that there would be no likely significant effect on the harbour porpoise cSAC from this application. Also considered when arriving at this conclusion was the understanding that a Terecos system was already in use at that location. This conclusion on no likely significant effect was based on the understanding that any potential disturbance would not be significant, as termed in the draft conservation objectives. However, internal guidance on this subject which was not available for the Port na Cro application has since been developed (this is currently undergoing internal review prior to release). This guidance sets out a standard approach to considering the use of ADDs within the cSAC and will ensure that a consistent approach is applied. While we stand by our conclusion that the potential disturbance as a result of the Port na Cro application would not

² Lepper PA., Gordon J., Booth C., Theobald P., Robinson SP., & Wang L (2014) Establishing the sensitivity of cetaceans and seal to acoustic deterrent devices in Scotland. Scottish Natural Heritage Commissioned Report No. 517

³

http://www.westcoast.fisheries.noaa.gov/protected_species/marine_mammals/threshold_guidance.html

⁴ Coram A., Gordon J., Thompson D., & Northridge S (2014) Evaluating and assessing the relative effectiveness of non-lethal measures. including Acoustic Deterrent Devices, on marine mammals. Scottish Government.

⁵ Brandt MJ., Hoschle C., Diederichs A., Betke K., Matuschek R., Witte S., & Nehls G. (2013) Far-reaching effects of a seal scarer on harbour porpoises, *phocoena phocoena*. *Aquatic Conserv: Mar. Freshw. Ecosyst.* 23:222-232

be considered significant, we can confirm that going forward our advice will be that any ADD within the cSAC will result in a LSE and further assessment will be required to conclude that there will be no adverse effect on site integrity (based on reaching the same conclusion that any potential disturbance must not be significant), before consent can be issued.

Question 10:

Was a study carried out on the cumulative effects of the ADDs used on other nearby fish farms to inform the advice given by SNH to the planners concerning the grant of planning permission for ADDs at Port na Cro farm? Please supply the study if it was carried out.

A cumulative study was not conducted by us in connection with this application specifically. In our response to Question 8 we have provided details of the assessment carried out to inform our advice to the Local Authority.

Question 14:

Have any Article 6(3) Appropriate Assessments been carried out on the impacts of ADDs at individual farms within the Inner Hebrides and the Minches cSAC or elsewhere? Where Appropriate Assessments have been carried out please provide links to them, where Appropriate Assessments have not been carried out, please explain your reasons for not carrying them out.

Appropriate assessments are the responsibility of the competent authority. The Local Authority is the Competent Authority under Town and Country Planning and it is therefore their responsibility to undertake an appropriate assessment if they conclude there is a Likely Significant Effect on the feature of the SAC. Please see our response to Question 8 for the advice we provided to the Local Authority on this.

Question 15:

Has an Article 6(3) Appropriate Assessment been carried into the cumulative effect of all ADDs within the Inner Hebrides and the Minches cSAC? If it has, please supply the Appropriate Assessment. If no Appropriate Assessment has been carried out because it was deemed unnecessary, please supply the information used to determine the cumulative effect of all the ADDs in the cSAC and decide that Appropriate Assessment was not necessary.

Please see our response to Question 14 above.

Question 27:

At what distance from the 4 ADDs at Port na Cro did the SNH officer deem acceptable for porpoise to be disturbed without triggering an Article 6(3) Appropriate Assessment? What sound level in dB re 1 μ Pa rms was predicted by the model at this distance? Did SNH measure propagation loss at the Port na Cro site? If they used an estimated propagation loss what value did they input into the model?

In advising the Local Authority on this application, we considered whether the ADD use proposed would have a likely significant effect on the Inner Hebrides and Minches cSAC. For the reasons outlined under Q8 above, we advised that there would be no likely significant effect on the cSAC. We did not measure, specifically, propagation loss at Port na Cro.

Question 31:

Technical methods such as closed circulation and antipredator nets of a mesh size and type which do not injure wildlife are used elsewhere in the world including Turkey, British Columbia and Tasmania to effectively separate seals and farmed fish, rendering unnecessary the killing of seals or use of ADDs. They also reduce the environmental problems and financial loss to farmers caused by escapes. Have SNH carried out studies, or are they aware of studies into technology, such as antipredator nets and closed containment, which are used elsewhere to negate the need to use ADDs and shoot seals?

We have not carried out studies of this nature and would see these as the responsibility of industry and the industry regulators. We are aware of work looking at technological advances in, for example, stronger netting and electric fencing, and closed containment. We are supportive of all moves towards the reduction of ADD use and seal shooting.

Access to Information Legislation (the EIRs)

We believe you have asked for environmental information as defined in the Environmental Information (Scotland) Regulations 2004 ('the EIRs'), so we are dealing with your request under those regulations. To be able to use the EIRs, we must apply an exemption under section 39(2) of the Freedom of Information (Scotland) Act 2002 ('FOISA'). The Scottish Information Commissioner's guidance recommends that public authorities apply this exemption to environmental information and handle requests under the EIRs.

If you would like to find out more about the access to information legislation there is a guidance booklet available on the Scottish Information Commissioner's website:

<http://www.itspublicknowledge.info/nmsruntime/saveasdialog.aspx?IID=5487&SID=5024>.

Review and Appeal

I hope this information meets your requirements but if you are dissatisfied with how we have responded to your information request, please write to us within 40 working days explaining your concerns. You can contact us at Battleby, Redgorton, Perth, PH1 3EW or email us at foi@snh.gov.uk. We will carry out a review of our response and contact you with our findings within 20 working days.

If you are not satisfied following this, you can make an appeal to the Scottish Information Commissioner. The Scottish Information Commissioner can be contacted at:

Scottish Information Commissioner
Kinburn Castle
Doubledykes Road
St Andrews
Fife
KY16 9DS
Online appeal service: www.itspublicknowledge.info/Appeal

Website: <http://www.itspublicknowledge.info/>

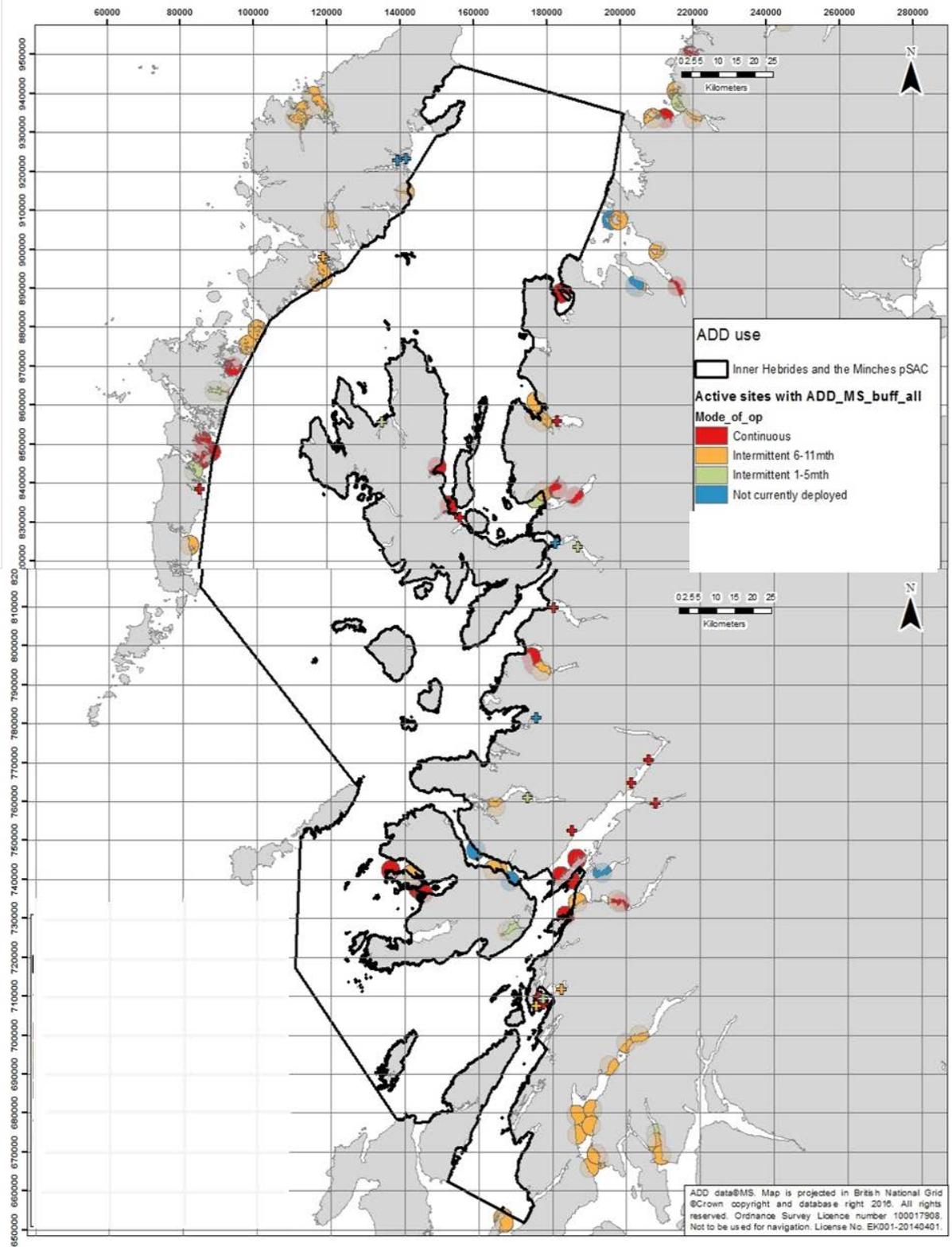
Telephone: 01334 464610

Yours sincerely

Rhoda Davidson

Rhoda Davidson
Information Officer
FOI@snh.gov.uk

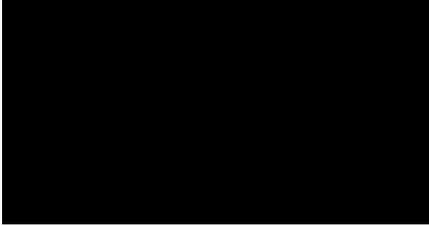
Annex 1





Scottish Natural Heritage
Dualchas Nàdair na h-Alba

All of nature for all of Scotland
Nàdar air fad airson Alba air fad



By email: 

08 March 2018

Dear 

Information Request – SNH’s Past and Current Policies and Practices Regarding Fish Farms, Including the Use of Acoustic Deterrent Devices (‘ADDs’): Follow-Up Response

On 14 February, we provided you with information sought in your letter to us, received on 18 January, that we considered to fall under the provisions of the Environmental Information (Scotland) Regulations 2004. The following letter provides some feedback, for information, on the other matters you raised.

Your questions were focused mainly on the technical aspects of sound propagation, the specific characteristics of the Terecos brand and our decisions based on this particular fish farm application. Therefore in this letter we have replied specifically to these technicalities. Having said that, we share many of your concerns relating to ADD use in general, as was highlighted in our response¹ to the Scottish Parliament Environment, Land Reform & Climate Change Committee’s recent inquiry into the environmental impacts of Scottish salmon farming. Before detailing our response to your questions, we draw your attention to two points.

- A. ADD deployment and use is not currently subject to a specific consenting or licensing process but forms one component within an overall fish-farm application, and associated Predator Control Plan, that is assessed by Local Authorities under Town and Country Planning legislation, and associated EIA and HRA requirements. Additionally, where there are particular issues in relation to disturbance of cetaceans, use of an ADD may require an EPS licence. EPS licenses in these circumstances are regulated and issued by Marine Scotland (Licensing Operations Team). While SNH may advise these bodies on aspects relevant to our remit, the final decisions rest with them and will, necessarily, take into account wider considerations and advice beyond natural heritage issues alone.
- B. In considering an Appropriate Assessment for an activity, such as ADD use, the Regulatory Authorities must consider if the proposed activity can be progressed without adverse effect on the integrity of the European site concerned. This decision is based on ensuring that the relevant Conservation Objectives for the site are

¹ http://www.parliament.scot/S5_Environment/Inquiries/048_Scottish_Natural_Heritage.pdf

maintained. Though still in draft, those for the Inner Hebrides and Minches candidate SAC are:

1. *To ensure that the Inner Hebrides and the Minches SAC continues to make an appropriate contribution to harbour porpoise remaining at favourable conservation status.*
2. *To ensure for harbour porpoise within the context of environmental changes, that the integrity of the Inner Hebrides and the Minches SAC is maintained through 2a, 2b and 2c:*
 - a. *Harbour porpoise within the Inner Hebrides and the Minches are not at significant risk from injury or killing.*
 - b. *The distribution of harbour porpoise throughout the site is maintained by avoiding significant disturbance.*
 - c. *The condition of supporting habitats and the availability of prey for harbour porpoise are maintained.*

Your questions 1, 2, 3, 4, 5 and 6 all relate to EPS legislation. Animals listed in Annex IV(a) of the Habitats Directive, whose natural range includes any area in Great Britain, are also listed in Schedule 2 of the Habitats Regulations as European Protected Species (EPS). Your questions focus on Regulation 39(2) which provides that it is an offence to “*deliberately or recklessly disturb any dolphin, porpoise or whale (cetacean)*”.

Activities that have the potential to disturb EPS can proceed under licence and, as above, Marine Scotland is the responsible body for marine EPS licences for commercial activities, including ADD use in connection with fish-farms. At the time of the Port na Cro application we were in discussion with Marine Scotland regarding EPS licences for ADD use by the aquaculture industry, and the circumstances in which a licence may, or may not, be required. This discussion is on-going. In the meantime, we direct you to the Marine Scotland EPS Guidance² (currently under review) for further information.

Many of your questions relate to consideration of this activity under Regulation 48 of the Conservation (Natural Habitats, &c.) Regulations 1994 as Amended (Habitats Regulations Appraisal), with regard to harbour porpoise as qualifying interests of the Inner Hebrides and the Minches candidate SAC.

The application for the re-equipment of the fish farm at Port na Cro, related to the upgrading of square pens to round cages, a new feed barge and an enlarged mooring area. Our understanding was that the farm already used ADDs as part of their predator control protocol. The Inner Hebrides and the Minches candidate SAC was submitted to the European Commission as a candidate site in September 2016. Therefore, this proposal was one of the first to be considered under HRA and was considered against the site’s draft Conservation Objectives (COs), as set out above.

As noted in our letter of the 14th February 2018, this particular application was considered during the development of internal guidance on the use of ADDs in the Inner Hebrides and Minches cSAC. We have looked at this proposal again in line with our developing guidance and are comfortable that our conclusion remains valid. If this proposal were to be assessed now, we would advise in the first instance that the use of any ADD type would be likely to have a significant effect on the site (LSE). We would then conduct an appraisal in order to advise the local authority as to the implications for the site in view of its conservation objectives. Although this process was not carried out in this manner for Port na Cro, we are confident that the level of detail considered in reaching our conclusion was of the same diligence.

Q7. We were aware that the Terecos system as proposed included four units. Reference in our advice to “an ADD of lower volume” referred to the make and model of ADD, not the

²Marine Scotland. The Protection of Marine European Protected Species from injury and disturbance. Guidance for Scottish Inshore Waters. <http://www.gov.scot/resource/0044/00446679.pdf>

number of units as you suggest. Even so, we do not agree that this would increase the source level by 6dB per unit. It is true to say that two equivalent sound sources, *i.e.* at the same frequency (pure tone) and at the same level, when completely in phase, can double the intensity resulting in 6dB increase in sound level. However, the Terecos unit produces a highly randomised sound pattern. The potential for multiple devices to be absolutely in sync is highly unlikely. Even if a particular frequency within the signal was in sync, it is important to remember that the overall source level as quoted is an integration of all component frequencies; each individually will be lower than the overall. Four devices will not increase the overall source level as much as you suggest.

We cover hearing damage in our response to Q13.

The decision on the suitability of any ADD system for Aquaculture is assessed on a case-by-case basis, and will depend on the detail of the application.

Q8. Covered in our previous response.

Q9. We detailed the model used in our previous response. We did not model distances for multiple devices for a number of reasons. Typically a generic source level is used for such modelling exercises. As stated above, this is an overall level integrating all frequencies emitted. We consider that this incorporates sufficient uncertainty in terms of variability in source level. We do not agree that the use of multiple devices increases the source level significantly and therefore the use of a 'typical' source level for modelling purposes is appropriate.

Q10. Covered in our previous response.

Q11. Our view is that the use of any ADD type has the potential to cause disturbance to harbour porpoise. The assessment under HRA considers the 'significance' in the context of the site Conservation Objectives, as outlined above.

Q12. The 'disturbance' standard referred to in this question relates to assessment under EPS. Again, we refer you to our earlier text.

Q13. This question relates to both the potential for hearing damage and to the assessment of 'significant' effects under HRA.

The Lepper et al (2014)³ report aimed to establish potential risks to cetaceans and pinnipeds from Scottish aquaculture. Their conclusion was that hearing damage from ADDs (in general) could not be ruled out, which we agree with. Their model is highly caveated in that they used a static animal movement element. This is clearly unrealistic. Lepper's work estimated for a stationary porpoise within 100m of the Terecos system, auditory damage is possible after about 2.5 hours; stationary within 500m potential auditory damage after 16 hours. This assessment was based on a single device with a duty cycle of 6.7%. Gotz and Janik (2013)⁴ have also modelled the risk of auditory damage; this study estimated it would take 19 hrs 17mins to accrue hearing damage within 295m, using a 33% duty cycle used to represent 3 Terecos devices.

We therefore consider hearing damage via instant or short-term exposure is highly unlikely for the Terecos device type.

This view also applies in relation to all device types, particularly if there is the assumption that individuals are disturbed from the immediate vicinity of the active ADD system, therefore they are unlikely to remain in the area long enough to accrue hearing damage. However, in

³ For brevity, citations referred to in our earlier response are not repeated herein

⁴ Gotz & Janik (2013) Acoustic deterrent devices to prevent pinniped depredation: efficiency, conservation concerns and possible solutions *Mar Ecol Prog Ser* Vol 492:285-302

general (*i.e.* for any device type), we consider that there may be a risk of auditory damage due to repeated near-field cumulative exposure, and this is reflected in our advice going forward.

In this particular case, the ADD deployment plan as supplied to us, stated that the duty cycle for their system is one pulse every 4/8/12/16 minutes. This equates approximately to a 4% duty cycle. We therefore concluded that the intermittent use of a Terecos system would not result in significant effect in relation to the Conservation Objectives. In our assessment, we also took into account that this farm had previously used ADDs in this location, and that the harbour porpoise cSAC was selected for designation based on persistent presence of harbour porpoise co-incident with ADD use by aquaculture. There is the argument that the use of ADDs in this location could be considered as baseline in respect of HRA.

We are however, mindful of the aquaculture industry's aspiration for expansion and therefore we will be constantly reviewing this situation. We are also working with both the Local Authorities and the Industry in developing tighter guidelines for ADD use in Aquaculture.

Q14. Covered in previous response.

Q15. Covered in previous response.

Q16. We do not specify a specific distance. We highlight the behavioural uncertainty involved in assessments such as this.

Q17. We agree that the majority of available literature indicates a behavioural disturbance effect and we do not dispute these findings. We highlight however that this majority is based on either an Airmar or Lofitech transducer. There are a number of studies that comment that reactions to other devices (such as Terecos) may well be different. Terecos is significantly quieter in acoustic terms than Airmar, Lofitech and Ace-Aquatec device types. We cannot ignore that there is likely to be a difference in effect from different device types when considering consultations case-by-case.

The Northridge et al (2010) study into the Terecos device, found no significant difference in click detection rate between periods when the ADD was active and inactive. These are the only data relating to the Terecos that we are aware of, and we understand that this is only one study; however, we know that there are differences in the source levels and frequency content, which are likely to explain a lessening, or lack of response in comparison to other device types.

Northridge et al (2012) were reluctant to conclude that Terecos have no significant effect on harbour porpoise, because this was only one study and they were recommending it was repeated, as is good practice. However, the results from the CPOD click detector are independent of their reported equipment malfunction. The malfunction was related to their hydrophone intended to measure absolute received levels of sound from the Terecos system to produce a sound map (*i.e.* a supporting set of equipment). It would have been useful to consider the absolute received sound levels, but this does not detract from the CPOD data. These data showed there was no significant difference in click positive hours between ADD on or off.

This lack of significant effect was also the conclusion of the ORJIP report⁵. This work considered all currently available ADDs in terms of their suitability as a multi-species pre-piling mitigation tool for offshore wind, and concluded the Terecos was unlikely to be useful as a deterrent.

In addition, Lepper et al (2014) stated the following supporting the view above:

⁵ ORJIP Project 4, stage 1 of phase 2: The use of acoustic deterrents for the mitigation of injury to marine mammals during pile driving for offshore wind farm construction. Final report.

“One interesting caveat should be stressed. All of the research on the effects of aquaculture ADDs on cetaceans has investigated the effects of only one make of ADD, the Airmar. In Scotland, two other types, those from Terecos and Ace Aquatec, account for about half the fish farm sites at which ADDs are deployed. Given their contrasting acoustic characteristics (section 2.2) it is quite possible that cetaceans will respond in a different way to these devices. Indeed, some preliminary investigations of the effects off Terecos ADDs on harbour porpoise in a Scottish sea loch suggest that this may be the case (pers. obs.)”

Q18 See response to Q17.

Q19. See response to Q13.

Q20. See response to Q13.

Q21. Your question here considers the work Klaus Lucke conducted on harbour porpoise and the findings of Paul Lepper’s study referred to above.

We agree, porpoise seem to be more sensitive to noise than other small odontocetes, and the Lucke thresholds have been considered in our underwater noise assessments across industries. Lucke et al (2009) suggested that temporary threshold shift (TTS) was exceeded at a sound exposure level (SEL) 164.3 dB re 1 μ Pa²s (at 4 kHz). However, currently TTS is not considered injury; also the metrics used here (SEL) are not RMS and therefore cannot be directly compared.

We do not agree that Lepper et al (2014) predicted that 4 Terecos devices would result in auditory damage if an animal remained within 100m for 37 minutes. They do not present findings for 4 Terecos devices. (We do not agree that it is appropriate to divide the Lepper findings by 4 as evidence for four Terecos devices. Terecos have a very different signal output compared to Airmar).

The study estimated that the threshold at 100m would be exceeded after about 2.5 hours. They also highlight that this is based on a static animal and a 6.7% duty cycle, based on an 8 second pulse every 2 minutes, which they state is the worst case based on the manufacturer’s settings information.

At Port na Cro the applicant stated that the system sends out one pulse every 4/8/12/16 minutes, this brings the duty cycle down to approximately 4%, which is lower than the duty cycle used in Lepper et al (2014).

Q22. Please see previous responses.

Q23. For reasons outlined in our earlier response to you, we believe our officer made the correct decision and we stand by that. We refute, strongly, any suggestion by you that the officer acted in any respect without integrity, objectivity and honesty. As outlined previously, we have been developing guidance in the interim on ADD use in the Inner Hebrides and Minches cSAC, and the process we now advocate would lead us to conclude Likely Significant Effect in the first instance, but the ultimate decision, not to object to the ADD use, would have been the same.

Q24. The 120 dB re 1 μ Pa rms threshold used was not taken from Southall (2007) but NOAA⁶. (Also note that they state this threshold could be adjusted if background noise levels are at or above this level). Behavioural disturbance has been recorded in a number of

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studies and at varied levels likely due to the context of the situation; further complicated in that not all studies use the same metrics making direct comparison difficult.

Brandt et al (2012)⁷ did not conclude that 95% of porpoise were excluded at 113 dB re 1 μ Pa rms, but the following:

“C-POD recordings revealed a significant deterrence effect on harbour porpoises up to 7.5 km away (at about 113 dB re 1 mPa rms), much further than previously reported. During seal scarer operation the number of porpoise detections within 750 m of the C-PODs decreased by between 52 and 95% of the value before the seal scarer was activated.”

The Kok (2017)⁸ study relates to captive harbour porpoise and it is well understood that captive behaviour is unlikely be replicated in the wild. One reason for a response at such a low received level is that the background noise in a captive study was so low that the animals would be highly sensitive to any noise cue. Captive studies are useful but they cannot be readily translated into the wild.

As noted above, we used the 120 dB re 1 μ Pa rms as an indicative disturbance distance, not exclusion. We would highlight that in reality, some individuals will be more sensitive than others and may react at lower levels, and conversely some individuals may not react at this level.

The background or ambient noise levels are not generally accounted for in simplistic models. However, in reality noise levels in the marine environment are highly variable, and the animals' reaction to a noise cue will depend on the signal-to-noise ratio, and whether the animal perceives the cue as a threat. Signal-to-noise refers to the level of sound above (or distinguishable against) background. Ambient/background noise levels will depend on, for example, the weather, the tide and vessel activity, and could be up to 120 dB dB re 1 μ Pa rms. It was for these reasons we did not use a lower threshold.

Q25. We do not agree with the use of simple sonar transmission loss equations in this circumstance, unless used as a very rough estimate. The shallow coastal waters are more complex than these equations can describe. We highlight that there are issues with all models as has been discussed in our responses to your previous questions. We are currently using a 3km indicative disturbance (not exclusion) distance as a guide. As covered above, we believe the disturbed distance from the Terecos brand is likely to be less than this guide.

Q26. $20\log(R)$ and $10\log(R)$ are known as ‘*simple geometric models*’, or ‘*sonar equations*’. We do not agree that these are appropriate for inshore Scottish waters. $15\log$ is a commonly used approximation, but also probably not adequate. See page 20 of Lepper et al. (2014) for comment.

Q27. Covered in our previous response.

Q28. Covered in our previous response.

Q29. We believe our advice is in line with best available evidence. We do not agree that either Kok et al (2017) or Brandt et al (2012) should be used as indicative thresholds. Reasons not repeated, see previous text

Q30. We recommend predator nets as part of the suite of anti-predator methods. However, these are not without issues. In some locations entanglement is a potential problem and therefore additional nets are not always a viable option. It is Marine Scotland's responsibility

⁷ Brandt, M. J. et al (2012) Far-reaching effects of a seal scarer on harbor porpoises *Phocoena phocoena*. *Aquatic Conserv: Mar. Freshw. Ecosyst*. BioConsult SH, D-25813 Husum, Germany.

⁸ Kok, A.C.M., et al., (2017) Spatial avoidance to experimental increase of intermittent and continuous sound in two captive harbour porpoises. *Environmental Pollution*.
<https://doi.org/10.1016/j.envpol.2017.10.001>

to determine if a seal licence is appropriate and that all other viable non-lethal methods have been employed.

Q31. Covered in our previous response.

Q32. Cost is not a relevant factor in our advice.

Question 33. As outlined above, Local Authorities and MSLOT are the regulatory bodies for fish-farm developments, and for specifying anti-predator requirements. We can, and do, advocate use of anti-predator nets wherever appropriate

Question 34. Again, we advocate use of anti-predator nets wherever appropriate. But it should be borne in mind that such nets may, in some circumstances, still impact upon other wildlife, such as diving birds, so they are not necessarily appropriate in every circumstance.

Question 35. As SNH is not one of the regulatory bodies for fish-farm development in Scotland, you should raise this with the appropriate organisation.

Question 36. As outlined earlier we are currently in discussion with Marine Scotland regarding circumstances in which EPS licences may be necessary to permit ADD use. MSLOT are the regulatory body for seal licensing. When commenting on seal licenses SNH advise that seal shooting should only be used as a last resort where all appropriate methods of non-destructive seal deterrent have been exhausted.

We hope this note address the queries you raised. Should you have outstanding concerns we would be happy to discuss these with you but, due to other work pressures, would be unable to do so until April. If you have any questions regarding this response please get back to me in the first instance.

Yours sincerely,



George Lees

Policy & Advice Manager (Marine Energy & Development)

Coastal and Marine Ecosystems Unit

george.lees@snh.gov.uk



Scottish Natural Heritage Dualchas Nàdair na h-Alba

All of nature for all of Scotland
Nàdar air fad airson Alba air fad

By email: [REDACTED]

Our Ref: SIR149652/A2573723

30 March 2018

Dear [REDACTED]

Information Request – Copies of Freedom of Information (FOI) Responses

Thank you for your information request, which we received on 2 March. We have considered your request under the Environmental Information (Scotland) Regulations 2004 ('the EIRs').

You asked us for copies of all previous FOI's concerning Acoustic Deterrent Devices and European Protected Species licensing.

We have carried out a detailed search of the information we hold, and we have identified 2 FOI responses and one piece of follow-up correspondence that meet the terms of your request. Copies of all the documents are attached along with this letter. The response letters explain how we handled each request, and also any relevant EIR exceptions.

We have marked out (redacted) some personal data in the response letters. Releasing this personal data into the public domain in response to an access to information request would breach the Data Protection Act 1998. We are therefore withholding the information under EIRs Regulation 11(2) (Personal data).

How We Handled Your Request

We believe you have asked for environmental information as defined in the Environmental Information (Scotland) Regulations 2004 ('the EIRs'), so we are dealing with your request under those regulations. To be able to use the EIRs, we must apply an exemption under section 39(2) of the Freedom of Information (Scotland) Act 2002 ('FOISA'). The Scottish Information Commissioner's guidance recommends that public authorities apply this exemption to environmental information and handle requests under the EIRs.

If you would like to find out more about the access to information legislation there is a guidance booklet available on the Scottish Information Commissioner's website:

<http://www.itspublicknowledge.info/nmsruntime/saveasdialog.aspx?IID=5487&sID=5024>.

Review and Appeal

I hope this information meets your requirements but if you are dissatisfied with how we have responded to your information request, please write to us within 40 working days explaining your concerns. You can contact us at Battleby, Redgorton, Perth, PH1 3EW or email us at foi@snh.gov.uk. We will carry out a review of our response and contact you with our findings within 20 working days.

If you are not satisfied following this, you can make an appeal to the Scottish Information Commissioner. The Scottish Information Commissioner can be contacted at:

Scottish Information Commissioner
Kinburn Castle
Doubledykes Road
St Andrews
Fife
KY16 9DS

Online appeal service: www.itspublicknowledge.info/Appeal

Website: <http://www.itspublicknowledge.info/>

Telephone: 01334 464610

Yours sincerely

Rhoda Davidson

Rhoda Davidson
Information Officer
FOI@snh.gov.uk



Scottish Natural Heritage
Dualchas Nàdair na h-Alba

All of nature for all of Scotland
Nàdar air fad airson Alba air fad



[Redacted]

By email: [Redacted]

30 May 2013

Our ref: SIR123013/A925438

Dear [Redacted]

Information Request – Licences to Disturb Cetateans

Thank you for your information request which we received on 26 April, and also for your email of 1 May providing some additional information. We have considered your request under the Environmental Information (Scotland) Regulations 2004 ('the EIRs').

You asked us for information on the spatial distribution and terms of licences to disturb cetaceans granted by SNH or SG. You also asked for SNHs current state of knowledge on the distribution of acoustic deterrent devices (ADDs), if any. You noted that you are interested in the spatial distribution of currently active licences to disturb cetaceans in Scotland using ADDs (many of which will be attached to salmon farms), and particular make of device and other conditions if specified in the licence. In the context of an expanding salmon industry, you noted you are concerned about the cumulative impact of widespread deployment of these devices on cetaceans, so wish to establish the current distribution of licences as a proxy for distribution of ADDs.

We have carried out a detailed search of the information we hold and we have identified a number of licences to disturb cetateans via the use of ADDs. Two of the licences were issued by SNH and three were issued by the Scottish Government. A copy of each of the licences is attached along with this letter.

You will see that some small sections of the licences have been marked out (redacted). This is because there is some information we are unable to release. The information is personal data and we believe that releasing it would breach the terms of the Data Protection Act 1998. We are therefore withholding the information under EIRs Regulation 11(2) (Personal data).

The attached licences relate to the use of ADDs for research or marine energy purposes, and not for purposes connected with the aquaculture industry. Not all ADD use in aquaculture is licenced, although through the seal licencing process fish farms will have provided information to Marine Scotland about the non-lethal deterrents (such as ADDs or anti-predator nets) that they have in place,

<http://www.scotland.gov.uk/Topics/marine/Licensing/SealLicensing/applications> .

We do not hold the current data on the use of ADDs by fish farms. You may wish to contact Marine Scotland about this information. Their contact details are:



INVESTOR IN PEOPLE

Scottish Natural Heritage, Battleby, Redgorton, Perth, PH1 3EW
Tel 01738 444177 Fax 01738 458611
www.snh.org.uk

Marine Scotland
1st Floor
Victoria Quay
Edinburgh
EH6 6QQ

Email: marinescotland@scotland.gsi.gov.uk

How We Handled Your Request

We believe that the information you have asked for on this occasion is environmental information as defined in the Environmental Information (Scotland) Regulations 2004 ('the EIRs'). We have therefore considered your request under the EIRs. I need to explain that to do this we applied an exemption to your request under section 39(2) of the Freedom of Information (Scotland) Act 2002 ('FOISA'), as recommended by the Scottish Information Commissioner's guidance. This exemption is the formal way for us to consider your request under the EIRs. If you would like to find out more about the access to information legislation there is a guidance booklet available on the Scottish Information Commissioner's website, <http://www.itspublicknowledge.info/uploadedfiles/YRTK2012.pdf>.

Review and Appeal

I hope this information meets your requirements but if you are dissatisfied with how we have responded to your information request, please write to us within 40 working days at Battleby, Redgorton, Perth, PH1 3EW or email us at foi@snh.gov.uk, explaining your concerns. Our Director of Policy and Advice, Susan Davies or her nominated delegate will carry out a review of our response and provide an outcome within 20 working days.

If you are not satisfied following this, you can make an appeal to the Scottish Information Commissioner. The Scottish Information Commissioner can be contacted at:

Scottish Information Commissioner
Kinburn Castle
Doubledykes Road
St Andrews
Fife
KY16 9DS
Telephone: 01334 464610

<http://www.itspublicknowledge.info/>

Yours sincerely

Rhoda Davidson

Rhoda Davidson
Information Officer
foi@snh.gov.uk



Scottish Natural Heritage
Advisory Services - Licensing
Great Glen House
Leachkin Road
Inverness
IV3 8NW
Email: Licensing@snh.gov.uk
Telephone: 01463 725000
Fax:

Animal Science, Research and Education Licence

Licence Number: [REDACTED] Valid From: 09 June 2010 Valid To: 15 September 2010

Licence Holder: [REDACTED]

Surname: [REDACTED]

First name: [REDACTED]

Address: Sea Mammal Research Unit
Gatty Marine Laboratory
University of St Andrews
St. Andrews
KY16 8LB

Associated Persons other than the Licence Holder:

Name	Role	Additional Conditions
[REDACTED]	Agent	

This Licence is granted subject to compliance with the conditions specified

Licence Nr: [REDACTED]

Signed for and behalf of Scottish Natural Heritage:

[REDACTED]

Date:

10/06/10



Legislation:

This Licence is granted under the following legislation

Legislation

the Conservation (Natural Habitats, &c.) Regulations 1994 Regulation 44 (2) (a) by virtue of Regulation 44 (4) of those Regulations

Project Details:

To disturb ceataceans while carrying out an acoustic deterrent device trial at slamon bag nets in the area.

Licensed Activities:

Nr.	Action	Purpose	Species Common Name	Species Scientific Name	Location	Grid Ref.	Trap/Take Method
1	Disturb	Science, Research and Education	All Cetaceans	Cetacea	at Dundonnie and Meakie Points, Peterhead in Aberdeenshire Council area	NK131411	N/A

Licence Conditions:

This licence is granted subject to the following conditions

Nr. Conditions

- 1 All equipment used for the purposes of this licence shall be so constructed and maintained as to avoid cruelty and distress to wild animals.
- 2 When carrying out work permitted under this licence the licence holder must make all efforts to ensure that disturbance to marine wildlife is kept to a minimum.
- 3 All work must be carried out in accordance with the methodology supplied with the current licence application, subject to modifications imposed by this licence

This Licence is granted subject to compliance with the conditions specified

Licence Nr: [REDACTED]

Signed for and behalf of Scottish Natural Heritage: [REDACTED]

Date: 10/6/10

Nr. Conditions

- 4 While engaged in work authorised by this licence, the licensee(s) and accredited agents if appointed, shall each carry a copy of the licence and produce it to any police officer, authorised person, or official of SNH on demand.
- 5 Within two weeks after the date of expiry of this licence, the licensee shall submit to SNH at the above address a written report stating the work carried out under this licence, including a summary of interactions with seals and cetaceans that are recorded in the vicinity while on site.

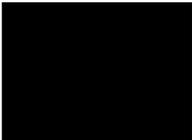
Notes

Nr. Note

- 1 This licence is granted subject to compliance with the conditions as specified. Anything done otherwise than in accordance with the terms of the licence may constitute an offence
- 2 This licence may be modified or revoked at any time by Scottish Natural Heritage
- 3 If appointed, assistants must work under the personal supervision of the licence holder.
- 4 If appointed, accredited agents may work independently of the licence holder. It is the responsibility of the licence holder to ensure that accredited agents have the appropriate training and experience.
- 5 Nothing in this licence shall confer the right of entry on to land or property.

This Licence is granted subject to compliance with the conditions specified

Licence Nr: 

Signed for and behalf of Scottish Natural Heritage: 

Date: 10/01/10



Scottish Natural Heritage
Dualchas Nàdair na h-Alba

All of nature for all of Scotland
Nàdar air fad airson Alba air fad

Scottish Natural Heritage
Species Licensing
Great Glen House
Leachkin Road
Inverness
IV3 8NW
01463725000
e-mail: licensing@snh.gov.uk

Animal Licence		
Licence Number: [REDACTED]	Valid from : 01-JUL-12	Valid to : 26-AUG-12
Licence Holder : [REDACTED]		
Address:	Gatty Marine Laboratory University of St Andrews St. Andrews Fife KY16 8LB	
Name	Role	Additional Conditions
No additional persons named		
This Licence is Granted under the following Legislation:		
The Conservation (Natural Habitats, &c.) Regulations 1994 (as amended): Regulation 44 (2) (a)		
Project Details		
To disturb cetaceans while carrying out an acoustic deterrent device trial at salmon bag nets in the area.		
Activities, species and locations covered by this licence are listed in Annex 1		
Conditions		
1	All equipment used for the purposes of this licence shall be so constructed and maintained as to avoid cruelty and distress to wild animals.	
2	When carrying out work permitted under this licence the licence holder must make all efforts to ensure that disturbance to marine wildlife is kept to a minimum, including breaking off engagement if animals continue to show signs of disturbance or active avoidance or if the group or adults and young become separated.	
3	All work must be carried out in accordance with the methodology supplied with the current licence application, subject to modifications imposed by this licence	
4	While engaged in work authorised by this licence, the licensee(s) and accredited agents if appointed, shall each carry a copy of the licence and produce it to any police officer, authorised person, or official of SNH on demand.	
5	Within two weeks after the date of expiry of this licence, the licensee shall submit to SNH at the above address a written report stating the work carried out under this licence, including a summary of interactions with seals and cetaceans or details of any sightings that are recorded in the vicinity while on site and details of any injuries, mortalities or breeding success failures.	
Notes		

Licence holders or any other persons covered by this licence should note the following;	
1	The licence holder should follow the guidance given in the Accompanying notes issued by the SNH Licensing Officer
2	This licence is granted subject to compliance with the conditions as specified. Anything done otherwise than in accordance with the terms of the licence may constitute an offence
3	This Licence may be modified or revoked at any time by Scottish Natural Heritage.
4	If appointed assistants must work under the personal supervision of the licence holder.
5	If appointed, accredited agents may work independently of the licence holder. It is the responsibility of the licence holder to ensure that accredited agents have the appropriate training and experience.
6	Nothing in this licence shall confer any right of entry on to land or property

This licence is granted subject to compliance with the terms and conditions specified

Licence no: [REDACTED]

Authorised on behalf of Scottish Natural Heritage by: Katherine Christie Date: 29-JUN-2012

Licence no: [REDACTED]

Annex 1: Permitted activities

Action	Purpose	Species	Location	Grid Reference	Method
Disturb	Science, Research and Education	All Cetaceans	at Gardenstown in Aberdeenshire Council area and at Portmahomack, Rockfield & Hilton of Cadboll in Highland Council area	NK131411	N/A

This licence is granted subject to compliance with the terms and conditions specified

Licence no: [REDACTED]

Authorised on behalf of Scottish Natural Heritage by: Katherine Christie Date: 29-JUN-2012

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THE CONSERVATION (NATURAL HABITATS, &c.) REGULATIONS 1994

LICENCE TO ALLOW THE DISTURBANCE OF CETACEANS: HARBOUR PORPOISE

This licence is granted under regulation 44(2)(e) of the Conservation (Natural Habitats, &c.) Regulations 1994 by Scottish Ministers who, after consultation with, and having been advised as to the circumstances in which they should grant such licences by, Scottish Natural Heritage, are satisfied as regards the purpose for which the licence is granted, (namely, for an imperative reason of overriding public interest including that of a social and economic nature and of beneficial consequences of primary importance for the environment); and that (a) there is no satisfactory alternative and (b) that the action authorised will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range; and is valid, unless previously revoked, from **01 May 2008 to 01 February 2009** and authorises:

E.ON UK Solway Offshore Limited¹ and E.ON UK Offshore Energy Resources Limited² (the “Companies”)
Westwood Way
Westwood Business Park
Coventry
CV4 8LG

or any person authorised by the “Companies”,

to disturb European protected species of Cetacea – the Harbour Porpoise (*Phocoena phocoena*) during the laying of the foundations for the Robin Rigg Offshore Windfarm in the Solway Firth:

PURPOSE AND CIRCUMSTANCES IN WHICH ACTION IS REQUIRED

The construction of the Robin Rigg Offshore Windfarm will require the driving in, by impact piling, 62 monopile foundations. The noise generated by this has the potential to disturb cetaceans. The effects of this could be twofold. In the short range, it is possible that the noise could physiologically damage cetaceans. In the longer range, the noise may deter cetaceans from using the area, with an attendant risk of trapping cetaceans within parts of the Solway Firth during low tide. The developer has mitigated against short range damage to cetaceans by the use of acoustic deterrents that will be sounded prior to the commencement of piling, in order to ensure that cetaceans are deterred from the immediate area of piling. A further mitigation against physical damage to cetaceans is that the piling operation will commence at only 20% of full energy, and will be slowly ramped up 90% in accordance with this licence - giving time for cetaceans to vacate the area.

¹ Company number 3568724

² Company number 4150735

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However, it is difficult to completely mitigate against long range disturbance to cetaceans during the laying of foundations for the Robin Rigg Offshore Windfarm. The following conditions seek to minimise potential disturbance to cetaceans in the course of the works, and ensure adequate monitoring of the effects of the piling operation on cetaceans. This licence is intended to complement FEPA licence 2236, in providing for protection of the environment during the construction of the Robin Rigg Offshore Windfarm.

CONDITIONS OF LICENCE

1. Nothing in this licence conveys any right of entry upon land.
2. Nothing in this licence invalidates anything in FEPA licence 2236.
3. The “Companies” are responsible for ensuring that the conditions of this licence are met, and that any person carrying out work under this licence is fully aware of the conditions of this licence and of their responsibilities with regard to meeting those conditions.
4. During the piling period the piling contractor will ensure that the correct ‘soft start’ procedure is followed to allow marine mammals to move away from an area should they wish to do so; ensure that the AHD is deployed according to the correct procedures; and ensure that there is no piling activity apart from that necessary for the normal operations or ‘soft start’.
5. The following details will be recorded for each pile installation: Date and location of installation; status of installation and details of pile energy (where possible); a record of the details of the pre-installation watch and the duration of the soft-start; details of any problems encountered during marine mammal detection procedures, or during the survey; marine mammal sightings; reports from any observers on board.
6. The Marine Mammal Observer (MMO) on board the installation vessel shall ensure that their efforts are concentrated on keeping a watch prior to the soft start. Any MMO shall manage their time to ensure that they are available to undertake the tasks required when carrying out a watch during the 30 minutes before the commencement of piling.
7. Beginning at least 30 minutes before commencement of piling the MMO will carefully make a visual check from a suitable high observation platform to see if there are any marine mammals within 500 metres of the pile location.

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8. If marine mammals are seen within 500 metres of the pile location the start of piling will be delayed until they have moved away, allowing adequate time after the last sighting for the animals to move away (at least 30 minutes).
9. The hydraulic hammer will be commenced with an energy level of 20% or less of the maximum rated energy level. The installation at low energy levels will be carried out over at least 20 minutes (the “Soft Start Period”) to give adequate time for marine mammals to leave the vicinity.
10. Following the Soft Start Period the power will be increased to maximum power (or just below maximum power) over at least 60 seconds. There will be a ‘soft start’ every time the piling commences, even if no marine mammals have been observed.
11. The ‘soft start’ procedure should be followed at all times prior to the commencement of piling.
12. If for any reason the piling has stopped and not restarted for at least 15 minutes a full 20 minute ‘soft start’ will be carried out which will include a visual check for marine mammals within 500 metres of the pile location. If a marine mammal is present then recommencement of piling should be delayed as per conditions above which deal with the commencement of piling.
13. The MMO will have undertaken suitable training in marine mammal observation as well as suitable instruction and training (if required) on implementing and reporting on these procedures.
14. The MMO will be located onboard the installation vessel.
15. Acoustic Harassment Devices (AHDs) will be correctly employed in association with pile driving activities in order to cause sea mammals to vacate the vicinity of the construction activity.
16. The AHD proposed will be of the type manufactured by Lofitech which has the following nominal operating characteristics: a frequency range 13 – 15kHz, sound pressure 189dB re: 1μPa@1m, and the Operational Range that is referred to in Subacoustech report 773R0102. If for any reason this particular device cannot be used, a device having similar characteristics shall be used.
17. The AHD will be deployed from the main installation vessel for a period of 30 minutes prior to the commencement of the soft start.
18. Additional boat based monitoring will be employed during the first 4 daylight piling activities. The purpose of the enhanced monitoring is to determine the behaviour of

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any cetaceans that may be disturbed by the piling activities and to ensure, if necessary, that a suitable mitigation is applied (e.g. pause piling during a period either prior to, or during low water).

19. In addition to the enhanced boat based monitoring, noise measurements will be made during the installation of the first few piles in order to gain a greater understanding of site specific noise propagation.
20. Reasonable care shall be taken at all times to avoid and prevent the injury or death of any cetaceans in the course of the works.
21. The Scottish Government shall be informed of any death or injury to cetaceans resulting from these activities.
22. The licence holder shall, no later than one month after the expiry date of this licence, submit to the Scottish Government Rural Directorate, Landscapes and Habitats Division, a written report detailing all actions taken and certifying that these have been carried out in accordance with the specified terms and conditions of the licence.

Authorised on behalf of Scottish Ministers
By a member of staff of the Scottish Government

David Laing
Landscapes and Habitats Division
The Scottish Government
1 - J South
Victoria Quay
EDINBURGH
EH6 6QQ

15 April 2008

THE CONSERVATION (NATURAL HABITATS, &c.) REGULATIONS 1994

LICENCE TO DISTURB MARINE SPECIES

This licence is granted under regulation 44(2)(e) of the Conservation (Natural Habitats, &c.) Regulations 1994 by Scottish Ministers who, after consultation with, and having been advised as to the circumstances in which they should grant such licences by, Scottish Natural Heritage, are satisfied as regards the purpose for which the licence is granted, (namely, for an imperative reason of public health and safety or overriding public interest including that of a social or economic nature and beneficial consequences of primary importance for the environment); and that (a) there is no other satisfactory alternative and (b) that the action authorised will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range; and is valid, unless previously revoked, from **01 May 2008 to 30 April 2010** and authorises:

[REDACTED]
Swanturbines
Digital Technium
Singleton Park
Oystermouth Park
Swansea
SA2 8PP

or any person authorised in writing by him,

to disturb the European protected species of Harbour Porpoise (*Phocoena phocoena*), White Beaked Dolphins (*Lagenorhynchus albiostris*), Minke Whales (*Balaenoptera acutorostrata*) and Otters (*Lutra lutra*) located at EMEC, Fall of Warness, Orkney Islands, KW17 2AA but only subject to the under-noted conditions:

PURPOSE AND CIRCUMSTANCES IN WHICH ACTION IS REQUIRED

This licence is granted for the purpose of permitting the disturbance of Harbour Porpoise (*Phocoena phocoena*), White Beaked Dolphins (*Lagenorhynchus albiostris*), Minke Whales (*Balaenoptera acutorostrata*) and Otters (*Lutra lutra*) located within EMEC, Fall of Warness, Orkney Islands, KW17 2AA for an imperative reason of overriding public interest including that of a social or economic nature in connection with energy generation research.

CONDITIONS OF LICENCE

1. The landowners' permission must be obtained before entry upon the land. Nothing in this licence conveys any right of entry upon land.
2. That the operator must develop and implement a strategy to mitigate the risk of collision impacts on marine mammals. The strategy must be agreed with SNH no less than 2 months prior to installation. The strategy must include i) monitoring of

collisions, ii) triggers for implementing mitigation and iii) mitigation measures such as shut-down or deployment of acoustic deterrent devices.

3. That a mitigation plan for minimising disturbance impacts of the installation process should be developed and agreed with SNH prior to any works taking place. This should be based upon the 'Guidelines for minimising acoustic disturbance from seismic surveys', and the commitments of the Environmental Statment and specifically involve the use of a Marine Mammal Observer and utilisation of 'soft start' techniques.
4. That all commitments within the 'Table Of Commitments' in the ES, and any subsequently agreed to through this or others' responses, for avoiding, mitigating or monitoring wildlife impact are adhered to in full.
5. That upon completion of the trial the applicant must submit to SNH a report describing and assessing all the wildlife impacts and interactions monitored or recorded as a result of an agreed monitoring or observational programmes. The scope of any monitoring plan to be agreed beforehand with SNH.
6. The licence holder shall, no later than one month after the expiry date of this licence, submit to the Scottish Government Rural Directorate, Landscapes and Habitats Division, a written report detailing all actions taken in accordance with the specified terms and conditions of the licence.

Authorised on behalf of Scottish Ministers
By a member of staff of the Scottish Government

David Laing
Landscapes and Habitats Division
The Scottish Government
1J South
Victoria Quay
EDINBURGH
EH6 6QQ

25 March 2008



THE CONSERVATION (NATURAL HABITATS, &c.) REGULATIONS 1994

LICENCE TO ALLOW THE DISTURBANCE TO OTTERS

This licence is granted under regulation 44(2)(e) of the Conservation (Natural Habitats, &c.) Regulations 1994 by Scottish Ministers who, after consultation with, and having been advised as to the circumstances in which they should grant such licences by, Scottish Natural Heritage, are satisfied as regards the purpose for which the licence is granted, (namely, for an imperative reason of overriding public interest and beneficial consequences of primary importance for the environment); and that (a) there is no satisfactory alternative and (b) that the action authorised will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range; and is valid, unless previously revoked, from **01 August 2010 to 30 September 2015** and authorises:

[REDACTED]
Atlantis Operations (UK) Ltd
King's Scholars House
3rd Floor
230 Vauxhaul Bridge Road
London
SW1V 1AU

or any person authorised in writing by Him,

to disturb otters (*Lutra lutra*), harbour Porpoise (*Phocoena phocoena*), white-beaked dolphin (*Lagenorhynchus albirostris*), minke whale (*Balaenoptera acutorostrata*), believed to be using the EMEC tidal test facility at The Fall of Warness, Orkney Islands, but always subject to the undernoted conditions.

PURPOSE AND CIRCUMSTANCES IN WHICH ACTION IS REQUIRED

This licence is granted for the purpose of permitting disturbance to otters (*Lutra lutra*), harbour Porpoise (*Phocoena phocoena*), white-beaked dolphin (*Lagenorhynchus albirostris*), minke whale (*Balaenoptera acutorostrata*) at the EMEC tidal test facility at The Fall of Warness, Orkney Islands on the grounds of overriding public interest by permitting the installation and testing of a tidal energy device at the site but always subject to the undernoted conditions.



CONDITIONS OF LICENCE

1. The landowners' permission must be obtained before entry along the watercourses and surrounding land. Nothing in this licence conveys any right of entry upon land.
2. All personnel, including contractors and sub-contractors, will be made aware of the presence of the species listed, their protected status and the conditions of this licence.
3. That all commitments within the Table 12 of the Supporting Environmental Documentation, and any subsequently agreed to through this or others' responses, for avoiding, mitigating or monitoring wildlife impacts must be adhered to in full;
4. That prior to any works taking place, an Environmental Monitoring Plan (EMP) outlining the specific monitoring protocol must be developed and agreed, in writing, with Marine Scotland and SNH. Considering the sensitive period during which the installation will take place, the EMP should provide details regarding the use of a Marine Mammal Observer (MMO) and utilisation of 'soft start' techniques. We recommend the use of EMEC's MMO protocol. This MMO protocol should be in place during all operations using a DP vessel, the noise from which is likely to cause disturbance. We also advise that considering the sensitive period it would be best practise to have a general lookout for cetaceans during all other operations. If it is necessary to work at night then work should commence during daylight hours when an MMO is in place and not during the hours of darkness when an MMO would not be viable;
5. The EMP must also outline a strategy to mitigate the risk of collision impacts on cetaceans. The strategy should include: i) monitoring of collisions, ii) triggers for implementing mitigation and iii) mitigation measures such as shut-down or deployment of acoustic deterrent devices;
6. Considering the continuation of the EMEC wildlife monitoring programme at the Falls of Warness is subject to additional Scottish Government funding, we advise that the applicant must provide suitable contingency monitoring, covering all periods from pre-installation to decommissioning of the device. This monitoring programme should be detailed within the EMP and must be agreed, in writing, with Marine Scotland and SNH, prior to any works commencing.
7. Reasonable care must be taken at all times to avoid or prevent the injury or death of any of the species listed or their young discovered during the trial operations.
8. The licence holder shall, within one month of the expiry date of this licence, submit to the Scottish Government Rural Directorate, Landscapes and Habitats Division, a written declaration detailing all actions taken and certifying that these have been carried out in accordance with the specified terms and conditions of the licence. The report will detail dates at which activities were undertaken and which events took place on these dates.

Rural And Environment Directorate
Natural Resources Division

DEROG [REDACTED]

Atlantis EMEC 2



Authorised on behalf of Scottish Ministers
by a member of staff of the Scottish Government

Richard Hastings
Natural Resources Division
1 – D North
Victoria Quay
EDINBURGH
EH6 6QQ

10 May 2010



Scottish Natural Heritage Dualchas Nàdair na h-Alba

All of nature for all of Scotland
Nàdar air fad airson Alba air fad

[Redacted]

By email: [Redacted]

Our Ref: SIR144895/A2241868

25 April 2017

Dear [Redacted]

Information Request – Acoustic Deterrent Devices, Predator Control and Salmon Farms

Thank you for your information request, which we received on 27 February. We have considered your request under the Environmental Information (Scotland) Regulations 2004 ('the EIRs').

You asked us for information on acoustic deterrent devices, predator control and salmon farms since 1 January 2016.

1. A date of mid-February 2017 was provided for the next meeting (SNH and SSPO Industry Workshop on ADDs). Please provide notes and information surrounding that meeting and any others since 1 January 2016 - including any other information relating to the ADD Workshop on 13 December 2016.

We have carried out a detailed search of the information we hold, and copies of the relevant documents are attached along with this letter.

Please note that we have marked out (redacted) some personal data in the documents. Releasing this personal data into the public domain in response to an information request would breach the Data Protection Act 1998. We are therefore withholding the information under EIRs Regulation 11(2) (Personal data).

2. Please include in the FOI reply correspondence any information on the issue of ADDs and salmon farms - in particular in relation to SACs, the harbour porpoise and noise.

Please refer to the attached documents.

Some of the correspondence we hold that falls within the scope of this part of your request relates to planning applications made through the public planning system, and there is too much information for us to be able to provide it all to you. It would take an excessive amount of staff time to deal with this part of your request and the scale of the task is too big for us to be able to deal with. It would not be in the public interest for SNH to divert such a significant amount of our staff time to this work as it would impede our ability to carry out our other statutory duties.

The planning applications and our planning responses are already in the public domain. We have therefore compiled a list of the relevant planning cases – please can you review the publicly available information and then let us know if there is a specific case, or cases, you would like to ask for any additional information on.

Local Authority	Planning ID	Planning Portal Link
Argyll and Bute Council	16/03407/MFF	http://publicaccess.argyll-bute.gov.uk/online-applications/search.do?action=simple&searchType=Application
Argyll and Bute Council	17/00040/SCRSCO	
Highland Council	11/04228/FUL	http://wam.highland.gov.uk/wam/
Highland Council	15/03667/FUL	
Highland Council	16/00077/SCOP	
Highland Council	16/02032/SCRE & 16/02185/SCOP	
Highland Council	16/02079/FUL	
Highland Council	16/03352/FUL	
Highland Council	16_00077_SCOP	
Highland Council	16_02709_SCOP	
Highland Council	1601926SCOP	
Highland Council	1603600SCOP	
Highland Council	1603601SCRE	
Highland Council	17/00040/SCRSCO	

3. Please provide copies of the "Seal Licensing Questionnaire" referred to above in Suzanne Henderson's email along with copies of all replies and any data analysis, summaries or follow-ups.

A copy of the current 'Seal Licencing Questionnaire' is attached, along with the relevant copies of associated versions of the data. The documents are:

- Copy of Survey Results - Fish Farms - New sites March 2016
- Copy of Predator control survey for 2017 seal licences
- Copy of Filter of ADD use by fish farm company (data for 2016 licences)

Please note that we have marked out (redacted) some personal data in the documents. Releasing this personal data into the public domain in response to an information request would breach the Data Protection Act 1998. We are therefore withholding the information under EIRs Regulation 11(2) (Personal data).

We have also redacted some financial information as it is commercially confidential and relates to a number of legitimate economic interests. Disclosing the information into the public domain in response to an access to information request would be likely to cause substantial harm to those legitimate economic interests. We are therefore withholding the information under EIRs Regulation 10(5)(e) (Confidentiality of commercial or industrial information).

We have concluded that, in this case, it is not in the public interest for SNH to release information that would harm legitimate economic interests.

4. Please include discussions with the salmon farming industry (e.g. SSPO, Marine Harvest, Scottish Sea Farms, Loch Duart), Freedom Foods/RSPCA Assured, the EU/EC, the Scottish Government, the UK Government, ADD manufacturers and any other parties since 1 January 2016.

We have attached correspondence relating to the Salmon Aquaculture and Seal Working Group (SASWG), <http://www.saswg.org.uk/index.html>.

Please note that we have again marked out (redacted) some personal data in the documents. Releasing this personal data into the public domain in response to an information request would breach the Data Protection Act 1998. We are therefore withholding the information under EIRs Regulation 11(2) (Personal data).

We have redacted some information in the documents, and we have not provided some of the information we hold. We have not provided a copy of a presentation made to a meeting of the Salmon Aquaculture and Seal Working Group (SASWG) and references to it, or copies of correspondence relating to a proposed device trial/application for a European Protected Species (EPS) licence.

The information noted above is commercially confidential. It was provided to SNH in confidence, and this duty of confidence relates to a number of legitimate economic interests. Disclosing the information into the public domain in response to an access to information request would be likely to cause substantial harm to those legitimate economic interests. We are therefore withholding the information under EIRs Regulation 10(5)(e) (Confidentiality of commercial or industrial information).

We have concluded that, in this case, it is not in the public interest for SNH to release information that would harm legitimate economic interests; it is in the public interest for us to maintain the confidentiality in which the information was provided to us.

5. Please provide copies of any drafts reports, brochures, briefing notes, PowerPoint presentations, photos and any other documents relating to this FOI request since 1 January 2016.

This part of your request is too broad for us to be able to carry out meaningful information searches. Please can you review our responses to the other parts of your request; could you then let us know if you are interested in further, specific, information?

6. Please also include information on the killing and shooting of seals by salmon farms - including any information relating to a possible US ban on farmed salmon imports and on killing in SACs.

Please refer to the attached documents.

Some of the information we hold relates to seal licence applications made through the licencing system introduced by the Marine (Scotland) Act 2010, and there is too much information for us to be able to provide it all to you. It would take an excessive amount of staff time to deal with this part of your request and the scale of the task is too big for us to be able to deal with. It would not be in the public interest for SNH to divert such a significant amount of our staff time to this work as it would impede our ability to carry out our other statutory duties.

There is some information about seal licences in the spreadsheets attached along with this letter. Please can you review that information, and then let us know if you are interested in more specific information about a particular licence.

We do not hold any information relating to a possible US ban on farmed salmon imports and on killing in SACs. I therefore need to advise that EIRs Regulation 10(4)(a) (Information not held) applies to this part of your request.

How We Handled Your Request

We believe you have asked for environmental information as defined in the Environmental Information (Scotland) Regulations 2004 ('the EIRs'), so we are dealing with your request under those regulations. To be able to use the EIRs, we must apply an exemption under section 39(2) of the Freedom of Information (Scotland) Act 2002 ('FOISA'). The Scottish Information Commissioner's guidance recommends that public authorities apply this exemption to environmental information and handle requests under the EIRs.

If you would like to find out more about the access to information legislation there is a guidance booklet available on the Scottish Information Commissioner's website:

<http://www.itspublicknowledge.info/nmsruntime/saveasdialog.aspx?IID=5487&sID=5024>.

Review and Appeal

I hope this information meets your requirements but if you are dissatisfied with how we have responded to your information request, please write to us within 40 working days explaining your concerns. You can contact us at Battleby, Redgorton, Perth, PH1 3EW or email us at foi@snh.gov.uk. Our Director of Policy and Advice, Andrew Bachell, or his nominated delegate, will carry out a review of our response and contact you with their findings within 20 working days.

If you are not satisfied following this, you can make an appeal to the Scottish Information Commissioner. The Scottish Information Commissioner can be contacted at:

Scottish Information Commissioner
Kinburn Castle
Doubledykes Road
St Andrews
Fife
KY16 9DS

Online appeal service: www.itspublicknowledge.info/Appeal

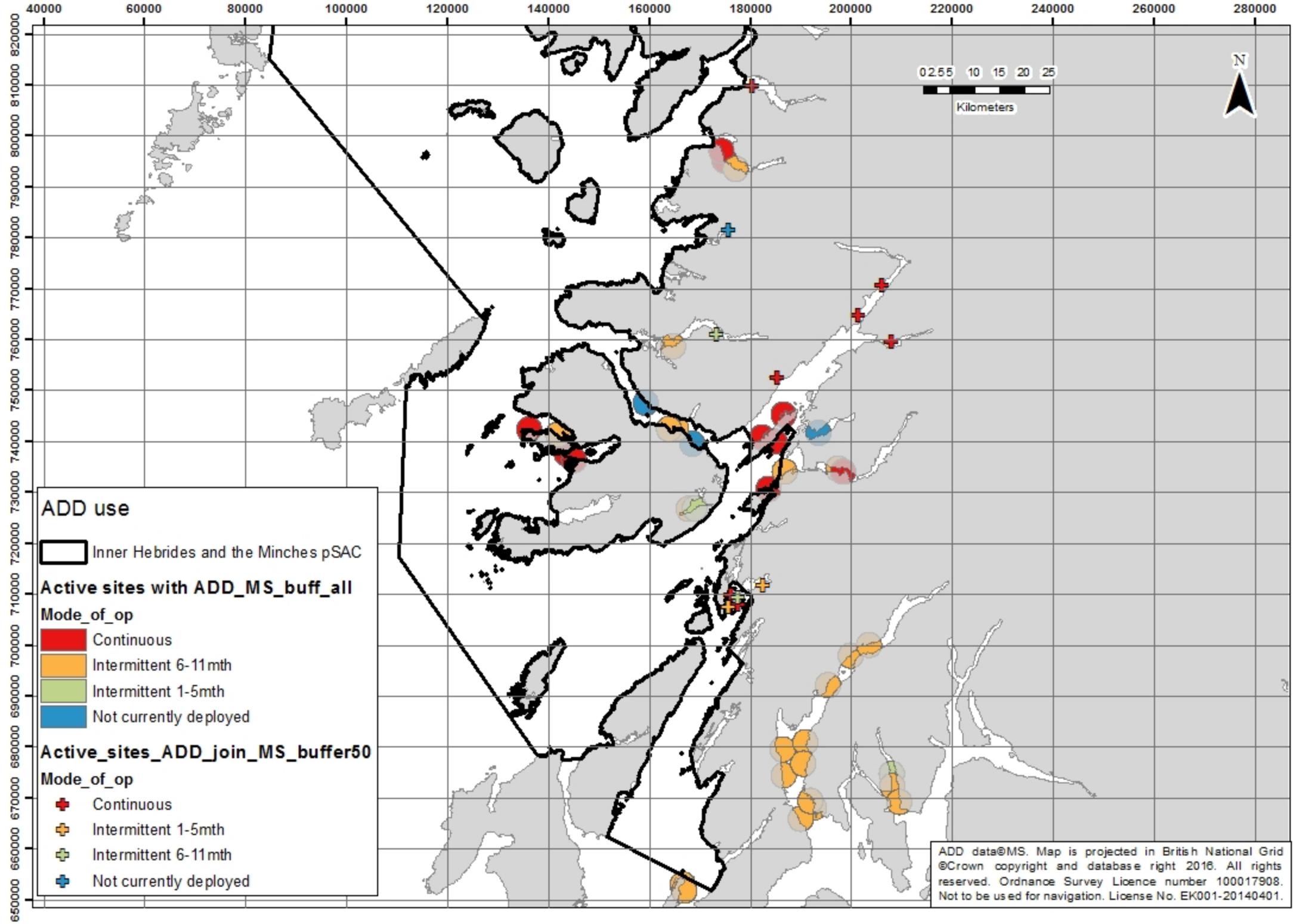
Website: <http://www.itspublicknowledge.info/>

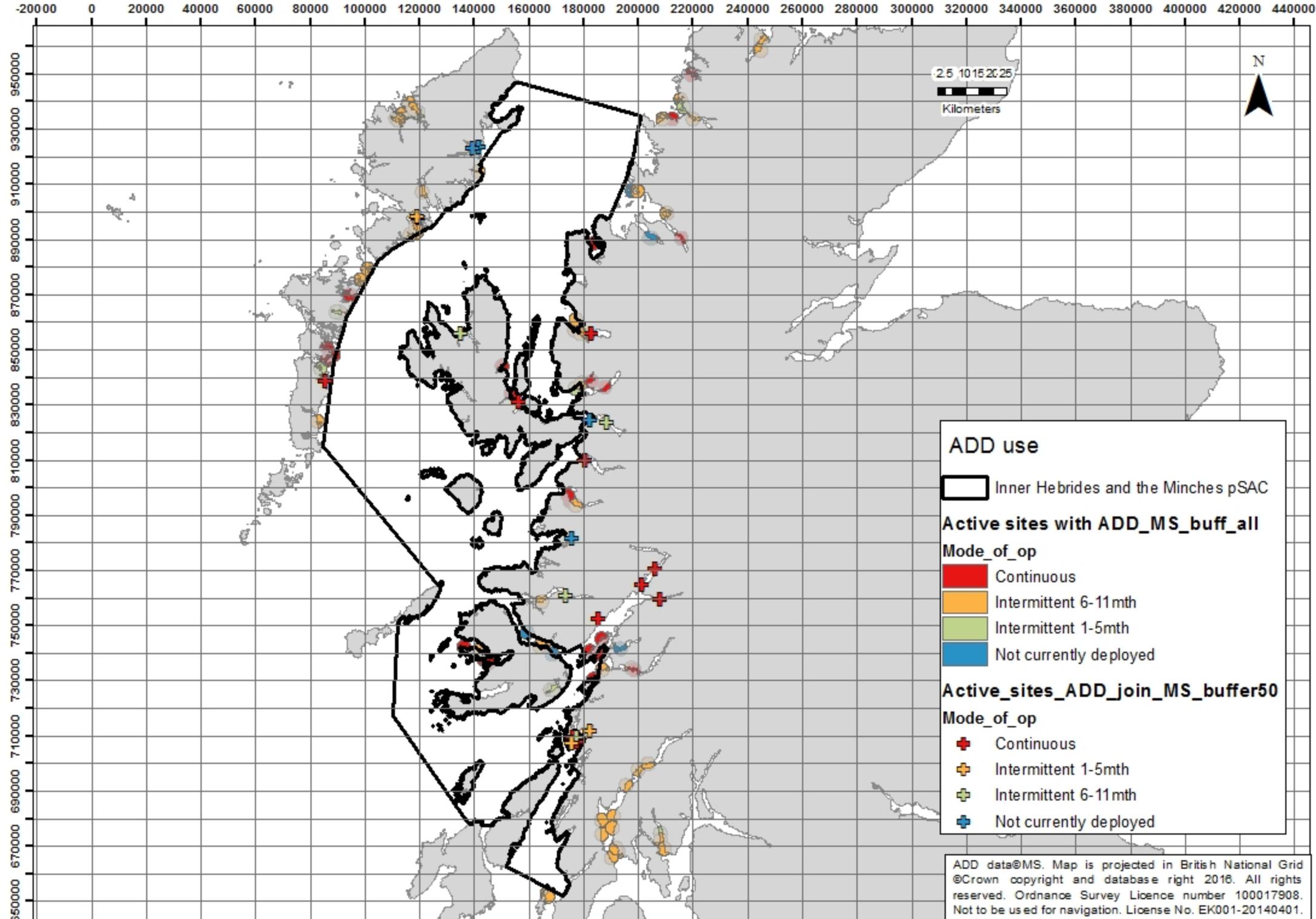
Telephone: 01334 464610

Yours sincerely

Rhoda Davidson

Rhoda Davidson
Information Officer
FOI@snh.gov.uk





ADD use

Inner Hebrides and the Minches pSAC

Active sites with ADD_MS_buff_all

Mode_of_op

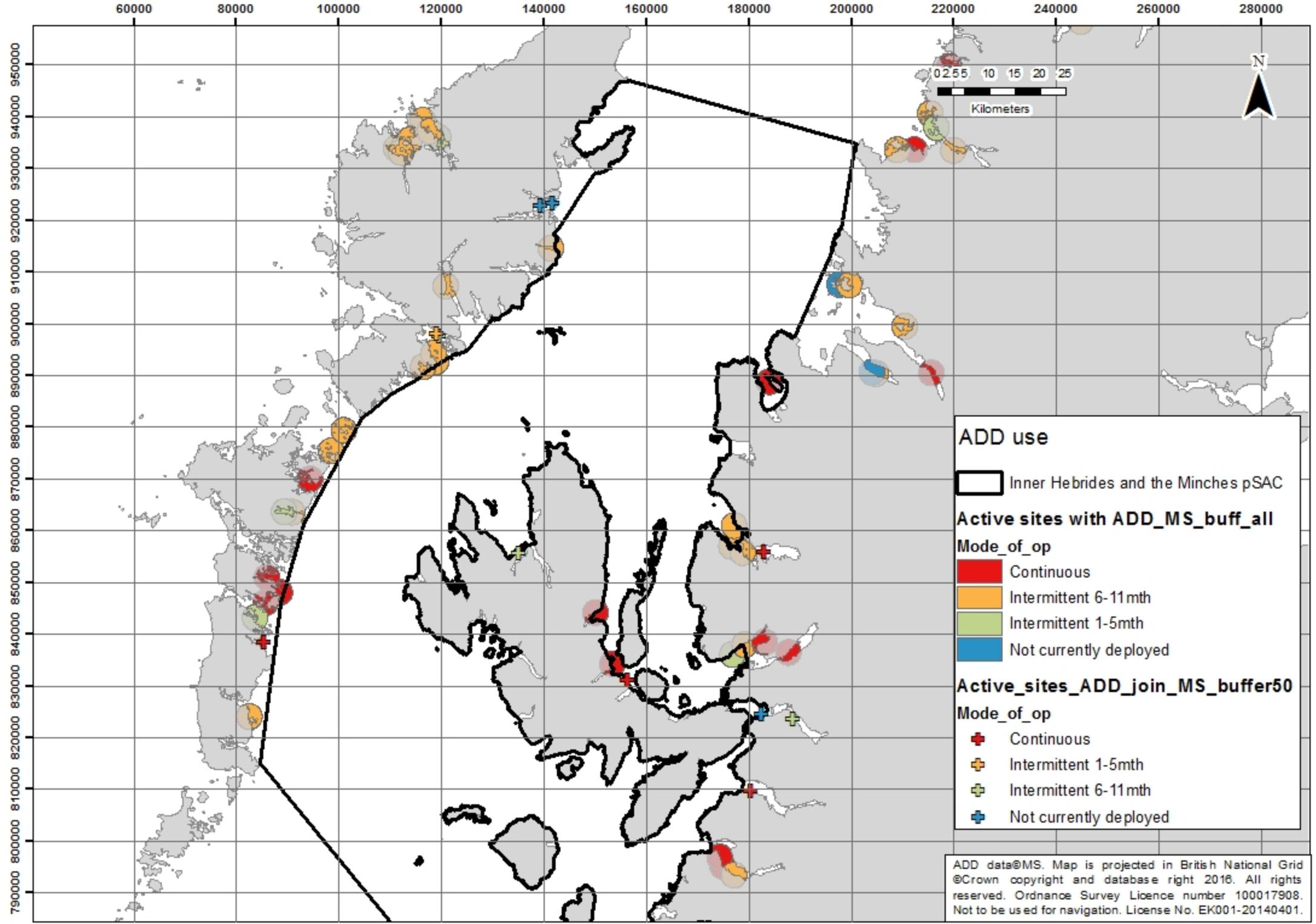
- Continuous
- Intermittent 6-11mth
- Intermittent 1-5mth
- Not currently deployed

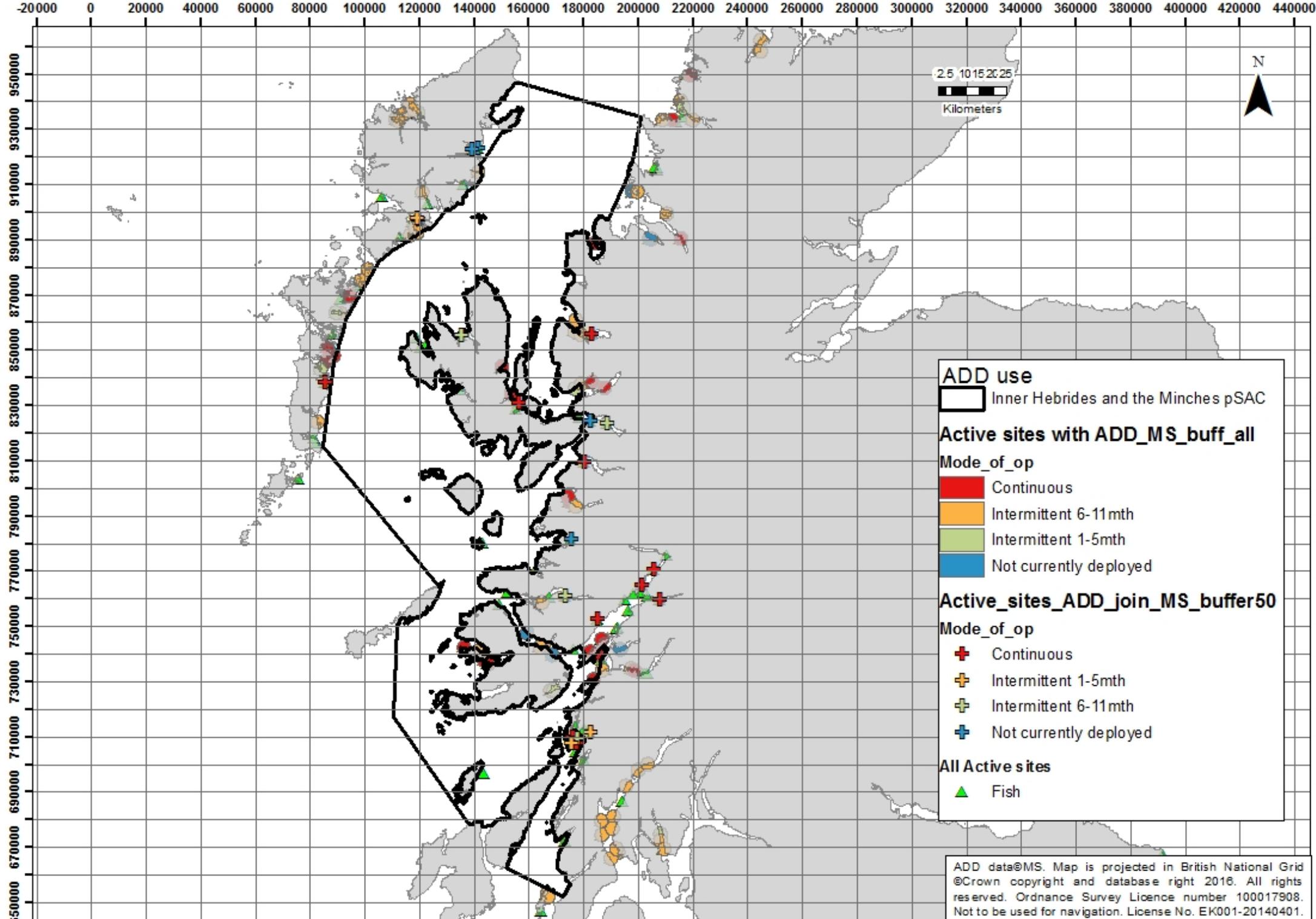
Active_sites_ADD_join_MS_buffer50

Mode_of_op

- + Continuous
- + Intermittent 1-5mth
- + Intermittent 6-11mth
- + Not currently deployed

ADD data@MS. Map is projected in British National Grid ©Crown copyright and database right 2016. All rights reserved. Ordnance Survey Licence number 100017908. Not to be used for navigation. License No. EK001-20140401.





ADD use
 Inner Hebrides and the Minches pSAC

Active sites with ADD_MS_buff_all
Mode_of_op
 Continuous
 Intermittent 6-11mth
 Intermittent 1-5mth
 Not currently deployed

Active_sites_ADD_join_MS_buffer50
Mode_of_op
+ Continuous
+ Intermittent 1-5mth
+ Intermittent 6-11mth
+ Not currently deployed

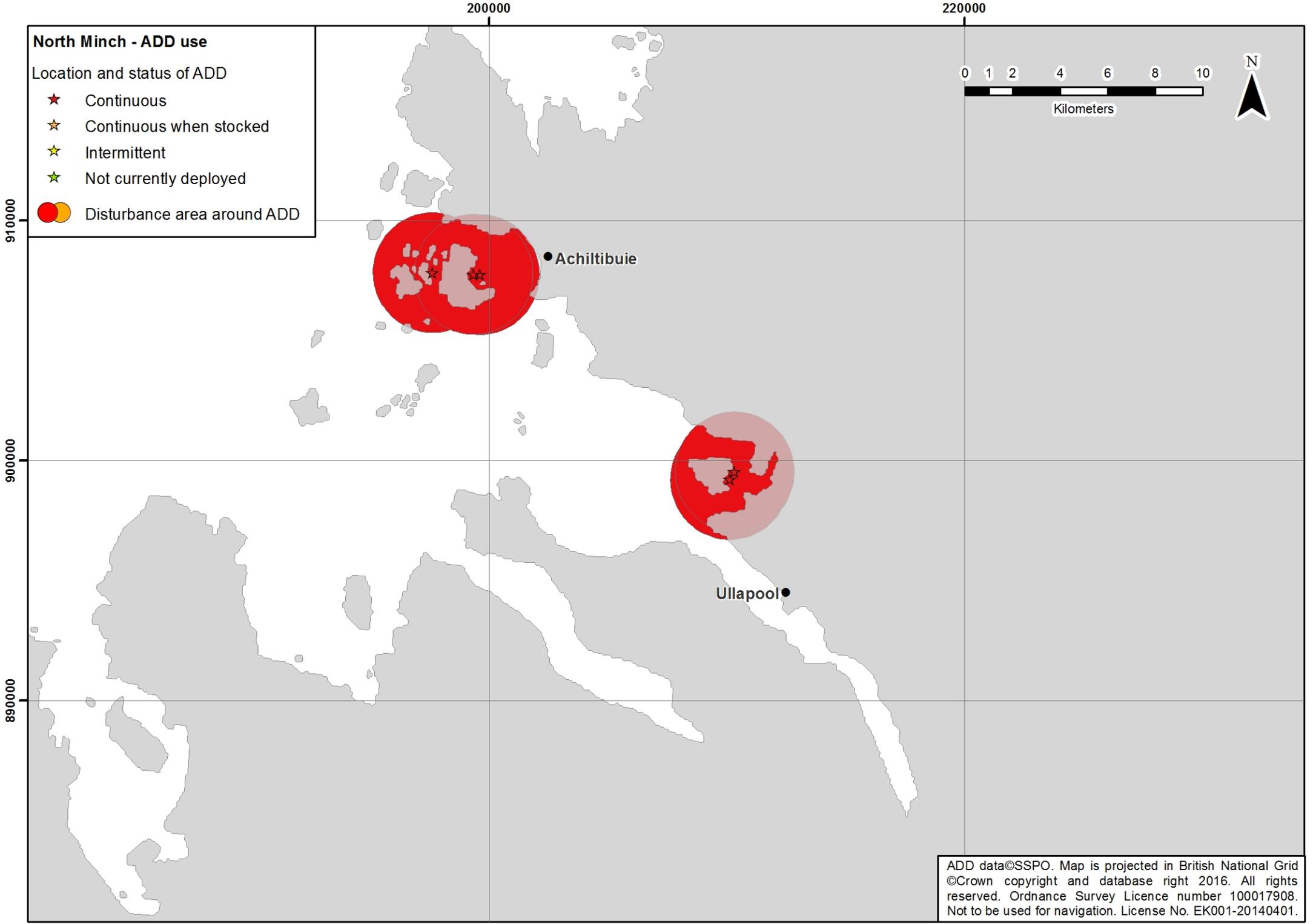
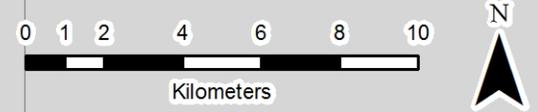
All Active sites
▲ Fish

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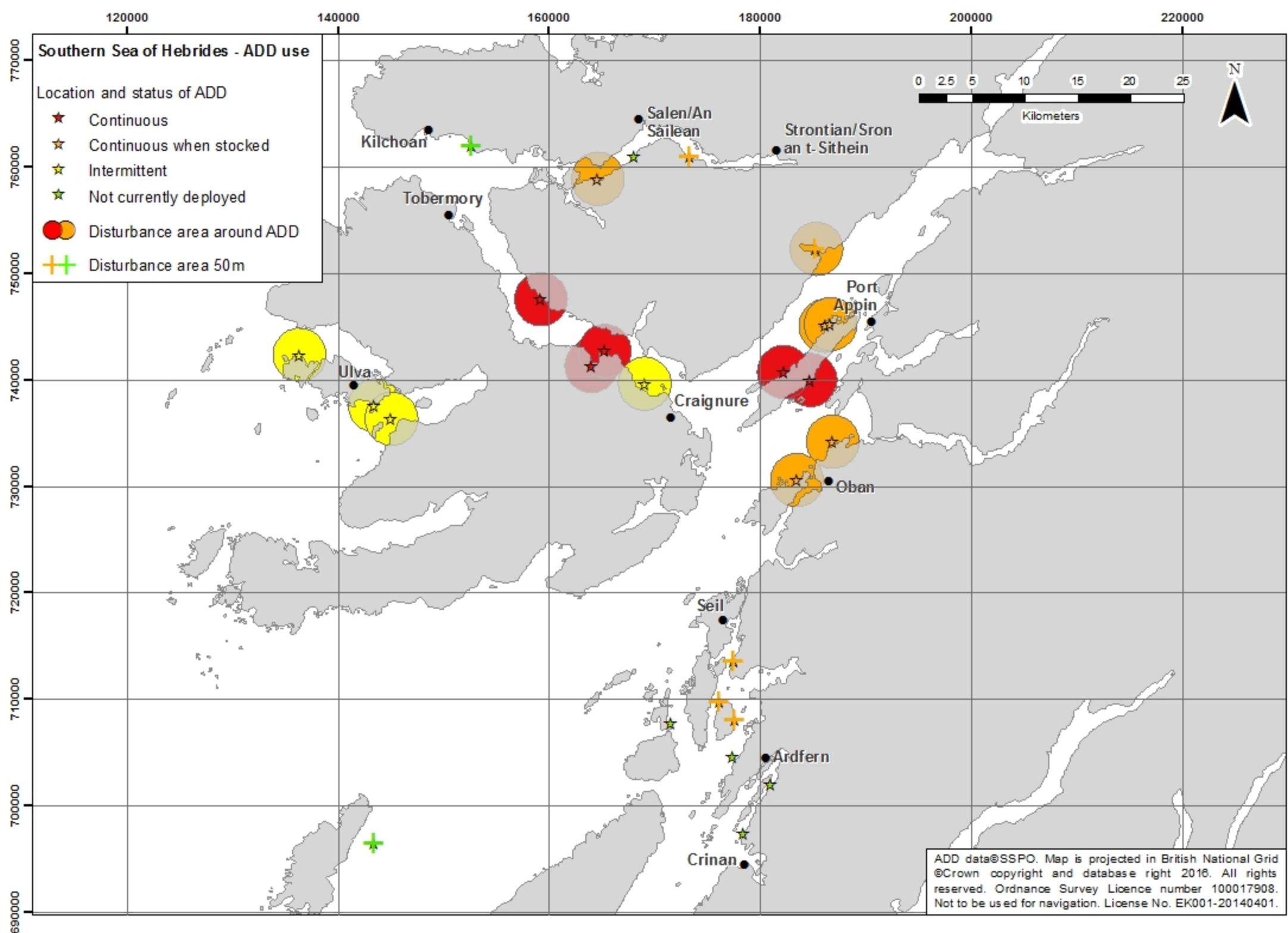
North Minch - ADD use

Location and status of ADD

- ★ Continuous
- ★ Continuous when stocked
- ★ Intermittent
- ★ Not currently deployed
- Disturbance area around ADD



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From: [Suzanne Henderson](#)
To: [REDACTED]@gov.scot"
Subject: FW: EPS and ADD use at fish farms meeting
Date: 12 October 2016 16:23:00
Attachments: 2015 04 22 SNH MS discussion on ADDs and EPS DRAFTmeeting note.docx

[REDACTED]
Apologies, I typed your email wrongly in the first instance,
Cheers
Suz

Dr Suz Henderson
Marine Policy and Advice Officer
Coastal and Marine Ecosystems Unit
Scottish Natural Heritage
Great Glen House
Leachkin Road
Inverness
IV3

Direct Dial: 01463 725238
Email: Suzanne.henderson@snh.gov.uk

From: Suzanne Henderson
Sent: 11 October 2016 10:27
To: [REDACTED]@gov.scot'; [REDACTED]@gov.scot'; [REDACTED]@gov.scot');
[REDACTED]@gov.scot'; [REDACTED]@gov.scot'; [REDACTED]@gov.scot';
[REDACTED]@gov.scot'; [REDACTED]@gov.scot'; [REDACTED]@gov.scot';
[REDACTED]@gov.scot'; Cathy Tilbrook; Caroline Carter; Liam Wright; Karen Hall
Cc: George Lees; Jane Dodd
Subject: EPS and ADD use at fish farms meeting

Hello all,
If you recall we had a meeting way back in April 2015 to discuss the consideration of EPS licensing or otherwise for the use of ADDs at fish farms, particularly in light of the then newly published EPS Guidance, and various bits of research on ADDs.

We are keen to reopen this dialogue and suggest another meeting in the first half of November to try and reach some consensus between us.

I have attached some draft notes and actions from the last meeting that George and Caroline were working on. Apologies, but I do not think this was ever sent round.

Please can you fill in the doodle poll below to indicate your availability, or let me know if there is someone more appropriate to invite. Hopefully we can get a date where most folk are available.

[REDACTED]

Many thanks
Suz

Dr Suz Henderson
Marine Policy and Advice Officer
Coastal and Marine Ecosystems Unit
Scottish Natural Heritage
Great Glen House
Leachkin Road
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IV3

Direct Dial: 01463 725238

Email: Suzanne.henderson@snh.gov.uk

SNH / MS Discussion on ADDs and EPS – 22nd April 2015

Meeting notes

Caroline Carter & George Lees

Attendees:

SNH: Cathy Tilbrook (Chair); George Lees; Suz Henderson; Liam Wright; Caroline Carter; Karen Hall

MS: [REDACTED]

1. Intro / Context to ADD/EPS Issue

- Welcome and intro – CT
- Intro – GL
- Background presentation – CC

2. Consideration of EPS licensing needs for ADD development

- Discussion structures using the MS guidance flowchart (pg 3 www.scotland.gov.uk/Resource/0044/00446679.pdf)
- **Are EPS likely to be present?**
 - It was agreed for the purposes of assessing licence requirements that it could be assumed that there were EPS species present in all locations. It is likely that harbour porpoise at least will be present. This assumption was preferred instead of any requirement for the industry to undertake survey work.
- **Are you planning an activity which could potentially cause injury or disturbance to marine EPS?**
 - Have no definitive information on any ADDs which could allow us to be sure they weren't causing disturbance, therefore the potential to cause injury or disturbance can not be refuted. Given lack of knowledge and provisions in guidance to avoid or mitigate against disturbance, have to conclude 'yes' at present time
 - Purpose of ADDs is to disturb, and so will disturb cetaceans unless designed specifically to target seals and not cetaceans (eg GenusWave)
 - Potential problems with the interpretation of the guidance – no suitable test – no precedent set. Need clarification of guidance before proceeding down the path of a regulatory change.
 - Likely push back from Aquaculture industry who may not accept preceding argument. Discussion centred on whether it could be proven that the aquaculture companies' use of ADDs could be held as 'reckless' disturbance'
- **Can the impact be fully or partially mitigated?**
 - GL detailed our thoughts on mitigation possibilities and that it was our conclusion that theoretically, yes, mitigation could be applied in certain circumstances. In

practice, however, all would have logistical or financial implications for aquaculture companies that would render them, for the most part, infeasible to apply.

- [REDACTED] made comment that we do not have the regulatory regime to say that if a specific device was being used that there would not be an EPS offence.
- It was noted that, without an EPS licence, use of ADDs can't actually be controlled nor mitigation enforced. There is a lack of certainty about where 'mitigation' fits within the EPS licensing process. Is it applied to prevent need for an EPS licence or to enable ADD use on provision of an EPS licence.
- Suggestion was made that good practice could be encouraged by tightening of the ADD specifications and guidance on ADD use within the industry's best practice guidelines, though again this may not be palatable to the industry.
- **Will an offence be committed despite mitigation plans?**
 - The definition of disturbance was queried.
 - Is it likely that an offence will be committed?
 - Whole discussion boils down to the definition and application of the term 'reckless'.
 - Suggestion was made that awareness that ADDs could cause disturbance should be noted in guidance (after meeting note – MS guidance pg 15 section 2.2.2 notes ADD *"to be an activity that have the potential in certain circumstances to be associated with the disturbance, injury and/or killing of cetaceans"*)
 - [REDACTED] – no case law
 - [REDACTED] – only one case – [REDACTED] – Moray Firth – Jet skis
 - [REDACTED] – case for industry led guidance
 - Argument made that it is MS and SNH that need to set the guidance.
 - [REDACTED] – check the wording relating to reg 39(1 & 2) this currently reads that disturbance should affect the conservation level of the species – high bar –
 - England do not have 39(2) and the specifications relate to terrestrial species and therefore do not make sense for marine mobile species.
 - There was consensus that there was a need for the control of ADD use, but perhaps through planning.
 - GL – explained our proposed tiered approach to licensing
 - It was commented that this would be where an assessment of risk would be needed.
- **General discussion**
 - There was no agreement that EPS licensing was appropriate for the aquaculture industry.
 - There was agreement that if a marine renewable developer was to deploy an ADD to deter animals prior to piling that this would constitute deliberate disturbance and require an EPS licence.
 - Marine Scotland mentioned that they were due to improve the on-line survey for fish farms in relation to the shooting of seals. The suggestion was made that more questions could be asked about ADD useage.
 - SH – mentioned some SARF work that looked at the % of ADD use at fish farms – it was Sus's recollection that most FF use ADDs.

- CT – queried whether fish farm accreditation process was moving away from the use of ADDs (I missed the answer to this..)
 - The point was made that local authorities would need to do the AA with respect to any potential harbour porpoise SAC. LW made the point that they would assess against the current situation – ie for the west coast the present ADD use would be considered as the baseline situation.
 - Our advice goes to the local authority
 - We have advised against ADD use in Scapa flow and the Small Isles also Yell sound in Shetland.
 - Industry had accepted this stipulation
 - █████ mentioned the work that was being drafted by █████ on dredging where he mentions that ADDs would be ineffective for BND.
 - CC – this is what █████ states in the text, but the work that is cited alongside this statement refers to the pinger type ADD rather than the louder aquaculture ADD. (post meeting note – it may be that some ADDs do not work for some species – probably due to the frequency content and or whether the species in question associates the noise with a potential hazard – this is the aim of the ORJIP project 4 phase 2 to test the efficacy on all species of interest).
 - Comment made that in Aquaculture there is a condition in planning that if an ADD is to be deployed it needs to be agreed with the LA and SNH – but MS are the licensing authority.
 - Possible inconsistency between existing guidance and legislation.
 - Noted that EPS licenses were issues where an ADD was going to be used in salmon rivers and the applicant had assumed that this was necessary.
 - We were asked if we had consulted legal advice before issuing EPS licences for disturbance, we replied that we thought not – because to us it seemed clear that it was needed.
- **Clarifications of the roles of MS and SNH for marine EPS licensing** (█████ paper)
 - Cathy tried to take us through the questions posed by █████ paper. It was felt that some of the questions were premature in that the regulatory regime was needed first if there was to be a change for ADD use in the Aquaculture industry.
 - Most EPS licenses so far have been connected with Geophy activities. █████ already applies a filter on the activities that potentially require an EPS licence, but this is set quite low, so there are instances where we have gone back and confirmed that no licence is required.
 - Potentially we could generate standing advice for Geophys applications – however this was not considered necessary it was preferred to continue as we are as the EPS guidance is still considered new.
- **Action points**
 - Marine Scotland to consider the interpretation of the term ‘reckless’

- Marine Scotland to look into the issue relating to the wording in the guidance relating to REG 39(1 & 2) and to clarify the sections in the guidance.
 - In doing this, MS will clarify the Commission Guidance.
 - MS will ask supplementary questions to SMRU relating to the evidence behind disturbance of cetaceans from ADDs
 - Also to ask SMRU if they can discriminate ADDs that are likely to cause disturbance and those that are unlikely to.
- Roles and responsibilities to be agreed after the answers to the above are considered
 - The question was raised as to what other options there might be if reckless does not apply.
 - Incorporate into the industries code of practice – but this route has no weight and relies completely on good practice.
 - Possible route through seal shooting licenses – could be used to apply pressure – for example seal licenses are not granted unless certain ADDs are used...

DRAFT

Acoustic surveys

A range of acoustic ground discrimination surveys are undertaken within the pSAC, including for scientific research and site surveys undertaken in association with various infrastructure projects. Acoustic surveys involve the use of equipment such as airguns, sub-bottom profilers and boomers. Sounds produced by these surveys tend to be characterised by relatively high source levels (>220dB re 1µPa (pk-pk)) and variable frequency ranges (e.g. airguns have peak energy < 10 Hz – 1 kHz, together with broadband emissions at lower intensities, whereas sidescan sonar can emit frequencies up to 500 kHz). The frequency range of the acoustic equipment depends on its purpose. Low frequency equipment is used to characterise subsurface layers of the sea bed, with higher frequencies used to achieve better seabed surface resolution.

Harbour porpoise are known to be sensitive to noise. Given the high source levels and the overlap between the sounds produced during acoustic surveys and the hearing range of harbour porpoise, there is potential for disruption of porpoise feeding activity through injury and disturbance.

Harbour porpoise are considered to have a low sensitivity to collision from large, slow moving vessels associated with acoustic surveys.

Recommended management option:

Reduce/limit pressures as required:

- Reduce or limit the pressure through effective mitigation measures.
- Existing best practice should be followed (see *Relationship with existing management*).
- Vessel movements associated with acoustic surveys are low throughout the majority of the site. However, our view is that the likely effects of disturbance on harbour porpoise should be considered within the context of all boat activity within the proposed SAC. See section on *Potential cumulative effects*.

Proposed way forward:

Industry should engage in early pre-application discussions with regulators and advisers to ensure that any impacts on harbour porpoise are considered.

Should consideration of the likely cumulative effects of boat movements and underwater noise identify risk(s) to the Conservation Objectives for harbour porpoise we

will continue discussions with those involved in undertaking acoustic surveys to help us understand more about the likelihood of collision and/or disturbance from noise and to consider measures for reducing any unacceptable risks.

Relationship with existing management

See Annex 2 for the [JNCC Guidelines for minimising the risk of injury and disturbance to marine mammals from seismic surveys](#)

See Existing Species Protection (page 12) for information on Marine Scotland's guidance on [The protection of marine European Protected Species from injury and disturbance](#)

Aquaculture - finfish

In assessing likely impact, our focus has been on the equipment on site, likely vessel routes, and the use of Acoustic Deterrent Devices (ADDs) which together represent the main interactions between aquaculture developments and harbour porpoise.

There are numerous finfish farms within or immediately adjacent to the pSAC, mainly close to the shore. Map 2 shows the distribution of aquaculture developments within or close to the boundary of the pSAC.

Aquaculture farm equipment includes pens, nets, moorings and can include floating buildings. We consider that there is a low risk of entanglement for harbour porpoise from aquaculture infrastructure.

Predator control at fish farms is necessary to ensure that welfare of the farmed stock is not compromised. Finfish farms often use ADDs as part of their anti-predator measures, however, these may result in disturbance/habitat exclusion of harbour porpoise. The evidence of impacts on cetaceans from ADDs currently in use is varied and is dependent on many variables (e.g. noise characteristics of device, how the device is used, the topography, animal behaviour and importance of the area/habitat where the ADD is being used). Therefore, we consider it is important that efforts be made to further investigate this issue. Scottish Aquaculture Research Forum is funding research into the effectiveness of acoustic deterrents at lower frequencies than are typical of devices in current use. The aim is to better understand any disturbance to cetaceans, including harbour porpoise, relating to the use of these new devices. Further research is required but these new devices may in the future provide a suitable alternative seal defence mechanism which is more compatible with the conservation objectives of the site.

Working with industry, we are currently undertaking a review of ADD use within or near the pSAC. Information relating to current ADD use within the pSAC is required to determine the level of ADD noise emission currently in operation and whether further constraints on or more targeted use of ADDs should be considered. Our view is that there could be a risk to the Conservation Objectives as a result of the cumulative effects of ADD use within the site.

A strategic approach is required to reduce/limit the potential of cumulative risks from ADD use on the Conservation Objectives of the SAC, and we suggest that appropriate feedback loops within predator control management are considered to ensure ADD noise emission is minimised. This could be done through the development of a best practice ADD use protocol in discussion with industry and regulators; this could include a preference for triggered devices and only activating devices when seal predation becomes a problem. It is our view that continuous noise emission from ADDs at fish farm sites is not best practice. In areas of higher cumulative risk to the Conservation Objectives (e.g. areas with larger numbers of fish farms within straits, sounds and embayments where ADD use may limit access to

these areas), further measures to reduce ADD noise emission should be considered via ongoing discussions with industry.

Vessel activity associated with aquaculture farms include small rapid staff transfer boats and larger operational vessels. Although there is limited evidence of collision risk for harbour porpoise from vessels of this type, there is potentially more risk of disturbance. Disturbance is considered further under *Potential cumulative effects*. In our view, no additional management is required for vessel activity providing best practice is followed.

Map 2. Finfish aquaculture sites in relation to the Inner Hebrides and the Minches pSAC

Recommended management option:	Reduce or limit pressures as required: <ul style="list-style-type: none">• ADD deployment plans and codes of conduct (utilising best practice and taking into account site-specific circumstances) should be considered for all existing and new developments. This may include use of triggered devices, non-continuous use of ADDs, or other non-lethal methods of predator control. The cumulative effects of ADD use within the pSAC should also be considered and taken into account in the development of such plans. For further details see section on Potential cumulative effects.• In areas of higher cumulative risk (areas with larger numbers of fish farms within straits, sounds and embayments where ADD use may restrict access) a more <u>strategic approach is required and use of ADDs or restrictions of use should be considered at a wider scale.</u>
Proposed way forward:	<u>Initial discussions with the industry have taken place. We agreed that the next stage was to meet with operators in areas of higher cumulative risk to discuss recommended management options, best practice and deployments plans and look at cumulative issues. Following this, we will review/take stock and see if revised management or working practices could be applied to a wider area. We will also continue</u>

Comment [KH1]: Perhaps remove depending on how the cumulative section develops

discussions with the industry about all methods of non – lethal predator control, any new ADDs that come into use and how existing ADDs are used. New finfish sites planning to use ADDs will require careful consideration to ensure that cumulative impacts will not compromise the Conservation Objectives of the pSAC.

We plan to develop guidance to help with assessing and mitigating potential impacts to the pSAC. In addition, we will work with the aquaculture industry develop specific codes of conduct and guidance on the use of ADDs within the pSAC as needed

Where management measures are required, the development of these would be undertaken via discussion with industry and regulators.

Relationship with existing management:

The use of ADDs for predator control at salmon farms may require an EPS licence. See Existing Species protection (page 12) for Marine Scotland's guidance on [The protection of marine European Protected Species from injury and disturbance](#)

See Annex 2 for *Existing good practice for vessels and mobile species.*

Cables and pipelines

Communications and electricity cables are vitally important for communities in the Western Isles and on the west coast of Scotland. In particular, an interconnector to the Western Isles has been identified in the National Planning Framework as being of strategic importance. Currently, the Western Isles HVDC connection from Arnish to Dundonnell is the only transmission proposal that falls within the site. There are several existing lower voltage distribution cables along with telecoms and broadband cables within the site. Policies outlined in the National Marine Plan may require some of these to be replaced and others to have protection installed.

The aspect of cable installation most likely to disturb porpoises is acoustic surveying during initial surveys, pre-lay and post-lay. Installation of cable protection such as rock placement could also result in disturbance, but over a more limited time period and area. Providing best practice is followed it is unlikely that this activity will pose a risk to the Conservation Objectives.

Geophysical surveys used in the process of cable laying are covered under the Acoustic surveys section of this document. Harbour porpoise are considered to have a low sensitivity to collision from large, slow moving vessels associated with cable and pipe laying.

Recommended management option:

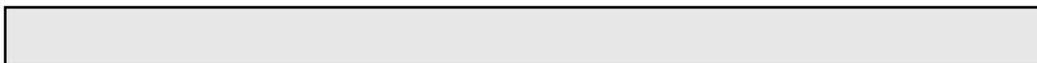
Reduce/limit pressures as required:

- Reduce or limit the pressure through effective mitigation measures.
- Existing best practice should be followed (see *Relationship with existing management*).

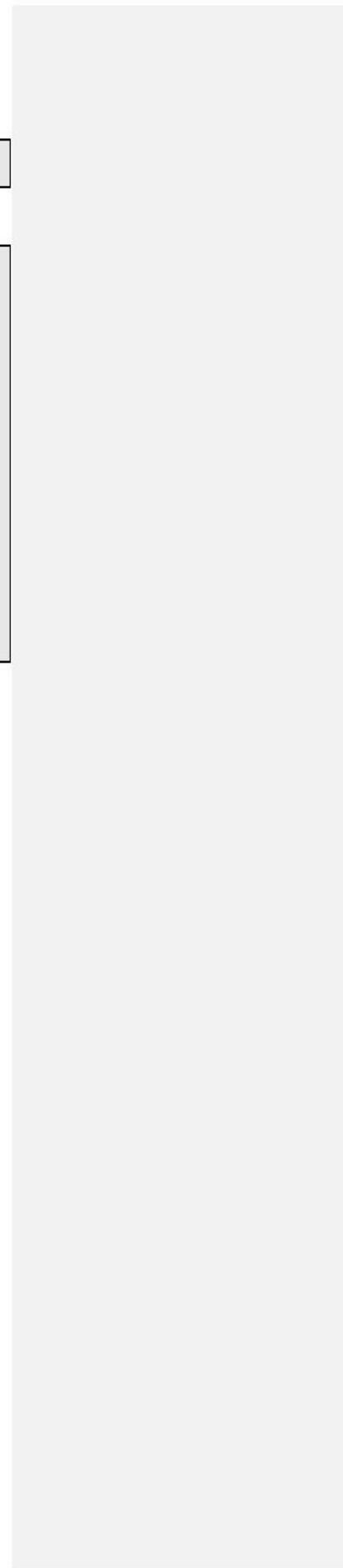
Proposed way forward:

Industry should engage in early pre-application discussions with regulators and advisers to ensure that any impacts on harbour porpoise are considered.

Should consideration of the likely cumulative effects of disturbance identify risk(s) to the Conservation Objectives for harbour porpoise we will continue discussions with those involved in this activity to help us understand more about the likelihood of disturbance from noise and to consider measures for reducing any risks.



Relationship with existing management	<p>Although there are not specific best practices developed for this activity, the general approach of using a qualified Marine Mammal Observer during specific parts of the cable lay process is encouraged. See Annex 2 for the <u>JNCC Guidelines for minimising the risk of injury and disturbance to marine mammals from seismic surveys</u> .</p> <p>See Existing Species Protection (page 12) for information on Marine Scotland's guidance on <u>The protection of marine European Protected Species from injury and disturbance</u>.</p>
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Commercial shipping

There is a variety of commercial vessels operating in the Inner Hebrides and the Minches pSAC including ferries, cargo and tanker vessels. These large boats typically have relatively consistent vessel routes and operate at a fairly regular frequency (although this may vary e.g. between summer and winter). These vessels are generally associated with low frequency (Hz) noise characteristics. See Map 3 which shows ferry routes and commercial shipping activity in the site. Other boating activity within the pSAC is covered under the relevant activity (e.g. aquaculture, fishing, recreation).

Mortality and serious injury of cetaceans resulting from ship strikes is mainly reported in slow-swimming (e.g. sleeping) large baleen whales. There are relatively few recorded ship strikes with smaller cetaceans such as harbour porpoise. Vessel strikes are perhaps not likely to occur frequently, due to the avoidance behaviour of porpoises when ships approach.

Shipping produces continuous underwater sounds which are unlikely to cause physical trauma, but could make preferred habitats less attractive as a result of masking or disturbance (habitat displacement, area avoidance). In UK waters, a negative influence of shipping density on the presence and abundance of harbour porpoise was found when shipping intensity surpassed thresholds of approximately 50 ships per day in the Celtic and Irish Sea management unit and 80 ships per day in the North Sea management unit (Heinänen & Skov 2015). Ship-avoidance behaviour in combination with masking effects by the ship-generated noises will make areas with high shipping densities less suitable for harbour porpoise. Current levels of shipping intensity are not thought to pose a risk to the Conservation objectives for the site.

Map3. Ferry routes and commercial shipping activity within the Inner Hebrides and The Minches pSAC

Recommended management option:

No Additional Management:

- Shipping levels throughout the majority of the site are low, with localised areas of increased activity near harbours. The likely effects of disturbance on harbour porpoise should be considered within the context of all boat activity within the proposed SAC. See section on *Potential cumulative effects*.

Proposed way forward:

We will continue discussions with public authorities, Marine Scotland and other regulators to ensure that any impacts on harbour porpoise are considered when they are assessing new and amended proposals.

Should consideration of the likely cumulative effects of boat movements identify risk(s) to the Conservation Objectives for harbour porpoise, we will continue discussions with commercial shipping interests to help us understand more about the likelihood of displacement and to consider measures for reducing any risks.

Where management measures are required, the development of these would be undertaken via discussion with commercial shipping stakeholders and regulators.

Introduction to fishing activities

The management options for fishing activities are based on the known sensitivities of harbour porpoise to different types of fishing activity and whether or not that fishing activity may affect the achievement of the site's Conservation Objectives. This initial advice is based on expert judgement of existing evidence in the scientific literature.

In addition to any direct interactions between fishing operations and harbour porpoise within the site, maintaining the abundance of prey species for porpoise is an important consideration. For herring, sandeel or sprat the management of populations of these species (and related fisheries) occurs at a scale much larger than the SAC itself. Consequently, management of fisheries at the wider scale can make a contribution to meeting the site's Conservation Objectives, and to a large extent may already do.

Fisheries management under the Common Fisheries Policy takes account of research and advice on multispecies and food web dynamics, helping to ensure that stocks are harvested within sustainable limits. In achieving this it is likely that availability of prey species to harbour porpoise will be maintained. In addition, certain existing management measures within or adjacent to the site may also be making a contribution, such as area restrictions under the Inshore Fishing (Scotland) Act 1984 to protect herring spawning grounds.

More information on the specific characteristics of the various fisheries and therefore their specific interactions, directly and indirectly, with the harbour porpoise is required. Discussions with those involved with fishing within or adjacent to the site will be important for completing the assessment of the extent to which harbour porpoise may actually be affected by fishing activities

Map 4. Designated sites with existing fisheries management overlapping the Inner Hebrides and the Minches pSAC. See [Marine Scotland website](#) for further details of the fisheries restrictions in place.

Fishing – mobile/ active gear

Harbour porpoise are known to take a wide range of pelagic shoaling small fish species, and the main prey species in this region are the lesser sandeel (*Ammodytes marinus*), whiting (*Merlangius merlangus*), sprat (*Sprattus sprattus*) and herring (*Clupea harengus*). The harbour porpoise is a relatively small predator with limited ability to store energy. It is dependent on foraging throughout the year without prolonged periods of fasting. The almost constant need to feed makes harbour porpoise potentially vulnerable to prey depletion; therefore the removal of prey species has the potential to negatively affect them. There is currently no targeted fishing for sandeels within the site.

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Fishing methods with the potential to cause significant disruption of sandeel-supporting habitat could cause local depletion of sandeels. Hydraulic fishing methods used for certain bivalves are the most likely example, however, this method is not widely employed and tends to be limited by depth.

It is thought that current levels of fishing and the removal of target species which form part of the diet of harbour porpoises in this area are unlikely to have a significant negative impact on the species at this time. Harbour porpoise bycatch has rarely been recorded in towed gears and therefore no additional management is required with regard to this.

Sandeels are managed as within 12nm by Marine Scotland. In addition, any such fishery managed by a member state and that is only available to that member state must still meet management measures outlined under Common Fisheries Policy. CFP objectives include ecosystem considerations and capability for non commercial species. However, there is currently no advice or survey data for Area VI (the area within which the pSAC lies) available through the CFP. Due to this lack of data, a precautionary quota was set at about 5000T but there has been limited, if any, take up of that.

Recommended management option:

Remove/avoid pressures

- ~~We recommend that targeted fishing for sandeels in this site should be excluded because of the importance of sandeels as a prey species for harbour porpoise.~~
- We recommend exclusion of demersal fishing

Comment [KH2]: Moved to reduce/limit

gear using hydraulic methods from sandeel-supporting habitats within the site. This method of fishing can fundamentally change habitats so that they can no longer support sandeels.

- Sandeels occur widely throughout the pSAC proposal and any management should be applied to the whole site.

Reduce/limit pressures as required

- There is currently no sandeel fishery off the west of Scotland. In addition, there is no current sandeel stock information for the relevant area with which to underpin a change in our approach- at the moment (i.e. to maintain our position that a targeted sandeel fishery should not be allowed). Given the importance of sandeels as a prey species for harbour porpoise, any proposed sand-eel fishery would require careful assessment and adequate stock data to inform decisions about a sustainable fishery.
- Fishing for herring, sprat and whiting may occur with the pSAC. We recommend ensuring that fishing activity doesn't prevent or disrupt the availability of prey species should be a principle objective of the management of these fisheries within the site, i.e. it should be considered as part of a broader ecosystem-based approach to management of these fisheries.
- Sand-eels, herring and sprat occur widely throughout the site and any measures should therefore be applied to the whole site.
- There is currently no evidence to support the requirement for a management option for the interactions of demersal towed gears with the habitats of relevant prey species (for sandeels and spawning grounds of herring). Should future research establish a clear relationship between the pressures caused by a specific

Comment [KH3]: Should this be reworded to reflect that it's the sandeel habitat that we are focused on

Comment [KH4]: David/Roddy – based on our discussions and the text used in the consultation report –please check

Comment [SC5]: Not sure if this could do with a bit of tweaking - it read to me the first time that there wasn't any evidence to maintain our current position

activity and the availability of these important prey species to harbour porpoise, we will review all relevant information and provide advice on a management option.

Proposed way forward:

We will continue discussions with the relevant IFGs about existing and proposed mobile fisheries in the area. Where management measures are required, the development of these would be undertaken via discussion with fishing interests and fishery managers and informed by any detailed information about fishing activity that can be made available. Marine Scotland will lead the development of specific management measures.

Fishing - static gear

There is a risk of bycatch from any form of static fishing gear that is set in the water column or on the sea bed, with those in the water column being of most concern. Harbour porpoise are considered to have a high sensitivity to bycatch (removal of non-target species). In this section we discuss risk relating to the use of bottom-set gillnets, trammel nets and tangle nets set on the seabed. Entanglement of harbour porpoise in creel lines has rarely been recorded and therefore no additional management is required with regard to this.

Work undertaken through the UK Bycatch Monitoring Strategy has demonstrated that harbour porpoise bycatch most often occurs in static nets, usually deployed from vessels <12m. Bycatch by static nets is the greatest anthropogenic threat to harbour porpoise in UK and adjacent waters. However the use of certain set nets is not permitted in Scotland and the use of drift nets is not allowed in European North Atlantic waters.

Comment [CC6]: Just flagging this as it surprised me that static nets were usually deployed from vessels less than 12m in length?

Recommended management option:

Remove or avoid pressures:

- ~~We recommend the continued exclusion of drift nets and nets set on the sea bed (tangle, trammel, gill) to avoid the risk of entanglement/bycatch within the pSAC.~~
- There is no current fishery of this type (drift nets and nets set on the seabed) within the pSAC. However, best available evidence from other areas shows a clear link between these types of fisheries and porpoise bycatch.
- Therefore based on this, our current management advice is that we should continue with the status quo – i.e. no fishery using drift nets and nets set on the seabed. Any new proposals should be subject to assessment as to the risk it may cause the CO.

Comment [KH7]: Suggest replacing this with the text below

Proposed way forward:

We will continue discussions with IFGs about new fisheries proposals, and diversification options. There are mechanisms by which we can review existing information and advance our thinking on these

interactions. We will outline the process for assessment of new or re-established proposals and develop guidance as required.

Where management measures are required, the development of these would be undertaken via discussion with fishing interests and fishery managers and informed by any detailed information about fishing activity that can be made available. Marine Scotland will lead the development of specific management measures.

Comment [SC8]: Would need to go through HRA I presume?

Comment [KH9]: [REDACTED] - I cant remember what you meant here?

Marine Renewable Developments

Within the Inner Hebrides and the Minches pSAC area, there are a number of small scale wave device deployments, as well as both proposed and consented tidal applications either within or outside of the boundary of the site. Currently there are no planned offshore wind sites around the west coast. An option area for the future commercial exploitation of wave energy, identified in Marine Scotland's sectoral plans for the industry, lies off the Ross of Mull. No other option areas for offshore wind, wave or tidal energy sit within the pSAC boundary, though various option areas, for all three technologies, lie immediately beyond it, especially in the south-west.

The deployment of wave devices is considered unlikely to cause meaningful risks to harbour porpoise as long as sufficient detail and consideration is given to tensioning of anchors and mooring lines so as to avoid the risk of entanglement. Tidal stream developments are identified as posing two mechanisms for negative effects: disturbance due to construction with increased vessel movements and underwater noise where foundations require piling / drilling, and the risk of collision during the operation of tidal turbines. Our understanding of the potential for collision risk is limited and studies are underway to increase our understanding of the interactions between all cetacean species and operating tidal turbines. For offshore wind activities, the pressure would occur during the construction phase if foundations required piling or drilling leading to an increase in underwater noise.

The construction and deployment of renewable energy developments is considered to be an activity that could lead to localised habitat exclusion for extended periods depending on the location and nature of construction. Whilst the construction and deployment of a single development is unlikely in itself to lead to population level impacts, that risk would be increased through the cumulative effects of multiple projects being constructed or operated at the same time (see later section on potential cumulative impacts).

Geophysical surveys used in the process of site development are covered under the Acoustic survey section of this document.

Recommended management option:

Reduce or limit pressures:

- Reduce or limit the pressure through effective mitigation measures:

Currently there is very little planned marine renewables development within or near the site. In addition, the type of developments are very diverse and thus construction and instalment methods are also likely to vary. It is therefore difficult to be prescriptive about likely mitigation required and examples of mitigation that could

be used are given below. Large scale developments will however require greater assessment.

Underwater noise – site/development specific consideration of proposed construction methods. For example noise mitigation measures for piling may include; soft start, use of vibro piling, Passive Acoustic Monitoring (PAM) and / or visual observers to reduce risk from underwater noise.

Collision – these may include site selection, turbine design, detection systems and other technological solutions that address unacceptable risks of collisions

- Existing best practice should be followed (see Annex 2)
- The potential implications to harbour porpoise of increased vessel movements during construction should be considered
- Particular consideration should be given to managing this activity alongside other cumulative pressures which also produce underwater noise / present risk of collision.

Proposed way forward:

Early pre-application discussions with regulators, developers and statutory advisers to identify any risks and discuss and agree suitable mitigation measures for inclusion as supporting information for application. Where management measures are required, these may form part of any consent conditions.

Comment [CC10]: ...and ADDs as this is for harbour porpoise?

Relationship with existing management:

See Existing Species protection (page 12) for information on Marine Scotland's guidance on [The protection of marine European Protected Species from injury and disturbance.](#)

See Annex 2 for best practice for minimising the risk of injury to marine mammals from piling noise and explosives use.

Ports and harbours

There are numerous small ports and harbours in the area (see Map 5.) Although harbours themselves are excluded from the pSAC boundary, areas within harbour authority limits may be within the pSAC boundary.

Of these, Glensanda and the Marine Resource Centre, Barcaldine are identified as possible Marine Renewable Infrastructure Plan (MRIP) sites (for wave and tidal infrastructure) but at present there is a low likelihood of development of these and the proposed activities (mostly land based) are currently envisaged as being unlikely to impact on harbour porpoise.

There are a number of harbours within the pSAC that undertake annual dredging for navigational reasons. The larger harbours and any major harbour upgrades, may also require capital dredging (one off dredging of large volumes of material to get the area to a suitable depth). Different types of dredgers may be used depending on the depth requirements and the material to be removed. Occasionally, ground preparation work (e.g. blasting) may be required to loosen material. There are a number of disposal sites shown on Map 5.

Construction activities can produce large amounts of underwater noise from piling and blasting. If porpoises are too close to an intense noise source when it is initiated, then physiological damage can result or even death. Damage can include temporary threshold shifts (TTS) and permanent threshold shifts (PTS) in hearing. Such effects are likely to be rare due to mitigation measures that are used as standard for all noisy construction activities in Scotland's seas.

The noise generated by pile driving has also been demonstrated to disturb harbour porpoises [over tens of kilometres] from the activity, although with a declining effect with distance. Once the operation ceases, harbour porpoises generally return to the area. The rate of return is, however, dependent upon location of the site and perhaps the quality of the habitat.

Comment [CC11]: ? Possibly not at the scale of harbour piling? Smaller diameter of piles than offshore wind require less impact energy.

Dredging and disposal can also produce levels of underwater noise that may disturb harbour porpoise along with causing changes to benthic habitats, and sedimentation, which indirectly affect marine mammals through changes in prey distribution and abundance. Noise emitted during dredging operations is broadband, with most energy below 1 kHz and is unlikely to cause damage to marine mammal auditory systems, but masking and behavioural changes are possible. Dredging might be audible to most marine mammals up to several kilometres from the source, depending on conditions.

In addition to underwater noise impacts from construction, development of harbours may lead to increased capacity for vessels and subsequently increased vessel movements within the pSAC.

Map 5. Ports, harbours and disposal sites within the Inner Hebrides and the Minches pSAC

Recommended management option:

Reduce or limit pressures:

- Reduce or limit the pressure from underwater noise through employing spatio-temporal conditions to blasting/piling, reducing the sound levels at source, or using different construction techniques. Our view is that the likely risk of disturbance to harbour porpoise should be considered within the context of all activities that produce significant underwater noise within the pSAC. See section on *Potential cumulative effects*.
- Reduce or limit the pressure from dredging and disposal through effective mitigation measures.
- The potential implications to harbour porpoise of increased vessel facilities resulting in increased vessel movements **should be considered**.

Mitigation measures include the use of methods for creating a barrier to sound transfer (e.g. bubble curtains). However, the most effective way to reduce disturbance from pile driving is to develop alternative methods for construction with reduced noise emission during installation.

There is potential for a reduction or limitation of the disturbance/displacement effects by varying the schedule of piling or blasting, particularly when several developments may be under construction at the same time. This would entail spatio-temporal restrictions, e.g. not have more than one noisy event occurring at any given time in a given area.

Proposed way forward:

Early preapplication discussions with SNH and MS are encouraged. We will continue discussions with public authorities, Marine Scotland and other regulators to ensure that any impacts on harbour porpoise are considered when they are assessing new and amended proposals.

Should consideration of the likely cumulative effects of disturbance (from underwater noise or increased vessel movements) identify risk(s) to the Conservation Objectives for harbour porpoise, we will continue discussions with those involved in developing harbours to understand more about the likelihood of disturbance and to consider measures for managing any risks.

Where management measures are required, the development of these would be undertaken via discussion with harbour authorities.

Relationship with existing management

See Existing Species Protection for Marine Scotland's guidance on [*The protection of marine European Protected Species from injury and disturbance.*](#)

See Annex 2 for best practice for minimising the risk of injury to marine mammals from piling noise or explosives use.

Recreational Activity - Leisure boats

There are a variety of leisure boat activities within the Inner Hebrides and the Minches pSAC including sailing vessels and motor boats, kayaks, personal watercraft, recreational angling and diving boats. Typically, leisure craft routes are less defined (compared to those used by commercial shipping), boats produce higher frequency noise levels and increased numbers of boats may be expected during the summer period. See Map 6 that shows information on recreational boat use.

Harbour porpoise are naturally shy of boats therefore interactions are expected to be few due to the avoidance behaviour of harbour porpoises when motorboats approach. Personal watercraft (e.g. jet skis) and fast-moving engine-powered vessels, however, may pose more of a risk simply because they are fast and unpredictable. Adherence to wildlife codes of conduct is recommended and is already strongly encouraged (see *Relationship with existing management*).

At this time the scale and distribution of leisure boat activities is such that the risk to the Conservation Objectives is low.

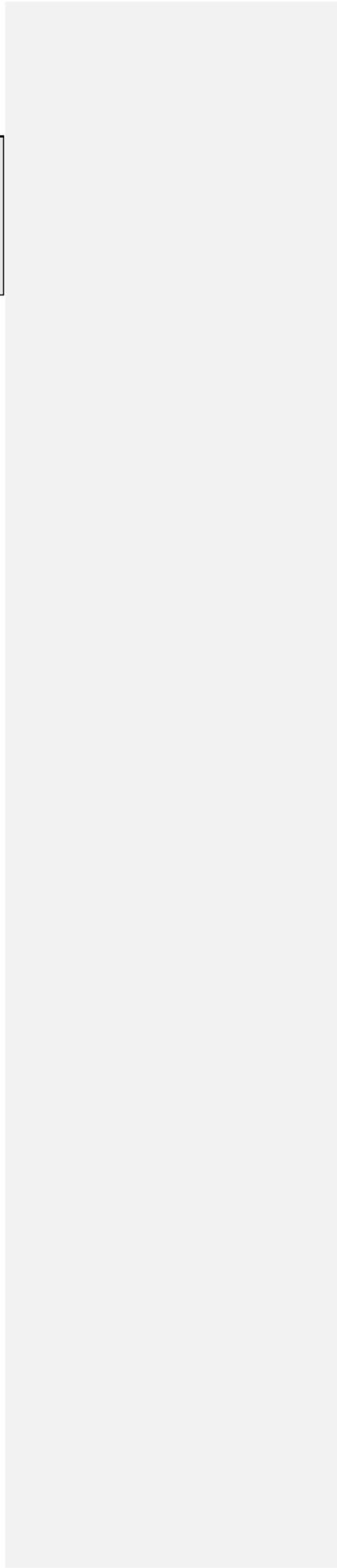
Comment [KH12]: Do we need to highlight brand name in some way?

CC – think Jet Ski is Kawasaki could say "Kawasaki's Jet Ski" if you think something more is needed...

Map 6 RYA Cruising Routes, Sailing Areas and marine recreation within the Inner Hebrides and the Minches pSAC.

<p>Recommended management option:</p>	<p>Reduce or limit any significant disturbance from recreational activities:</p> <ul style="list-style-type: none"> • Reduce or limit disturbance associated with leisure activities should be considered by following best practice. Our view is that the likely risk of disturbance to harbour porpoise is small but should be considered within the context of all boat activity within the pSAC. See section on <i>Potential cumulative effects</i>.
<p>Proposed way forward:</p>	<p>We will continue discussions with representatives of leisure boat users in relation to adoption of best practice (see section below on <i>Relationship with existing management</i>).</p> <p>Should consideration of the likely cumulative effects of boat movements identify risk(s) to the Conservation Objectives for harbour porpoise we will continue discussions with relevant organisations (e.g. Royal Yachting Association) to help us consider measures for reducing any unacceptable risks.</p> <p>Where management measures are required, the development of these would be undertaken via discussion with relevant organisations. Marine Scotland will lead the development of specific management measures.</p>

<p>Relationship with existing management</p>	<p>Recreational boat users generally view wildlife as a positive part of their experience. If disturbance does occur, this is often as a result of a lack of understanding of the animal's behaviour or of how human activities can affect an animal's wellbeing. Awareness-raising and education are therefore an important part of existing management.</p> <p>See Annex 2 for <i>Existing good practice for vessels and mobile species</i>.</p>
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Scientific research

This section covers boat-based research that is focused on harbour porpoise or other cetaceans in the area. It does not cover research carried out using acoustic surveys (see section on Acoustic surveys).

There are a number of organisations involved in carrying out research on harbour porpoise within the Inner Hebrides and the Minches pSAC. There are also various groups working on other cetaceans whose work may take them into contact with harbour porpoise. This includes environmental NGOs, wildlife tour boat operators, universities, SNH and Marine Scotland. Within this site there is a particularly close relationship between research and wildlife tourism, with tour boats being used as platforms for cetacean sightings. Research is generally undertaken between May and September.

The risks associated with scientific research are generally related to disturbance through the need to get close enough to carry out specific studies. However most research requires observations of natural behaviour and interactions or activities that may disturb animals will be kept to a minimum.

It is our view that existing measures to reduce disturbance from boats involved with scientific research would contribute to achieving the Conservation Objectives, although further discussion and promotion of best practice should be considered. Further information is required to understand more about the likely risks associated with disturbance and we propose that discussions with researchers are necessary, particularly those likely to be approaching animals more closely.

Recommended management option:	Reduce or limit pressures: <ul style="list-style-type: none">• Vessel activity throughout the majority of the site is low, with localised, increased activity near harbours. However, our view is that the likely effects of disturbance on harbour porpoise should be considered within the context of all boat activity within the proposed SAC. See section on <i>Potential cumulative effects</i>.• Adherence to the existing codes of practice.
Proposed way forward:	<p>We propose that discussion with researchers is necessary to help understand more about the potential risks of disturbance to harbour porpoise, and review current voluntary measures if necessary.</p> <p>Where management measures are required, the development of these would be undertaken via discussion with those involved with research. Marine Scotland will lead the development of specific</p>

management measures.

Relationship with existing management:

See Annex 2 for *Existing good practice for vessels and mobile species*.

For certain types of research (e.g. tagging), the provisions of the Animals (Scientific Procedures) Act also apply. Therefore a licence needs to be obtained from the Home Office before any work can be carried out. This is a general provision (i.e. it does not apply just to the pSAC).

Wildlife tourism

There are a number of wildlife tour operators working within the Inner Hebrides and the Minches pSAC. The purpose of this activity is to get close to wildlife to allow passengers to learn about, experience and enjoy Scotland's wildlife. This type of activity may continue to increase, as the area is highlighted as a great place to see harbour porpoise in Scotland. Some wildlife tour boats within this site are also used as platforms for research.

There are numerous publications evaluating the disturbance caused by whale-watching activities on cetaceans. Harbour porpoises are, however, seldom the target species for these trips and so may be less affected than some other species.

Most wildlife tour operators understand fully the sensitivities of the wildlife they seek to highlight to their passengers. There are existing measures to help promote good practice, including the WiSe (Wildlife Safe) accreditation scheme that promotes safe operation for commercial marine wildlife watching. In addition, the Scottish Marine Wildlife Watching Code raises awareness and gives guidance for all who want to watch marine wildlife. This existing guidance is focused on minimising disturbance on wildlife wherever they are in Scottish waters.

It is our view that measures currently in place to minimise disturbance to other cetaceans will also be beneficial for harbour porpoise. Further information is required to understand more about the likely risks associated with disturbance and we propose that discussions with wildlife tour operators are necessary, particularly those offering more bespoke tours, to help share existing knowledge on this issue and identify any research requirements.

Recommended management option:	Reduce or limit disturbance from vessel activities:
	<ul style="list-style-type: none">• Vessel activity throughout the majority of the site is low, with localised areas of increased activity near harbours. However, our view is that the likely effects of disturbance on harbour porpoise should be considered within the context of all boat activity within the proposed SAC. See section on <i>Potential cumulative effects</i>.• Adherence to the existing codes of practice (see <i>Relationship with existing management</i>).

Proposed way forward:

We propose that discussion with wildlife operators is necessary to help understand more about the potential risks of disturbance to harbour porpoise and other cetaceans in this area.

Where management measures are required, the development of these would be undertaken via discussion with wildlife tour operators. Marine Scotland will lead the development of specific management measures.

Relationship with existing management:

See Annex 2 for *Existing good practice for vessels and mobile species*.

In addition, Voluntary Awareness and Caution Zones Voluntary measures for skippers have been developed to cover an area around Coll and Tiree. Although the purpose of these zones is to highlight the relative abundance of basking sharks in these areas and suggest practical steps that skippers can take to reduce the risk of collisions, these measures will also reduce disturbance to harbour porpoise.

Rhoda Davidson

From: Scottish Salmon Producers' Organisation
<news=scottishsalmon.co.uk@mail71.atl11.rsgsv.net> on behalf of Scottish Salmon Producers' Organisation <news@scottishsalmon.co.uk>
Sent: 06 September 2016 13:06
To: Suzanne Henderson
Subject: SSPO launches online news service

Announcing the new digital experience from SSPO.

[View this email in your browser](#)



Our new digital experience is now live!

Announcing the launch of the Scottish Salmon Producers' Organisation's online news service.

Keep up to date with the Scottish salmon industry on our new website and get the latest news straight to your inbox. Whether you are interested in farming updates, business and export news, community projects or food, you will find all the information here. Take a look at the latest video about the industry, view the image gallery and share our news and publications via email, twitter or facebook.

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Rhoda Davidson

From: Suzanne Henderson
Sent: 01 March 2016 14:41
To: Caroline Carter
Cc: George Lees
Subject: ADD modelling - draft

Hi there,

Are you still able to make the teleconference tomorrow Caroline?

If so - just thought it might be a good idea to send out your draft document to others before tomorrow VC?

I am not sure I will get a chance to discuss things with Katie today to help with next steps, as she can't attend tomorrow, and is fairly booked up today. I hope Karen can attend as there are implications for the HP MOP, but not sure if she will have time...

Cheers

Suz

Direct Dial: 01463 725238

Email: Suzanne.henderson@snh.gov.uk

Rhoda Davidson

From: Suzanne Henderson
Sent: 15 September 2016 15:06
To: Alex Turner; Cathy Tilbrook; Liam Wright
Subject: ADD usage in HP pSAC
Attachments: ADD info- PL model presentation for SSPO meeting on the 17 March 2016.obr; Harbour porpoise - advice to support management - all activities_no maps - 18 August 2016.obr; SSPO Liaison meeting - minutes - May 2016 - DRAFT.obr

Hi
I said I would share the disturbance zone maps that Caroline and I created. These were to aid discussion of the current situation on ADD usage within the pSAC.

See the attached presentation Caroline gave at the last SSPO meeting.
Slide 14 – Coram et al 2016 map showing 3.5km zone of disturbance based on literature of disturbance
Slide 15 and 16 – our first attempts at maps using the 2.5km zone of disturbance from Caroline’s model and the data SSPO gave us – and when there were 2 separate areas. Note that industry found difficulty in giving definitive answers on ADD usage as this seems to change continually and up to farm managers mostly.
Slides 17, 18, 19, - second attempts at maps using data from SOI questionnaire to industry that is used for the seal licencing process. This was for 2015 I think. These latter maps show the 2.5km zone, and the categories of ADD usage declared within the SOI questionnaire. Note there are some ambiguities with these categories and how farmers might be answering the questions.

We tentatively identified the areas that we thought would be at highest cumulative risk to ADD use currently based on this information – as Sound of Mull, Lismore, West of Mull and Rassay, but we did say there may be more. We have not mapped these, nor have we have thought about future farms or existing farms that might want additional ADD usage.

Also attached is what I believe to be the latest advice on management for the pSAC – within this there is promise of guidance for aquaculture.

Lastly – our list of AP from our last meeting with SSPO – just to remind ourselves. AP1 is to meet with Industry who farm in the key areas -to develop best practice guidelines.

I had thought about asking Jane if she would mind looking at the AP involving reviewing the questions in the SOI survey – as she deals with the seal licencing. However it would be useful to discuss how we might want to use the information to ensure we get any changes right. Questionnaires go out in the autumn I believe.

I think it would be useful to redraw the maps based on the next survey answers (with hopefully better questions posed) and also include the higher risk areas we have identified – this would fit nicely into any guidance/standing advice drawn up.

Happy to chat further

Cheers

Suz

Dr Suz Henderson
Marine Policy and Advice Officer
Coastal and Marine Ecosystems Unit
Scottish Natural Heritage
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Inverness
IV3

Direct Dial: 01463 725238
Email: Suzanne.henderson@snh.gov.uk

Rhoda Davidson

From: Suzanne Henderson
Sent: 16 March 2016 17:11
To: Caroline Carter
Cc: Karen Hall
Subject: ADD use and all active sites - Inner Hebrides and the Minches (A1914167)
Attachments: ADD use and all active sites - Inner Hebrides and the Minches.obr

Hi Caroline,

I have quickly done a map overlaying all the active sites on top of the MS data buffers.

Hopefully this is ok?

There doesn't appear to be many areas which are not covered by the MS seal licence data within the dSAC - although there are 2 at the mouth of Sound of Mull...

Suz

Suzanne Henderson has sent you a link to "ADD use and all active sites - Inner Hebrides and the Minches" (A1914167) from Objective.

Open in Navigator

Double click on the attachment

Open in Your Browser

Latest: <https://erdms.snh.gov.uk/id:A1914167/document/versions/latest>

Published: <https://erdms.snh.gov.uk/id:A1914167/document/versions/published>

Rhoda Davidson

From: Suzanne Henderson
Sent: 14 March 2016 12:21
To: Caroline Carter
Cc: Cathy Tilbrook; Liam Wright; Katie Gillham
Subject: ADD use maps?
Attachments: ADD use - Inner Hebrides and the Minches_MS_Licence data.obr; ADD use - Inner Hebrides and the Minches_MS_Licence data_North.obr; ADD use SSPO data w modelled buffer - North Minch.obr; ADD use SSPO data w modelled buffer - Southern Sea of Hebrides.obr

Hi Caroline,
Cc Cathy, Liam, Katie

I got a bit of help with these – so managed to complete- although could be tweaked if not right. Could you have a look please and see what you think? Do we need anything else to make things clearer. It would be nice to have our thoughts established on any high risk areas for HP for further investigation/discussion.

The MS-Licence maps are ones using information on ADD use from the seal licences questionnaire, combined with information on “active” fish farms from the Aquaculture Scotland website (drawn in through NMPI). So these maps may not be a complete record of farms using ADDS.

Due to the information within the questionnaire – I have made 4 classes of ADD mode of operation which is different to the classes for the SSPO data. Note in all of them the 50m is too small to show – hence the crosses. Think this is helpful in case farms decide to change ADD type....

Do you think it would be useful to have these (or similar) in a presentation format for the meeting – powerpoint? Are you planning on doing something like that for you model explanation?

We will be able to show HP pSAC boundaries, but not able to give maps for SSPO to take away.

Happy to chat on phone if easier

Cathy – wondering if we might need to show MS these maps and our thoughts before Thursday somehow – just so we don't talk at cross purposes at the meeting!

Cheers
Suz

Dr Suz Henderson
Marine Policy and Advice Officer
Coastal and Marine Ecosystems Unit
Scottish Natural Heritage
Great Glen House
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Direct Dial: 01463 725238
Email: Suzanne.henderson@snh.gov.uk

Rhoda Davidson

From: [REDACTED]@gov.scot
Sent: 28 October 2016 10:36
To: Suzanne Henderson
Cc: [REDACTED]@gov.scot
Subject: FW: EPS and ADD use at fish farms meeting

Hi Suz,

I hope that you are well.

I will be attending the meeting on 8 November so I would be grateful if you could keep me copied into any correspondence. Thank you.

How is the basking shark analysis coming along? It would be good to touch base soon.

Best wishes

From: Suzanne Henderson [<mailto:Suzanne.Henderson@snh.gov.uk>]

Sent: 27 October 2016 14:13

To: [REDACTED] (MARLAB); [REDACTED] (MARLAB); [REDACTED] Cathy Tilbrook; Caroline Carter; Liam Wright; Karen Hall; [REDACTED]

Subject: RE: EPS and ADD use at fish farms meeting

Hello,

Just to confirm we can hold this meeting on 8th November in Edinburgh at the SNH Silvan House office on Corstorphine Road.

A start time of 11.30 until 3.30 seems to fit in with trains.

Many thanks to all,

Suz

Direct Dial: 01463 725238

Email: Suzanne.henderson@snh.gov.uk

From: [REDACTED]@gov.scot [[mailto:\[REDACTED\]@gov.scot](mailto:[REDACTED]@gov.scot)]

Sent: 27 October 2016 11:43

To: Suzanne Henderson; [REDACTED]@gov.scot; [REDACTED]@gov.scot; [REDACTED]@gov.scot; [REDACTED]@gov.scot; [REDACTED]@gov.scot; [REDACTED]@gov.scot; [REDACTED]@gov.scot; Cathy Tilbrook; Caroline Carter; Liam Wright; Karen Hall; [REDACTED]@gov.scot

Cc: George Lees; Jane Dodd

Subject: Re: EPS and ADD use at fish farms meeting

Suz

Sorry for delay. In replying, 8 November. Is OK for me but Edinburgh. Would be best if possible. Please.

Regards

[REDACTED]
Sent from my BlackBerry 10 smartphone.



Many thanks
Suz

Dr Suz Henderson
Marine Policy and Advice Officer
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Direct Dial: 01463 725238
Email: Suzanne.henderson@snh.gov.uk

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mhàin. Mas e gun d' fhuair sibh am post-dealain seo le
mearachd, cuiribh fios dhan manaidsear-siostaim no neach-
sgrìobhaidh.

Thoiribh an aire airson adhbharan gnothaich, 's dòcha gun tèid
sùil a chumail air puist-dealain a' tighinn a-steach agus a' dol a-
mach bho SNH.

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Dh'fhaodadh gum bi teachdaireachd sam bith bho Riaghaltas na h-Alba air a chlàradh neo air a sgrùdadh airson dearbhadh gu bheil an siostam ag obair gu h-èifeachdach neo airson adhbhar laghail eile. Dh'fhaodadh nach eil beachdan anns a' phost-d seo co-ionann ri beachdan Riaghaltas na h-Alba.

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Rhoda Davidson

From: [REDACTED]@gov.scot
Sent: 13 October 2016 11:23
To: Suzanne Henderson
Cc: Liam Wright; Jane Dodd
Subject: RE: ADD use and SOI questionnaire

Ok, so after speaking to [REDACTED] at SMRU, it seems that out of all the ADD models available on the market, only Ace Aquatec has an actual triggering mechanism when fish are excited / panicked – when the fish rush around they bash into a sensor and that can trigger the transducer to make a noise.

Mohn Aqua does not have a triggering system, but it has a low power mode you can switch to high power when you feel the need (you can check the weblink for more info).

Note that in the survey only 2 say ADD triggered ‘when the fish behaviour changes’ – this is the cue that one site is using Ace Aquatec with a triggering system. The one other person who said they are triggered by fish behaviour with a Mohn Aqua must be referring to visual observations of fish behaviour not a triggering device because the Mohn Aqua device has no trigger (as above).

So clearly there are some interpretation issues here - I suspect they may be interpreting the word triggered in a more vague way – like they switch them on when they see seals.

I went back to our IT developers to ask for some changes, unfortunately they are reluctant to make any changes in case it might cause bugs or twitches and they just don't want to risk it. It will have to wait until next year. I will have to submit the request as early as possible as I understand they are also very short on staff. So I suggest we add the following questions to be added next year, but I would be grateful for any other suggestions from your side.

- ‘If ADD triggered, does the device has its own triggering system or is it switched on manually’
- ‘Please specify the amount of time the device is kept ‘on’ and is emitting noise’

We can definitely look at the amount of noise the devices are emitting and include this in the report.

Thanks.

[REDACTED]
[REDACTED]
Marine Conservation
[marinescotland](http://marinescotland.scot.nhs.uk) Scottish Government | 1A-South | Victoria Quay | Edinburgh EH6 6QQ
Tel: 0131 2440318
[REDACTED]@gov.scot

From: Suzanne Henderson [mailto:Suzanne.Henderson@snh.gov.uk]
Sent: 11 October 2016 14:35
To: [REDACTED]
Cc: Liam Wright; Jane Dodd
Subject: ADD use and SOI questionnaire

Hello [REDACTED]
Cc Liam, Jane for info
Thanks for getting back to me re the seal licensing survey already being online.

Just been thinking a bit more about this, and some of our recent internal discussions about ADD use in the HP cSAC. We want to discuss “best practice” ADD use with industry, and the potential amount of noise being emitted in the cSAC from ADDs– with an overall aim of reducing that noise where we can. We therefore were thinking triggered devices might be a preferred approach.

We will be in touch soon about a meeting with industry– hopefully before Christmas, which we hope you can attend.

With this in mind we have had questions over industry using ADDs “continuously” and triggered device use and what is really meant by this.

The question currently in the questionnaire I believe is “Is ADD on constantly or used only at certain times?” Then there are months which can be ticked.

So – what does constantly on mean? A few thoughts/questions...

- Does this mean the device is always emitting noise at whatever predetermined setting (this can vary significantly!)
- If a triggered device is constantly on - should we assume it will only be on when triggered (by whatever means)?
- Some (or all) ADDs can report the amount of time they are emitting noise, however I think it is only Freedom Foods who request to see this information. Is this something we could perhaps ask for?
- We currently have no idea how often ADDs might be triggered, and believe some models can be triggered by bad weather too. I also understand triggered devices have a setting where it can emit noise at predetermined times in addition to the trigger.
- Perhaps triggered devices are emitting as much noise as other devices?

There are perhaps some assumptions we can make if we know the model and manufacturer to help our discussions. It may be the survey can only provide us with some information and discussions with industry can do the rest. Hopefully best practice can help alleviate some concerns of potential cumulative noise issues within the cSAC.

One final thought is - would there be any chance the report you write with [redacted] could perhaps also include some analysis of the amount of noise being emitted from ADDs in Scotland – perhaps particularly in certain areas where topography and a greater number of fish farms may highlight an increased risk of potential disturbance issues to cetaceans? We feel this would be a useful consideration in assessing the non-lethal measures of seal control as well as aid HP cSAC and EPS discussions.

Many thanks
Suz

Dr Suz Henderson
Marine Policy and Advice Officer
Coastal and Marine Ecosystems Unit
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Direct Dial: 01463 725238
Email: Suzanne.henderson@snh.gov.uk

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Rhoda Davidson

From: Suzanne Henderson
Sent: 15 March 2016 14:06
To: Caroline Carter
Cc: Cathy Tilbrook; Liam Wright; Katie Gillham
Subject: RE: ADD use maps?

Hi Caroline,
Presentation looks good.

A few minor comments:

Slide 1 – perhaps tie in (just verbally) with our action b. in suggested agenda below- i.e. the deterrence its part of the work on information on areas of higher concern

Are we agreed on the terminology as we have used acoustic disturbance/deterrence and ranges/zones previously in discussions. Does it matter?

Slide 2 – this is fine for our Thursday meeting ,but perhaps we need to be mindful of sharing this slide at our next meeting with all operators? Unsure if they are ok with sharing these details with each other....

Slide 9 – question for me really – I would be interested in how NOAA set their behavioural thresholds of disruption– based on literature I presume, but what exactly and have they adjusted at all for a more precautionary approach??

Slide 13/14 – do we need the boundaries of the previous 2 pSACs in these maps?

Slide 15/16 – Perhaps need one map of whole extent of new pSAC? Could use the map from the draft MOP?

I have put a suggested agenda below – in case we think we need additional slides for other items, although we won't have much time to develop!

Cheers
Suz

Suggested Agenda – will update after agreed at meeting tomorrow and will bring some printed copies

1. Further development on HP pSAC – MS
(we might want the previous 2 boundaries and the new one on slides?)
2. New timeframe of SAC process – MS
3. Summary of science/SNH input?? – [REDACTED] (not sure if we offer this or just wait for questions)
4. Previous actions from last meeting
 - a. Salmon farming industry to supply data on ADD use
 - b. SNH work on areas of “higher concern”
 - c. SNH consider knowledge gaps and options for research – SARF112/SAMS/HWDT research/ MSc - Caroline – did you ever discuss this with [REDACTED] ?? It came up at the MASTs student day I believe.
 - d. SNH consider cetacean observation information from farms – (this links in to above)
5. Next steps – MS/SNH
6. SPA workshop and follow up

Direct Dial: 01463 725238
Email: Suzanne.henderson@snh.gov.uk

From: Caroline Carter
Sent: 14 March 2016 17:12
To: Suzanne Henderson

Cc: Cathy Tilbrook; Liam Wright; Katie Gillham
Subject: RE: ADD use maps?

For info – this is where I'm at with the model description. I'm aiming to explain the context of modelling – without going into the maths. I think it's useful to set the scene with what types of modelling is out there which then explains why the M&S model was chosen for this exercise.

Happy to hear what you think.
Caroline

From: Suzanne Henderson
Sent: 14 March 2016 15:09
To: Caroline Carter
Cc: Cathy Tilbrook; Liam Wright; Katie Gillham
Subject: RE: ADD use maps?

Hi Caroline,
Thanks for comments – I printed them out and thought the exact same.
Will redo them and let you know.
Yes – I think if there are other areas which we think might cause some issues this would be good to discuss.
I will see if Karen is around to join us on Wednesday too!
Suz

Dr Suz Henderson
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Scottish Natural Heritage
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Direct Dial: 01463 725238
Email: Suzanne.henderson@snh.gov.uk

From: Caroline Carter
Sent: 14 March 2016 14:00
To: Suzanne Henderson
Cc: Cathy Tilbrook; Liam Wright; Katie Gillham
Subject: RE: ADD use maps?

Hi Suz,

I think the maps look great. Much better than what I could do in GeoView!

But, I'm wondering if the colours are too subtle? I agree we should maybe avoid the traffic light system – but as they are just now it takes a bit of studying to work out where the different categories are. It's a minor point, I'm not sure we would want to get them redone necessarily...

I don't think it's an issue that the classes are different between the SSPO data and the MS licence data... and yes useful to show the cross for the Terecos device.

I think it is useful to have these available for presentation. I was thinking of doing a short presentation on the model (it's always easier if folk can see what we are referring to) so we can incorporate these maps in as well.

Do we want to think about areas that warrant further discussion in our pre-meeting on Wednesday?

I can start to work on the presentation and aim to share with everyone in advance of our pre-meeting.

Caroline

From: Suzanne Henderson
Sent: 14 March 2016 12:21
To: Caroline Carter
Cc: Cathy Tilbrook; Liam Wright; Katie Gillham
Subject: ADD use maps?

Hi Caroline,
Cc Cathy, Liam, Katie

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Cheers
Suz

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Direct Dial: 01463 725238
Email: Suzanne.henderson@snh.gov.uk

Rhoda Davidson

From: Caroline Carter
Sent: 26 August 2016 13:33
To: Karen Hall; George Lees; Suzanne Henderson; Liam Wright; Jane Dodd; Fiona Manson; Katie Gillham
Subject: RE: ADD use on the west coast of Scotland

No, there were no industry present as it was really just a student end-of-thesis presentation. Hopefully the work will be publically available via the University so we should be able to refer to it from then. Even better if they do get a paper published – but that might take some time.

From: Karen Hall
Sent: 26 August 2016 13:26
To: Caroline Carter; George Lees; Suzanne Henderson; Liam Wright; Jane Dodd; Fiona Manson; Katie Gillham
Subject: RE: ADD use on the west coast of Scotland

Thanks Caroline

That's sounds really interesting and potentially useful for when looking at management options within the pSAC. Were any of the industry at this talk and /or are there any plans to share this work with them?

From: Caroline Carter
Sent: 26 August 2016 13:19
To: George Lees; Suzanne Henderson; Liam Wright; Jane Dodd; Fiona Manson; Karen Hall; Katie Gillham
Subject: ADD use on the west coast of Scotland

Hi All,

I was at a meeting yesterday at SAMS where the two MSc students working with HWDT acoustic data were to present their findings. The focus of the studies was to investigate ADD use throughout the HWDT survey area. The intention was to have both students presenting, but unfortunately one missed the bus – so didn't make it!

This may be of interest to us, so I've noted some key points below for info;

- [REDACTED] looked at data from 2011 – 2015. She initially checked the volunteer ADD signal presence/absence logs by re looking at the sound files in PAMGuard. She found that the volunteers were pretty successful in identifying an ADD signal in real time (ie when they were listening on survey) but [REDACTED] analysis extended the occurrence of ADD as she could pick out the quieter signals. (She wanted to check this – I think – so that the analysis can be stretched further into the past where volunteer logs exist – but the acoustic files don't).
- She found that over the years there had been a significant increase in ADD presence. An increase of 0.084 to 0.153 was identified (the metric used was a standardised figure, i.e. number of ADD identifications divided by the number of listening stations).
- She could identify three types of ADD in use (Airmar; Terecos and Ace-Aquatec) and that the increase over time was primarily due to more Airmar signals.
- Presence/absence of detectable ADD signal were mapped in 10km square blocks (this shows where a ADD signal can be identified, but not how many signals were there – nor the level of the signal(s)).
- The maps showed the extent that ADDs were detectable, in particular you could see that the Sound of Mull and Loch Linnhe were completely ensonified, and that the ADD signal can be detected all the way across the Minch.

- There was preliminary analysis of how the levels dropped with distance (from two locations) From Portree the signal could be detected out to 20km from source, in Lochmaddy the signal could be detected out to 30km. This is in keeping with literature which suggests the signal can travel up to 50km. The rate of decline is location specific but the majority of decay is in the first 5km.
- This project highlights presence/absence of signal, it does not give an indication of absolute level. The analysis was done on a relative dB scale rather than absolute (due to an absence of calibration info).
- This work shows how prevalent the ADD signal is in the area (in itself this does not tell us the effect on species of interest, it also does not show where the signal came from – just that it was present).
- They hope to turn this work into a publication (from a marine pollution angle) – I’ve asked if we can be kept in the loop on that, and in the meantime, I’ve asked if we could have copies of their thesis’ (if we can, they need to go through the university process...)
- [REDACTED] hopes to continue work in this area – and look at determining absolute levels and then using the data to ground truth a propagation model, and there may be potential for working on this with [REDACTED] (provided funding can be found).
- Also there may be scope to look at the acoustic data in conjunction with concurrent HWDT sightings data which may highlight any fine scale disturbance effects – this is something that they would like to consider in addition.

I think this work is useful in that it is highlighting the increase over time and prevalence of the ADD signal on the west coast, but to be of more use it I think we would need absolute levels, and some comparative analysis with marine mammal data. There is clearly more that can be done, but this was only a three month project and I think [REDACTED] did a good job with the time she had.

Any questions on the above – please shout.

Best,
Caroline

Dr. Caroline Carter

Policy and Advice Officer - Marine Ecology

Scottish Natural Heritage, Battleby, Redgorton, Perth, PH1 3EW

01738 458562 | www.snh.gov.uk

Rhoda Davidson

From: Suzanne Henderson
Sent: 18 November 2016 11:08
To: [REDACTED] Caroline Carter; Liam Wright; Karen Hall
Cc: Cathy Tilbrook
Subject: RE: ADD workshop

Hi [REDACTED]

Thanks for the chat earlier and agree its useful to continue the dialogue in this area.

I have managed to book the first floor conference room in Cameron House in Oban from 2-4.30pm on Tuesday 13 December.

We share this building with Marine Scotland, but there is no dedicated visitor parking I am afraid.

<http://www.snh.gov.uk/docs/B461245.pdf>

This will have teleconference (possibly VC) acilities for Karen hopefully to join in, and we can provide tea and coffee. Let me know if this is suitable - otherwise can I leave you to source a different venue?

Thanks for offering to chair the meeting and we can try to form an agenda together over the next few weeks.

Thanks

Suz

From: [REDACTED]@scottishsalmon.co.uk]
Sent: 17 November 2016 15:00
To: Suzanne Henderson; Caroline Carter; Liam Wright
Cc: Cathy Tilbrook
Subject: RE: ADD workshop

Hi Suz,

I met with the environment managers today and we would like to press on with our meeting on the 13th December. We feel it is important to get this dialogue moving and delaying until next year was not thought to be the right choice.

Could you give me a call to discuss? Would it be possible to have this meeting in the Oban area? We have a requirement for another meeting around that time and I think it would be helpful to try and do it there. If you agree, I will attempt to find a suitable venue.

Best Regards

[REDACTED]
Scottish Salmon Producers' Organisation

Tel: [REDACTED]
Mb: [REDACTED]
Email: [REDACTED]@scottishsalmon.co.uk

From: Suzanne Henderson [<mailto:Suzanne.Henderson@snh.gov.uk>]
Sent: 15 November 2016 12:29

To: [REDACTED] <[\[REDACTED\]@scottishsalmon.co.uk](mailto:[REDACTED]@scottishsalmon.co.uk)>; Caroline Carter <Caroline.Carter@snh.gov.uk>; Liam Wright <Liam.Wright@snh.gov.uk>

Cc: Cathy Tilbrook <Cathy.Tilbrook@snh.gov.uk>

Subject: RE: ADD workshop

Hi [REDACTED]

Sorry for delay in replying.

Cathy is not available that date so there are a couple of options –

- postpone until the new year – this would also allow some further updates from ongoing research on ADDs to feed into discussions (PhD research and SARF project)
- continue with the meeting on 13th to discuss best practice options for ADD use in the Sound of Mull area in particular (Caroline, Liam and myself could all attend this meeting)

We don't believe noise emitting constantly is best practice so discussion points on best practice from our side have included:

- No noise emitting constantly -from the seal licensing questionnaire – this would appear to be quite a big ask for lots of farms?
- Triggered ADDs – what this actually means in terms of the amount of time noise is being emitted, using ADD equipment reports to help get a feel for this? Do mechanically triggered devices emit more noise in terms of time being on than manually triggered (e.g. on seal sightings)?
- How feasible might a strategic approach be to avoid time noise being emitted increasing any further in future and minimising the time noise being emitted where possible?

Let me know if you think the above would be useful to discuss on the 14th or whether you wish to wait until the new year where we could possibly have an additional section to the wider SSPO liaison meeting for those interested?

Cheers

Suz

Dr Suz Henderson
Marine Policy and Advice Officer
Coastal and Marine Ecosystems Unit
Scottish Natural Heritage
Great Glen House
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Direct Dial: 01463 725238

Email: Suzanne.henderson@snh.gov.uk

From: [REDACTED] <[\[REDACTED\]@scottishsalmon.co.uk](mailto:[REDACTED]@scottishsalmon.co.uk)>

Sent: 14 November 2016 16:13

To: Caroline Carter; Suzanne Henderson

Cc: Cathy Tilbrook

Subject: RE: ADD workshop

Hi Suz and Caroline,

Is the date below suitable?

Regards

[REDACTED]

From: [REDACTED]

Sent: 03 November 2016 14:51

To: Caroline Carter <Caroline.Carter@snh.gov.uk>; Suzanne Henderson <Suzanne.Henderson@snh.gov.uk>

Cc: 'Cathy Tilbrook (Cathy.Tilbrook@snh.gov.uk)' <Cathy.Tilbrook@snh.gov.uk>

Subject: ADD workshop

Hi Suz and Caroline,

I have had a fairly limited response to my request for dates for the ADD workshop, the first week in December looks like it won't be possible. How does Tuesday 13th December look (in Inverness?)

Regards

[Redacted]

Scottish Salmon Producers' Organisation

Tel: [Redacted]

Mb: [Redacted]

Email: [Redacted] [@scottishsalmon.co.uk](mailto:[Redacted]@scottishsalmon.co.uk)

Rhoda Davidson

From: Suzanne Henderson
Sent: 24 March 2016 10:47
To: [REDACTED]
Cc: [REDACTED]
Subject: RE: Consultation on a new harbour porpoise SAC

Hi [REDACTED]
All good here thanks .
Great news you are keen to be involved.
SSPO have no objections to meet all together – and the 10th May has been suggested so far.

[REDACTED] from SSPO has agreed to try and coordinate dates and will be in touch with you shortly -together with their members.

Many thanks
Suz

Direct Dial: 01463 725238
Email: Suzanne.henderson@snh.gov.uk

From: [REDACTED] [\[REDACTED\]@griegseafood.com](mailto:[REDACTED]@griegseafood.com)
Sent: 23 March 2016 19:06
To: Suzanne Henderson
Cc: [REDACTED]
Subject: Re: Consultation on a new harbour porpoise SAC

Hi Suz. Nice to hear from you and hope you are well. We would certainly be keen to be involved in the consultation process. We are happy to meet together with the SSPO members as long as they have no objections. Please let us know the dates. I have copied [REDACTED] and [REDACTED] from our environmental dept into this email.

Best regards. [REDACTED]

Sent from my iPhone

On 23 Mar 2016, at 16:58, Suzanne Henderson <Suzanne.Henderson@snh.gov.uk> wrote:

Dear [REDACTED]
I hope all is well in Shetland.

A consultation for a new harbour porpoise SAC has gone live today and will run for 8 weeks– please see www.snh.gov.uk/porpoiseSAC.

Some of Grieg fish farm sites are within the newly proposed SAC boundary and we want to offer you the opportunity to meet up to discuss the proposed site and in particular our developing thoughts on potential management options over the use of ADDs. We had pre-consultation meetings in August last year with SSPO members over 2 smaller sites that were originally proposed. These original sites did not include any Grieg farms, but the new boundary means that these discussions are now relevant to your company.

We are about to canvas dates with SSPO and their members to meet up and discuss the proposed site and the associated supporting documents sometime in May. Would you or someone else from your company like to attend this meeting as well? Inverness or Perth are usually the most suitable

venues for the majority. If you would prefer to meet separately – we hope we could arrange that too, but it might be logistically better to hold it on the same day as we meet SSPO - if possible.

We will shortly be contacting everyone via a doodle poll and so would like to add you to the list of contacts. Please let me know your thoughts.

Best Regards
Suz

Dr Suz Henderson
Marine Policy and Advice Officer
Coastal and Marine Ecosystems Unit
Scottish Natural Heritage
Great Glen House
Leachkin Road
Inverness
IV3

Direct Dial: 01463 725238
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Rhoda Davidson

From: Suzanne Henderson
Sent: 27 January 2017 12:00
To: Cathy Tilbrook; George Lees
Cc: Liam Wright; Caroline Carter; Karen Hall
Subject: RE: Draft Note of ADD / EPS Meeting with MS - 8 Nov 2016

Hi Cathy, George,

I think this all makes sense – and good to see it moving forward (note [REDACTED] was asking how things were progressing).

A couple of points:

In Annex 2 - we talk a bit about less sensitive locations and sensitive/higher risk areas – I think it would be worth stating what these might be, or the sorts of things we might use to pinpoint areas – if we can agree. In addition – do we want MS input/thoughts on this? If so we perhaps need to highlight we want their opinion and further discussion so that ultimately these areas can be made clear to everyone – which would help any licence process.

A similar point for Annex 1 where we talk about higher cumulative pressure – might be worth clarifying what we mean here (e.g. topographically restrictive and/ or higher number of farms?)– so that MS can respond appropriately?

Cheers
Suz

Direct Dial: 01463 725238
Email: Suzanne.henderson@snh.gov.uk

From: Cathy Tilbrook
Sent: 26 January 2017 16:15
To: George Lees
Cc: Suzanne Henderson; Liam Wright; Caroline Carter; Karen Hall
Subject: RE: Draft Note of ADD / EPS Meeting with MS - 8 Nov 2016

Hi all

Many thanks to George for doing such a good job in pulling the note together and my apologies for such a long delay in commenting. I have spent a bit of time on this today and have added a fair bit of text, plus some queries that I'd value quick further comments on before we finalise and send (next week?). I also had a useful chat with Ben Ross and am even more convinced that the 'Class EPS licence' is the most promising approach for most options (see annex 2).

Might be useful to set up a quick t/c (next Tues?) if we need to discuss and reach final agreement on any of this?

Cheers, Cathy

From: George Lees
Sent: 24 January 2017 18:38
To: Cathy Tilbrook
Subject: FW: Draft Note of ADD / EPS Meeting with MS - 8 Nov 2016
Importance: High

Cathy: as you may have noticed, [REDACTED] has been tasked, on the MS Policy side at least, with progressing this matter. Can you check my previously drafted (draft) minute and let me know if you're happy for me to send that on

to her (and other attendees). Also, Suz, Liam and I have had a first stab at the questions we wanted to ask of MS. That still needs tidied up a bit. I'm happy to do that but would value your thoughts on what we have so far and whether anything is missing from your perspective.

Many thanks.
George

From: George Lees
Sent: 08 December 2016 18:43
To: Suzanne Henderson; Liam Wright; Caroline Carter; Karen Hall; Cathy Tilbrook
Subject: RE: Draft Note of ADD / EPS Meeting with MS - 8 Nov 2016
Importance: High

All: am conscious that I've left this hanging a bit. Have taken my original meeting note and tweaked it very slightly (inc edits suggested by Liam / Suz), so that it can be sent to MS for comment and subsequent endorsement as a minute of the meeting. NB Suz / Liam: have added in an action for one of you to check with [REDACTED] the point made in the meeting about enforceable conditions being a requirement for the cSAC.

Have added an annex for listing the questions we wanted answers to but not got very far. **Please can you all have a think about what the key questions are and add them in (Annex 1).** We were also asked to outline some suggestions of how EPS licensing (or planning control) might be implemented, practically. Haven't added anything there yet, though have copied Liam's suggestions into the main body of the note. **Again, if you have suggestions, add them in (Annex 2).**

Get back to me (and mark on draft) any final changes needed for the minute so we can send out.

Ta.
George

From: Suzanne Henderson
Sent: 10 November 2016 15:34
To: Liam Wright; George Lees; Caroline Carter; Karen Hall; Cathy Tilbrook
Subject: RE: Draft Note of ADD / EPS Meeting with MS - 8 Nov 2016

George,
I agree – well done on summarising the rambling discussions from Tuesday!
Very minor comments in document.

Liam – your table is very useful, and think it might be a good starting point if we.
We perhaps need to get to the bottom of how we feel about the level of noise emitting from triggered devices in “high risk” areas.....
My thoughts are that cumulative issues might be more tricky to deal with, particularly in the higher risk areas- perhaps the farms need to work together to have suitable mitigation in place.....?

One question I would be keen to ask MS is the whole issue about higher risk areas (in terms of both EPA and the HP SAC).
Higher numbers of farms using ADDs in areas where there could be a restriction in movement/disturbance to HP (in terms of the CO and the EPS tests for elsewhere) seems to suggest higher risk, particularly cumulative risk... do they agree? Perhaps we need to ascertain Caroline and Karen's view on this first, in light of the changed CO? Sorry – I don't know the details ehre.

One other point that wasn't made at the meeting - was the argument over current levels of noise emission from ADDs should be taken to be ok – as we have managed to select an area good for HP despite the ADDs being used currently. I think you highlight our concerns to address this – in the first of your bulleted objectives below Action 3.

Cheers
Suz

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Direct Dial: 01463 725238
Email: Suzanne.henderson@snh.gov.uk

From: Liam Wright
Sent: 10 November 2016 13:08
To: George Lees; Caroline Carter; Karen Hall; Suzanne Henderson; Cathy Tilbrook
Subject: RE: Draft Note of ADD / EPS Meeting with MS - 8 Nov 2016

Hi George,

I think you've done a really good job of making sense of the discussions!

In terms of the point:

The pros and cons of different options for managing ADD use, whether via EPS or legislation or Planning control, were discussed

My recollection of two specific examples / option are as follows:

Options:

- a) Introduce EPS process for all aquaculture ADDs
 - i) Have a general licence which sets out / conditions basic 'best practice' mitigation in less sensitive locations
 - ii) In sensitive locations have a site-specific licence which sets out site-specific mitigation to be conditioned
- b) Use planning conditions as first stage mitigation
 - i) Condition 'best practice' mitigation at all sites through planning
 - ii) Any breach of these conditions would be considered reckless disturbance and would require a licence or else an offence would be committed

Though not specifically mentioned on Tuesday, if we went down the route of option b) it would follow that in sensitive locations 'best practice' mitigation may not be sufficient and so additional mitigation may be required (potentially including no ADDs without a license).

I was thinking this through again last night and comparing ADDs as mitigation for pilling vs ADD use at fish farms. I have tried to summarise that thought process in the attached table. This depends on the definition of reckless, but assuming the most basic definition of reckless as 'doing something without regard for the consequences' my thought process led me along this line. Almost certainly jumping the gun but I would be interested if folk could have a think about this and consider whether route b) along the lines of the attached might be a legislatively tight compromise, should MS dig their heels in wrt. route a).

Thanks,
Liam

From: George Lees
Sent: 09 November 2016 19:02
To: Caroline Carter; Karen Hall; Suzanne Henderson; Liam Wright; Cathy Tilbrook
Subject: Draft Note of ADD / EPS Meeting with MS - 8 Nov 2016

All: I've pulled together my notes of yesterday's meeting. It is a bit of a brain dump. Also, because we jumped around a bit I've grouped points, broadly, thematically, and some of the items may appear out of order (in terms of when we discussed them). Please can you all check and correct anything I've got wrong and add in anything I've missed. **NB This is an internal note, not for sharing with MS, at this stage.** I'll prepare something more succinct and tidier for that purpose, once I've got feedback on this from you.

While you are at it you'll recall the action that we provide to MS a list of questions. I've not started that here (though various of the actions are probably relevant to that) but it would probably be helpful if, when responding, there are any specifically that you want Cathy (or whoever) to raise with them.

George

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Rhoda Davidson

From: Caroline Carter
Sent: 06 October 2016 15:33
To: Suzanne Henderson; Liam Wright; Alex Turner
Cc: Cathy Tilbrook; Karen Hall
Subject: RE: Draft text for Portree fish farm response relating to ADDs and Inner Hebrides and the Minches cSAC

Hi All,

I think the draft Alex sent through is in keeping with what we have said within our HP SAC management options paper and isn't diverging from what we have said to industry. I don't have anything major to add. Given the timescale for this response, I think as long as industry are aware that our view is still being formed and they are involved in discussions, we shouldn't get tied into this being precedent setting (I hope).

Is the proforma for our use only? Or does it get sent with our response? If it's sent, we probably should clarify the conservation objectives, the text is being refined currently and as far as I'm aware it's not quite finalised. Karen is off now until the end of October, so we might need to check with Katie or Greg what text we should be using? I think the latest is:

1. To avoid deterioration of the habitats or significant disturbance of harbour porpoise thus ensuring that the integrity of the site is maintained and it continues to make an appropriate contribution to harbour porpoise remaining at favourable conservation status in UK waters.
2. To ensure that, **except where due to natural changes**, the following are maintained in the long term:
 - 2a. The relatively high density of harbour porpoise throughout the site compared to other parts of the continental shelf within the West Scotland Management Unit.
 - 2b. **The distribution of harbour porpoise throughout the site by avoiding significant disturbance**
 - 2c. The condition of supporting habitats and processes, and the availability of prey for harbour porpoise.

For 2. This might be changed to - "To ensure that, **except where due to environmental change**, the following are maintained in the long term:" it's not finalised yet...

We've highlighted straits and sounds as areas that we want to look at more closely, including possible cumulative effect with other fish farms, and this application falls within that category. The conditions we are asking for here are in keeping with what the applicant is planning so that shouldn't be a problem for this application.

Liam makes a good point in that the fact we are saying it's ok to use a triggered device in an SAC may mean we won't be able to object to the use of ADDs anywhere else, and I'm not sure of a good answer to that. This isn't for this application, but I feel that our stance should be no ADD unless the need is substantiated, or that the applicant is using a device that specifically targets seals and has no effect on cetaceans (ie the new ones – hopefully in the future). To cut down on noise pollution no device (low freq or other-wise) should be deployed continuously. Triggered devices logically seem the next step. I'm not sure how other non-triggered devices could be operated in a similar way though? This would mean a person would need to be present to switch it on? When/how would this be switched off? (and do we know how triggered devices stop after being triggered?).

My reading of the device that they are proposing is that it is using an Airmar transducer – in the application, they cite acoustic characteristics identical to the Airmar (freq/level) so the 'new system' is I think to do with the operation – wireless links, communication to the lap top – and some form of trigger not specified. The website has very little information that is of use to us (also they call the device ultrasonic – which it is not, if it emits at 10kHz as we have been told – this is within human hearing and therefore not ultrasonic – ug...).

As an aside, this company are located at the marine 'park' next to SAMS in Oban. I know Denise has spoken to the guy in detail about ADDs so we could probably arrange for him to come and tell us all about his system if it would be of interest.

We could add in something about noise reduction and the work towards better acoustic targeting to seals, there is text in the management options paper that we could add in (Obj A2067288)??

I agree the anti-predator nets and gill nets are two separate things. I'm not aware of anti-predator nets being an issue for porpoise, I don't think there is much out there on small cetaceans being entangled in fish farm nets. The gill nets maybe more of an issue as this is linked to bycatch. As mitigation for gill nets in fisheries, pingers are used (much as I don't want to recommend more noise pollution....) but pingers are much lower in power than typical fish farm ADDs and are designed to 'alert' the cetacean to the presence of the net therefore avoiding entanglement. We could think about this I guess.

Sorry this is last minute and rushed...
Caroline

From: Suzanne Henderson
Sent: 06 October 2016 12:27
To: Liam Wright; Alex Turner; Caroline Carter
Cc: Cathy Tilbrook; Karen Hall
Subject: RE: Draft text for Portree fish farm response relating to ADDs and Inner Hebrides and the Minches cSAC

Hi All,

My queries re triggered devices still stand - do we really want to stipulate a triggered device - or would we also be happy with a device operated in a certain manner similar to triggered devices - i.e. when seals are present/stressing/damaging fish?

Also – the device they are proposing – I am not sure it's a triggered device in terms of the same design as the Ace aquatec one. This is more a device aimed at causing real discomfort to seals – so suspect the noise emission is different – but no details are available from my search of the website?

<http://www.otaq.co.uk/products/sealfence-seal-and-sea-lion-deterrent/>

Perhaps when the seal crosses the "fence" the noise is triggered, but its not clear what the trigger is.

For info The ace aquatic US3 device is a triggered device that can be set to a rate of 0 – so it only scrams when triggered by fish bumping into the sensors (when stressed) or by sensors bumping into the net by bad weather. You can also set the rate differently – see below- this rate is the number of scrams per minute (from 0 to 144), and works independently of a trigger event. I am less sure about what noise is emitted during each "scram".

<http://www.aceaquatec.com/us3-user-manual-2.2>

MORTS	RATE	WARNING!
HIGH	144	<ul style="list-style-type: none"> No longer than 2 weeks Check power settings daily Shift rate to 72 when Morts reach MEDIUM
MEDIUM	72	<ul style="list-style-type: none"> Use until Morts reach Low Check power settings every 2 days Shift down to 36 when seal morts are low
LOW	36	<ul style="list-style-type: none"> Maintain level if morts are rare Check power levels every 4 days
NONE	12	<ul style="list-style-type: none"> Maintain level if morts are gone
NONE	0	<ul style="list-style-type: none"> TRIGGER USERS ONLY! Once the seal morts are very low or gone you can set Rate to Zero and the US3 will scam when a seal is detected.

Karen, Caroline - do we want to say anything alongside the reducing noise in general bit, about moving towards ADDs that are more specific to seals and less impacts to cetaceans?

I think the antipredator nets (to protect fish from seals) and gill nets (to capture escape fish) are two different things to consider. If the farm can guarantee well tensioned antipredator nets - (although this is not always the case if too exposed), then I am not sure this is a big issue for HP but better if Caroline or Karen advise here.

I think we *should* be able to rely on MS to consider HP in any fish escape plan and therefore consider gill nets in this light- but unsure really if MS will do this. There is still an issue over their role as a competent authority from FHI for instance. Karen/Caroline - any thoughts here? Maybe one to tackle separately though as Alex suggests rather than through the planning process?

Suz

Dr Suz Henderson
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-----Original Message-----

From: Liam Wright
 Sent: 06 October 2016 11:17
 To: Alex Turner; Caroline Carter
 Cc: Suzanne Henderson; Cathy Tilbrook; Karen Hall
 Subject: RE: Draft text for Portree fish farm response relating to ADDs and Inner Hebrides and the Minches cSAC

Hi Alex,

Well done. I think this looks good and don't have further comments on your draft text. Do we want to suggest that these measures should be included in an EMP or are we happy to leave that up to THC to decide? There's still some

difficult questions to answer - not least the fact that we are saying disturbance is likely (but in terms of CO not significant) so technically it would follow that EPS appraisal / licence would be required too. Is this something we should flag in the response? Or at least that it should be considered / discussed with MS-LOT (which will ultimately come back to us). Also, I'm still aware that this will open the door to ADD use (in line with the mitigation we suggest in this response) across the SAC, in areas we have said no to them before we had the SAC, as well as more widely in other wider seas areas we have advised against previously, though we will just have to deal with this issue as and when it arises. I think we need to progress EPS licencing discussions with MS-LOT as a matter of high priority as this has definitely forced the issue of EPS licensing for aquaculture.

Happy to discuss further.

Liam

-----Original Message-----

From: Alex Turner

Sent: 04 October 2016 17:36

To: Liam Wright; Caroline Carter

Cc: Suzanne Henderson; Cathy Tilbrook; Karen Hall

Subject: Draft text for Portree fish farm response relating to ADDs and Inner Hebrides and the Minches cSAC

Importance: High

Liam and Caroline

Following discussions with Cathy and George Hogg I have drafted the attached text to support a conditioned objection. Please could you provide comment on whether you think it is appropriate in the next couple of days. I need to get the response to George by Friday at the latest.

I also attach the link to the (very draft) HRA, mainly because it summarises the proposals (the assessment of impacts is incomplete).

Many thanks

Alex

Please could you

"NATURA APPRAISAL PROFORMA - Portree FF - 9 September 2016" (A2102461) "Draft text options for Portree fish farm response relating to ADDs and Inner Hebrides and the Minches cSAC - 3 October 2016" (A2102462)

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NATURA APPRAISAL PROFORMA - Portree FF - 9 September 2016

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Draft text options for Portree fish farm response relating to ADDs and Inner Hebrides and the Minches cSAC - 3 October 2016

Latest: <https://erdms.snh.gov.uk/id:A2102462/document/versions/latest>

Published: <https://erdms.snh.gov.uk/id:A2102462/document/versions/published>

Otherwise I have booked a room at Battleby and suggest times of 11-3pm to tie in with transport and lunch will be provided.

Will be in touch with an agenda soon.

Cheers

Suz

Dr Suz Henderson
Marine Policy and Advice Officer
Coastal and Marine Ecosystems Unit
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Direct Dial: 01463 725238

Email: Suzanne.henderson@snh.gov.uk

From: Suzanne Henderson

Sent: 11 October 2016 10:27

To: [redacted]@gov.scot'; [redacted]@gov.scot'; [redacted]@gov.scot'; [redacted]@gov.scot';

[redacted]@gov.scot'; [redacted]@gov.scot'; [redacted]@gov.scot'; [redacted]@gov.scot';

[redacted]@gov.scot'; [redacted]@gov.scot'; Cathy Tilbrook; Caroline Carter; Liam Wright; Karen Hall

Cc: George Lees; Jane Dodd

Subject: EPS and ADD use at fish farms meeting

Hello all,

If you recall we had a meeting way back in April 2015 to discuss the consideration of EPS licensing or otherwise for the use of ADDs at fish farms, particularly in light of the then newly published EPS Guidance, and various bits of research on ADDs.

We are keen to reopen this dialogue and suggest another meeting in the first half of November to try and reach some consensus between us.

I have attached some draft notes and actions from the last meeting that George and Caroline were working on. Apologies, but I do not think this was ever sent round.

Please can you fill in the doodle poll below to indicate your availability, or let me know if there is someone more appropriate to invite. Hopefully we can get a date where most folk are available.

<http://doodle.com/poll/iven35r7hw972n62>

Many thanks

Suz

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Email: Suzanne.henderson@snh.gov.uk

Rhoda Davidson

From: Suzanne Henderson
Sent: 30 January 2017 16:57
To: Caroline Carter; Liam Wright; Cathy Tilbrook
Cc: George Lees
Subject: RE: Follow up: ADD workshop

Hi Caroline,

Its looking good so far and know it's a balance on having too much info and not enough.....
A few quick comments –

2. I find the diagram with source and distance text a bit difficult to read – sorry – might be something to do with original quality?
4. I know we want to keep this non- technical but think we need some reference to legislation/importance of existing protection?
Also in the text – might be worth a brackets after the text *disturbance* and say something like *altered normal behaviour....* or something...?
6. Ultimate aim – do we want to emphasise here anything about strategic initiatives (MS sign up to things such as MSFD without actually mentioning the detail) or leave it as an SNH goal to ensure regulators and others don't fall foul of legislation? We need to persuade them its their ultimate aim and to understand the strength of the reasons why?

Do we need a few references? I know this is for site managers, but some of them are involved in research and may be keen to follow up some of the information?

Maybe one to run past Jamie....? I just worry they might think its all just SNH opinion- when we know there is published research.

I think we should brand it in some way – so its clear we have produced it - although hesitant as not sure we need publishing team involved, as its shaping up well so far.

Suz

Direct Dial: 01463 725238
Email: Suzanne.henderson@snh.gov.uk

From: Caroline Carter
Sent: 30 January 2017 10:55
To: Liam Wright; Suzanne Henderson; Cathy Tilbrook
Cc: George Lees
Subject: RE: Follow up: ADD workshop

Hi all,

This is where I've got to on this. It's A3 because I thought that would be printable as well as projectable. I've generated all the diagrams using word to avoid any copy write issues and I've added a bit of text in bullet point and non-science wording. I'm happy to hear what you think. I can change any or all of it - it's not set in stone - but this is kinda what I had in mind. Depending on your thoughts, we could also send it on to the group for their input?

Thanks,
Caroline

From: Liam Wright
Sent: 26 January 2017 09:22
To: Caroline Carter; Suzanne Henderson; Cathy Tilbrook
Subject: RE: Follow up: ADD workshop

Hi Caroline,

Thanks, sounds as though you are on the case. I'm happy to progress it however you see fit. I don't think it has to be a corporate flier, just whatever will work best for industry. Do you want the help of the SNH design people or are you saying you happy to deal with it without their input?

Cheers
Liam

From: Caroline Carter
Sent: 25 January 2017 17:36
To: Liam Wright; Suzanne Henderson; Cathy Tilbrook
Subject: RE: Follow up: ADD workshop

Thanks Liam,

I have already made a start on thinking about what should be included for this purpose, and I agree that it should not be scientific in style. It's a big technical subject, so I have already put some thought into how to present this to a lay audience. We will need to be careful with the images, many that are available may have copywrite, I may be able to use some from my previous presentations, but I think I may need to put some together myself as a lot will be too technical. Having said that I would not want to make it too simple.

I'm on it - I don't think this will take me too long, but I just need some concerted time to consider it fully. My plan was once I had ideas together to then circulate for us to discuss, and at that point look at the form it should take.

I was speaking to [REDACTED] the other day (he rang me re killer whale sound deterrent) and we touched upon this material. When we spoke about this at the meeting we were talking more about a poster than a flyer. This all came about from a request for some help re images from ourselves to help the companies themselves raise awareness. [REDACTED] suggested something that could be in digital form for them to either project or print out as needed. They were not looking for a corporate type flyer – but is this how we now want to progress this?

Caroline

From: Liam Wright
Sent: 25 January 2017 17:04
To: Caroline Carter; Suzanne Henderson; Cathy Tilbrook
Subject: RE: Follow up: ADD workshop

Hi Caroline,

Just a quick email to let you know that I had a chat with Jim Jeffries about the possibility of producing some awareness raising material for industry. He was very positive and thought, given the very defined scope, that there would be a good chance that our internal designers would be able to turn something round in-house relatively quickly (based on the assumption it would be something along the lines of an A4 flier) without us needing to bid for their time. Jim is going to speak to Alison Herman who manages our design team next week, she should hopefully be able to confirm this will be ok.

We need to gather some images (Jim thought it would be best to keep the images simple but strong!) and pull together a few bullet points on the info we want to convey. He thought we should try and keep it as simple and non-scientific as possible, given the target audience is going to be farm managers.

Might be easiest for us to have a quick chat on what sort of info we want to convey and think about how to pull it all together in a form that will fit on an A4 flier!

Speak soon.

Liam

From: Caroline Carter
Sent: 16 January 2017 12:29
To: Liam Wright; Suzanne Henderson; Cathy Tilbrook
Subject: RE: Follow up: ADD workshop

Hi Liam,

I've not had chance to think about this in detail yet. We don't have existing materials that we can use so it will have to be from scratch. At the meeting we were talking about a poster, but maybe a flyer might be more appropriate? I have images/figures etc from talks that I have done in the past which I could use.

I'm not sure we were offering to supply the physical poster/flyers, I think I had in mind that we put together the information and then the industry can distribute as they feel most useful. Happy to hear what you think on what would be most useful... particularly if there is any SNH/Comms requirement/format on us producing this kind of raising awareness material? Who should I speak to about this?

I might get chance this Wednesday to start thinking about content, or more realistically – next week (23-27) Chat tomorrow? And then confirm [REDACTED]

Caroline

From: Liam Wright
Sent: 16 January 2017 12:11
To: Caroline Carter; Suzanne Henderson; Cathy Tilbrook
Subject: FW: Follow up: ADD workshop

Hi all,

We have some actions from the recent ADD BP meeting we had in Oban. I have put suggested names against each but happy to change as required. The most pressing action appears to be the awareness raising material. Caroline, just wondered what your thoughts are on us pulling something together for this? Do we have any existing materials that could be used, or tweaked and then used? Is this something we could do ourselves or do you think we need to involve our comm's people too?

SNH actions:

ACTION: Two masters projects on ADD noise surveys have been undertaken. SNH to distribute these to the group when they are published. – **Caroline**

ACTION: SNH to interrogate seal licence data from MS and identify gaps. – **All** (Liam undertake initial filter and circulate spreadsheet)

ACTION: SNH to develop awareness raising information / poster for industry to distribute to all farms - **Caroline** if required with help from Liam and Comm's?

ACTION: SNH to initiate discussions with Freedom Foods – **Cathy / Caroline** via SASWAG / freedom foods review [REDACTED]?

Though it's not in the minutes I also recall us saying we would consider our position on the sites on the east coast of the OH. These sites are outside the boundary of the SAC but will have connectivity. It would be good to agree a position on how we consider these sites. Perhaps we could discuss this tomorrow?

Thanks
Liam

From: [REDACTED] [@scottishsalmon.co.uk](mailto:[REDACTED]@scottishsalmon.co.uk)
Sent: 10 January 2017 12:43
To: Suzanne Henderson; Liam Wright; Caroline Carter
Cc: [REDACTED] [@scottishseafarms.com](mailto:[REDACTED]@scottishseafarms.com)); [REDACTED]

Subject: Follow up: ADD workshop

Dear Suz, Liam and Caroline,

Attached are some brief notes and actions from the meeting we held in Oban on the 13th December. Hopefully they are fairly self-explanatory. One of the actions was for SNH to provide some posters / fliers to raise awareness. Caroline, is this something that could be done fairly promptly? One of our member companies is undertaking an event with their farm managers and it would be an ideal opportunity to raise awareness with them about underwater noise. Let me know what sort of timescales are involved, i.e. whether it's a case of distributing something or starting from scratch with design and print.

Best Regards

[REDACTED]
[REDACTED]
Scottish Salmon Producers' Organisation

Tel: [REDACTED]
Mb: [REDACTED]
Email: [REDACTED] [@scottishsalmon.co.uk](mailto:[REDACTED]@scottishsalmon.co.uk)

Rhoda Davidson

From: Donna Yule
Sent: 19 September 2016 09:11
To: Liam Wright; Suzanne Henderson
Subject: RE: Low Frequency ADD's

Very interesting and quite worrying! To my knowledge, there has been no testing in Orkney and that no EPS licences had been issued. I have just had a quick chat with Kate to see if she was aware of anything while I was off, I will forward the emails she has sent me.

Suz, are you able to shed any light on this testing and the claims made in the product pdf?

Thanks
Donna

Donna Yule
Operations Officer, Orkney

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Extension: 7206157
e-mail: Donna.yule@snh.gov.uk

Working days Mon-Thurs

From: Liam Wright
Sent: 15 September 2016 17:28
To: Donna Yule; Suzanne Henderson
Subject: RE: Low Frequency ADD's

Also note that in the PDF they provided the manufacturer states:

The system is now being evaluated by academics on a new SARF call. SNH has also given Ace Aquatec special dispensation to use the system on sites that would otherwise be banned from using acoustic deterrents because of the low impact on cetaceans as a result of its generating sound outside the hearing threshold of porpoises.

OTHER DEVELOPMENTS:

Ace Aquatec has developed this system in conversation with Freedom Foods and the SNH. It was funded with SMART funding in 2012 and has now been brought to market.

Other new systems developed, trialled and now in operation include electric netting for the improved deterrence of seals that may be suffering natural deafness. This system deploys electrodes around a salmon pen and the deterrent noise is paired with an electric shock to create conditioning in the seal to avoid the seal pens. At trials at SSF Shapinsay and Cooke on Hoy the system has proven 100% effective at eliminating seal morts.

From: Donna Yule
Sent: 15 September 2016 17:06
To: Suzanne Henderson
Cc: Liam Wright
Subject: RE: Low Frequency ADD's

Hi Suz

Didn't think you had given permission but you had given us a heads up that there may be an ADD enquiry for up here. Have filed the request in erdms qB7798, obj ref A2088527. Will send an acknowledgement of email to [REDACTED]. Will get request added to CMS and will probably be in touch with you/Liam next week if that is ok?

Donna

Donna Yule
Operations Officer, Orkney

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Extension: 7206157
e-mail: Donna.yule@snh.gov.uk

Working days Mon-Thurs

From: Liam Wright
Sent: 15 September 2016 17:02
To: Suzanne Henderson; Donna Yule
Subject: RE: Low Frequency ADD's

I'm pretty sure an EPS licence was granted for a trial up in Scapa Flow previously. Will look for the details but, yes, Caroline was involved with that.

From: Suzanne Henderson
Sent: 15 September 2016 16:56
To: Donna Yule; Liam Wright
Subject: RE: Low Frequency ADD's

Hi
To be aware - I have not given any such permission!
Not sure if this has been through licensing though and maybe Caroline was involved?
[REDACTED] from SSF did speak to me about wanting to trial using ADDs though in Scapa – and wondered who should they contact - think I relayed this to you both, so maybe related?
Suz

Direct Dial: 01463 725238
Email: Suzanne.henderson@snh.gov.uk

From: [REDACTED] [@scottishseafarms.com](mailto:[REDACTED]@scottishseafarms.com)
Sent: 15 September 2016 16:05
To: Donna Yule
Cc: Kirsty Brown; Suzanne Henderson
Subject: Low Frequency ADD's

Hi Donna

I was hoping that you could help me out. We were hoping to trial a new low frequency (Cetacean Friendly) Anti Deterrent Device at two sites in Orkney this winter. The sites we had in mind were Toyness and Wyre, I'd appreciate it if you could advise on how we would get the appropriate permission to install the systems.

Further details on the proposed system is attached, the manufacturer claims that they have permission from SNH (Via Suzanne Henderson) to deploy these ADD's in protected areas. However, I thought I'd double check locally that this was indeed the case before I took the project any further.

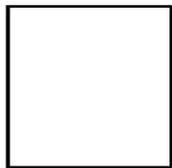
Look forward to hearing back in due course.

Regards

[REDACTED] - Orkney | **Scottish Sea Farms Limited**
Regional Office, Scapa, St Ola, Kirkwall, ORKNEY ISLANDS, KW15 1SD
Tel **[REDACTED]** Mobile **[REDACTED]**
www.scottishseafarms.com | www.facebook.com/scottishseafarms | www.twitter.com/scotseafarms



THE CROWN ESTATE *Best Aquaculture Company of 2015*



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[Scottish Sea Farms](#)

Rhoda Davidson

From: Caroline Carter
Sent: 24 March 2016 14:20
To: Jane Dodd
Cc: Liam Wright; Suzanne Henderson; Andrew Campbell
Subject: RE: SSPO HP dSAC pre consultation discussions

Hi Jane,

I don't think we would be able to meaningfully model disturbance zones for harbour seals. The disturbance thresholds for cetaceans are tenuous enough as behavioural reactions are highly context driven and there is huge variability of observed responses event to the same stimulus.

The zones as modelled for HP use the only useable disturbance threshold published (dBht could offer a disturbance zone – but there are serious concerns with this methodology, it's also proprietary to Subacoustec so we would not be able to model this effectively). There is not the equivalent for seals for disturbance to continuous sounds specified in the literature (there is a threshold for impulsive sounds but this is related to sources such as pile driving or explosives).

The modelling I did was unweighted, it essentially takes the source level, subtracts the modelled propagation loss (PL) to estimate received levels at distance, the RL is then compared to the disturbance threshold to estimate a range. Unweighted - means there was no filter applied to account for differences in hearing abilities, but PL was modelled at 10kHz which is well within the hearing ability of both cetaceans and pinnipeds which would not be filtered out using weighting.

Southall et al (2007) is a key resource that we use for injury and disturbance and in this text, they state –

“The effects of nonpulse exposures on pinnipeds are poorly understood” (the nonpulse category includes ADDs)

“...limited available data suggest exposures between 90 – 140 dB re 1μPa generally do not induce strong behavioural responses “.

The threshold level used for the modelling I did was 120 dB re 1μPa. So we could infer that the disturbance zone for seals would be less than the 2.5km as modelled?? But I'm not sure we should put a number on this as the evidence is not there – and defining behavioural responses is really on shaky ground.

Sorry not to be more positive, please come back to me if you have any queries.

Best,
Caroline

From: Jane Dodd
Sent: 23 March 2016 12:13
To: Caroline Carter
Cc: Liam Wright; Suzanne Henderson; Andrew Campbell
Subject: RE: SSPO HP dSAC pre consultation discussions

Thanks for these Suz.

Caroline,

Would it be possible to model acoustic disturbance zones for harbour seals in the same way? It might further help our discussions with the industry about ADD use. I am concerned about the implications for the “no disturbance” conservation objective for seal SACs...

Jane.

From: Suzanne Henderson
Sent: 22 March 2016 12:09
To: Jane Dodd; Andrew Campbell
Cc: Liam Wright
Subject: SSPO HP dSAC pre consultation discussions

Jane, Andrew,

Attached are the maps we produced along with Caroline’s method for the modelling of acoustic disturbance zones. There are 2 buffers (with lots of caveats due to unknowns!): one for terecos -50m – but so small it is represented by a cross, and the other ADDs – 2500m.

There are two SSPO data maps and these are for the 2 original HP dSAC areas which we asked SSPO for their data (2015 info).

There are 3 MS licence data maps - I did these using the data in the seal licence info Oana sent me (2014/15 info). I tried to do something with the information on how often the ADDs are being used – hence the different colours.

There maybe other sites which were not in the seal licence data information – but are still active fish farm sites- that we might have missed – see the all active sites map.

Discussions were more about assurances that we would not be suggesting a complete ban on ADDs, but more about working with them to reduce noise pollution particularly in areas of higher risk (SoMull), and a longer term goal of other types of ADDs (if the low frequency ones prove to have no impacts on cetaceans).

We highlighted the ongoing work on CO.

The new Impact Assessment by MS – shows a small financial impact on industry and SSPO seemed happy with that too.

Note we have not spoken directly to actual companies yet – SSPO were tasked in doing that, but a meeting is planned in April some time.

Cheers

Suz

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Rhoda Davidson

From: Katie Gillham
Sent: 12 March 2016 17:45
To: Suzanne Henderson; Caroline Carter; Cathy Tilbrook; Liam Wright; John Baxter
Cc: George Lees
Subject: RE: SSPO HP SAC preconsultation meeting

Hi Suz

Thanks for copying me in. Given [REDACTED] email following the SPA workshop (you'll have seen my response), it might be worth adding this to the agenda to provide reassurance?

Thanks
Katie

-----Original Appointment-----

From: Suzanne Henderson
Sent: 10 March 2016 16:16
To: Caroline Carter; Cathy Tilbrook; Liam Wright; John Baxter
Cc: Katie Gillham; George Lees
Subject: SSPO HP SAC preconsultation meeting
When: 16 March 2016 15:00-16:00 (UTC) Dublin, Edinburgh, Lisbon, London.
Where: teleconference

Hello all, (cc Katie and George for info only) and John in case you are attending on the 17th!

I think we might need a quick catch up before the SSPO meeting on 17th next week, to agree on how to present the updated HP SAC information.

We will find out on Wednesday morning – on the specifics of what we can and can't say at the meeting, but I think the main discussion will be our actions from the last meeting.

Attached below are the last HP SAC ADD workshop notes, Caroline's draft internal note on acoustic disturbance zones from current ADDs, the latest MOP, and draft acoustic disturbance maps using buffers from Caroline's modelling. Note that the Terecos modelled buffer is so small you can't see it on the maps, so I have labelled these with a big cross. The maps should help discussions on cumulative/higher risk areas – so let me know what you think. I will try and map a wider area using the MS seal survey data which has ADD information – needing help with this so might not get this done by our meeting next week.

<< File: ADD workshop notes 25-08-15 - FINAL.obr >> << File: ADDs and Aquaculture_DRAFT Internal note of acoustic disturbance zones_CC 1-03-16.obr >> << File: Combined Reg 33 & MOP - version 3 - Inner Hebrides and the Minches pSAC - 23 February 2016.obr >>
<< File: ADD use SSPO data w modelled buffer - North Minch.obr >> << File: ADD use SSPO data w modelled buffer - Southern Sea of Hebrides.obr >>

The action points from the last workshop are below with some of my comments.
Is there anything else we can feed back for point 3?

Action points:

1. Salmon farming industry to provide information on ADD use to SNH (via SSPO, using the proforma provided) – **provided by end of October 2015.**

2. SNH to provide more information on the areas of “higher concern” within the respective dSAC’s. **Caroline to chat through the modelling approach and all caveats, and show maps produced (still working on this to discuss). Potential implications for SSPO members – MOP discussion- if appropriate?**
3. SNH to investigate knowledge gaps surrounding porpoise behaviour within the dSAC’s and consider options for research. **SARF research proposal, anything else?**
4. SNH to consider the potential for using cetacean observation information from farms – **we suggested this as a MSc topic at MASTs/SNH research day which has attracted interest from a PhD student...**
5. Future meetings: To be decided once the above action points are complete.

Cheers

Suz

Rhoda Davidson

From: [REDACTED]@scottishsalmon.co.uk>
Sent: 19 October 2016 10:40
To: Suzanne Henderson
Subject: RE: SSPO/SNH ADD working group

Hi Suz,

Sorry, I was off last week hence the delayed response. I will be meeting with the environment managers next Tuesday and will canvas them for a date in early December and get back to you.

Best Regards

From: Suzanne Henderson [<mailto:Suzanne.Henderson@snh.gov.uk>]
Sent: 11 October 2016 11:03
To: [REDACTED]@scottishsalmon.co.uk>
Subject: SSPO/SNH ADD working group

Hi [REDACTED]
Cathy mentioned you are catching up at the end of this month- but we are still keen to pull together an ADD working group to discuss ADD use, best practice etc within the HP cSAC – an action from our last SSPO/liaison meeting. We had thought towards the end of November might be good, but I have had a quick check of colleagues calendars and we have a 2 day meeting 22/23rd Nov and Caroline is not available the following week. Perhaps early December might be better?
Do you want to canvass for dates with some of your members. We can offer either Battleby or Inverness as locations if helpful.

Cheers
Suz

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dìomhair agus airson an neach no buidheann ainmichte a-
mhàin. Mas e gun d' fhuair sibh am post-dealain seo le
mearachd, cuiribh fios dhan manaidsear-siostaim no neach-
sgrìobhaidh.

Thoiribh an aire airson adhbharan gnothaich, 's dòcha gun tèid
sùil a chumail air puist-dealain a' tighinn a-steach agus a' dol a-
mach bho SNH.

Rhoda Davidson

From: Liam Wright
Sent: 05 May 2016 14:58
To: Cathy Tilbrook; Suzanne Henderson; Caroline Carter; Karen Hall
Cc: Iain Sime; Emma Philip; Krysia Campbell
Subject: SSPO Agenda and minutes
Attachments: FINAL MINUTES - SSPO - SNH LIASION MEETING - APR 2015.obr; SNH - SSPO liaison meeting agenda 10-4-16.obr

Hi there,

The agenda for Tuesday and the minutes from the last meeting are attached.

A few AP's from the previous minutes but nothing major:

AP1: canvass for dates to hold joint SNH / SSPO seminar - discharged

AP2: SNH to consider comments on draft guidance (wild fish) received from all consultees and convene working group / management group discussions asap – discharged (I think) Iain has *considered* all comments and the guidance is now sitting with SAC for comment / discussion / approval – I assume the SAC could relate to the working group / management group referred to in this action?

AP3: SNH to share draft Management Options Paper for Sea of Hebrides pMPA with SSPO – discharged I assume

As you'll see we have a few updates to provide on SPA designation progress, wild fish guidance and visualisation (guidance for LAs and industry). Krysia has been in touch to say she will get something across to me before Tuesday. I haven't heard from Iain or Emma yet wrt. wild fish guidance and SPA designation – I'll give you both a call shortly to discuss.

Cheers,
Liam

Liam Wright | Marine Policy and Advice Officer - Aquaculture
Coastal and Marine Ecosystem Unit
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T: 01546 603611
E: liam.wright@snh.gov.uk

Rhoda Davidson

From: Suzanne Henderson
Sent: 22 March 2016 12:09
To: Jane Dodd; Andrew Campbell
Cc: Liam Wright
Subject: SSPO HP dSAC pre consultation discussions
Attachments: ADD use - Inner Hebrides and the Minches_MS_Licence data.obr; ADD use - Inner Hebrides and the Minches_MS_Licence data_Fullmap.obr; ADD use - Inner Hebrides and the Minches_MS_Licence data_North.obr; ADD use and all active sites - Inner Hebrides and the Minches.obr; ADD use SSPO data w modelled buffer - North Minch.obr; ADD use SSPO data w modelled buffer - Southern Sea of Hebrides.obr; ADDs and Aquaculture_DRAFT Internal note of acoustic disturbance zones_CC 1-03-16.obr

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Cheers

Suz

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Industry / SNH Liaison Meeting

10th May 2016

1. Present
2. Apologies

3. SPA Update

A brief update was provided on proposals to consider the designation of a suite of new marine SPAs. Key points were a) as of 10th May Marine Scotland had not yet published a final report following the workshops held in March; b) no decision yet from Ministers on whether / when the proposed SPAs will go to formal consultation.

Some questions were raised regarding the science used to select sites. It was noted that there will be an opportunity for industry to raise any issues during the formal consultation process.

4. Harbour Porpoise SAC Update

4.1 Consultation - A brief update on the consultation process was provided by SNH. Final date for representations was 18th May. The key concern for industry relates to management measures in relation to the use of ADDs within and close to site boundary.

4.2 ADDs – SNH provided a presentation relating to modelling work used to help understand the scale of underwater noise emanating from ADDs used within the site boundary. SNH highlighted that while it is possible to model sound propagation it is difficult to predict what effect that sound will have on cetaceans as behavioural response is highly context driven. In-house modelling indicated that most ADDs in current use could cause disturbance up to 2.5km from source (other literature suggests potentially greater distances for harbour porpoise). The exception related to the Teracos model which has a reduced possible disturbance range of only 50-100m from source, primarily due to the lower sound output level. Other variables will also influence sound propagation and subsequent risk of disturbance but are not straightforward to model and will therefore have to be taken in to account on a site-by-site basis (such as shadowing effect of islands etc).

Initial thoughts are that ADDs will not be a major concern for most of the SAC (the exception being areas which are identified as high cumulative risk / narrow straits where there may be barriers to passage). However, it is likely that a more formal arrangement will be required, in terms of how ADDs are used, to ensure potential risks are minimised.

Concerns were raised by industry that the SAC status would result in more sites not being allowed to use ADDs without formal permission to do so (i.e. more frequent implementation planning conditions). SNH indicated that this may not necessarily be the case. However,

there would be changes in terms of the assessment process that is required (new sites inside the SAC will require Habitats Regulation Appraisal and possible Appropriate Assessment prior to planning consent being granted).

Industry suggested developing best practice measure by focusing closely on 2 or 3 higher cumulative risk areas. The measures developed in these areas could subsequently be applied more widely across the SAC, if required.

Key areas of higher cumulative risk / barrier effects were deemed to be the Sound of Mull, Lismore, west of Mull and the Sound of Raasay but it may also be necessary to think about other areas in due course.

AP1 – Establish a ‘working group’ with SNH, MS, and operators in these key areas to develop best practice guidelines to apply across the site.

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.

AP 2 - SNH to seek discussions with Freedom Foods regarding ADD use inside the Inner Hebrides and the Minches pSAC.

Similar concerns were raised regarding the legal responsibility that operators have to protect the welfare of their stock; ADDs are deemed by industry as an essential element of this protection.

Further work is required to help understand why certain ADDs work in some locations but not in others. A suggestion was made that this may be something that could be pursued through SARF or MASTs.

It was noted that it will be important to understand how industry uses ADDs and specifically to clarify what is meant by certain terms such as ‘continuous use’ and ‘intermittent use’ as interpretation of these terms will differ between farm managers.

A suggestion was made that the wording of the annual seal licensing survey could be amended to clarify these terms and subsequently capture more detail which could be used to help guide management measures.

AP3 – SNH / MS to discuss amended wording of annual SOI survey to capture the information required to guide further management / best practice development. SSPO to comment on any proposed changes.

4.3 EPS Licencing – Industry questioned whether the designation of the SAC would have an influence on the requirement for EPS licencing.

It was pointed out by SNH that there is currently a discrepancy between how EPS licencing is applied to aquaculture when compared to other industries, such as marine renewables. Though this issue does need to be addressed to ensure a joined up national approach is being taken to the use of ADDs in relation to EPS licencing, it is not an issue which will be influenced by the designation of the SAC.

Industry expressed concerns over confusion in the way that EPS licensing is currently handled.

SNH noted these concerns and pointed out that in fact they are only obliged to provide advice to MS-LOT on whether the favourable conservation status of the EPS would be affected.

AP4 – SNH and MS to further discuss the interplay between planning permission and EPS licencing and clarify the roles and responsibilities of SNH and MS-LOT

5. Wild Fish Guidance

SNH provided an update to inform industry that the wild fish Natura guidance has now been through QA with their Scientific Advisory Committee and has now been signed-off and a final version has been circulated.

SSPO had not had an opportunity to discuss the final version internally but indicated they would provide a further response, for SNH to have on record.

Industry expressed concern that they would be responsible for undertaking monitoring as defined in the approach to assessing risk to the SAC features as defined in the guidance.

SNH indicated that for sites potentially impacting an SAC the intention would not be to place the entire responsibility for all monitoring on industry. The intention is to use existing data in combination with new data on wild fish populations as part of the decision making process. There may also be scope to utilise RAFTS as part of wider monitoring measures, though the technical group need to discuss and clarify the detail further.

AP5 SNH to clarify what is meant by ‘regional farm management groups’ as defined in the guidance

6. Aquaculture Visualisation Guidance

SNH provided an update on proposed guidance on the preparation of visualisations for the aquaculture sector. Work is currently ongoing to draft a broad structure for this guidance; once this has been done SNH will be contacting industry to discuss their needs with the intention of incorporating in to the final guidance.

Guidance will apply to both shellfish and finfish sectors.

It was noted that Highland Council seem to have taken a harder stance on the preparation of visualisations, expecting aquaculture industry to adhere to the same standards as are expected of the renewables industry.

It was noted that Argyll Council are also seeking a standard approach to the preparation of aquaculture visualisations.

AP6 - SNH will be in touch with industry in the coming months to discuss this further.

7. AOB

██████████ is the new lead on aquaculture for THC following the departure of key aquaculture specialists.

8. DONM

Liaison meeting scheduled for autumn 2016. Additional targeted meetings are likely to take place prior to this to discuss ADD working groups.

MINUTES - SNH / MS DISCUSSION ON ADDs AND EPS : Tue 8 November 2016

11.30 – 15.30. Silvan House meeting room 2, Edinburgh

Attendees:

SNH: Cathy Tilbrook (Chair); George Lees; Suz Henderson; Liam Wright; Caroline Carter; Karen Hall.

MS: [REDACTED] (t/c for part)

Apologies: [REDACTED] (all MS).

Aims:

- To reach an agreed policy position on requirement for EPS licensing for use of ADDs in aquaculture.
- To discuss and agree approaches to monitoring and regulating the use of ADDs within the Inner Hebrides and the Minches cSAC.

1. Intro / context to ADD/EPS Issue

- CT explained context and objectives for meeting, including summary of previous (April 2015) meeting and recent developments such as harbour porpoise cSAC and aquaculture consents review. CT concluded that SNH recognises that it is for MS / SG to determine their approach on this issue, but that SNH requires a clear and formal policy statement that sets out the government position, especially where this seems to diverge from published guidance.
- CC delivered short presentation, providing background and recent research on the issue of ADDs and aquaculture, including:
 - Diversity of applications for ADDs
 - Maps illustrating the range of audibility of ADDs in NW Scotland, and increasing persistent detection over last decade
 - Areas within cSAC which recent studies have identified as being ensonified
 - Ranges of audibility of differing ADDs.

2. EPS Legislation and MS Marine EPS Guidance

- CT suggested it would help to re-visit the decision-making flowchart in the MS Marine EPS guidance and offered SNH's view on the likely responses to each question in turn:
 - Q1 Are EPS likely to be present? => Yes.
 - Q2 Are you planning an activity which could potentially cause injury or disturbance to marine EPS? => Yes (noting that the guidance itself indicates this, for ADDs).
 - Q3 Can the impact be fully or partially mitigated? => potentially, there being various options here (eg see Annex 2). However, any such mitigation needs to be enforceable (eg via planning conditions) to ensure delivery.
 - Q4. Will an offence be committed despite mitigation plans? Yes, in some cases – leading to requirement for EPS licence
- Q4 prompted [REDACTED] to outline recent legal advice received by MS on the definition of 'reckless'. The advice received was not definitive but, in case law, implied 'culpable indifference and blameless disregard'. Examples of recklessness in a driving context were also given. It was MS's opinion, on the basis of this advice that ADD use *by the aquaculture sector*, is not 'reckless', the intention of ADD use being different for aquaculture to that for other industries where ADDs may be applied to 'deliberately' scare / disturb EPS (cetaceans).

- MS considered that, unless there was an identified negative effect of ADDs used in aquaculture upon EPS species, and that operators had been made aware of the negative consequences of their actions, potentially via guidance which informed operators that what they were doing could disturb cetaceans, and provided them with routes by which they might avoid this, it would be difficult to infer recklessness.
- Further to this, ■■■ argued that since ADD use for aquaculture was (in MS opinion) not, by this token, reckless and not therefore a criminal offence, there was no basis for introducing an EPS licensing regime. Rather, regulators should promote good practice to help achieve safeguard of EPS.
- SNH questioned this interpretation, indicating that the objective of the EPS legislation was to minimise or avoid disturbance and harm to protected species and, given our understanding of the potential risks to cetaceans from exposure to certain levels of underwater noise, that a reasonable interpretation of the legislation and accompanying guidance would conclude that disturbance through ADD use (irrespective of the sector employing it) falls within its scope. SNH further queried the interpretation of 'reckless / deliberate' for use of ADDs, where there has been widespread discussion with industry on potential risks to EPS, such that an operator would be 'aware of the likelihood that disturbance would result from his actions...'.
 - **Action 1. MS (■■■ or ■■■)**. To provide SNH with a copy of the legal question raised by MS and the advice received from lawyers on defining reckless behaviour and written confirmation of how MS interpret that advice (as set out in the meeting). Also in relation to Reg 39 (2) issue raised later.
 - **Action 2. SNH (CT)**. To investigate the potential for SNH to obtain a separate legal opinion on defining 'reckless / deliberate behaviour' (in the context of the EPS) and perhaps also in relation to Reg 39 (2), noting that SNH lawyers may not wish to offer advice on the same question asked by MS.
- ■■■ & ■■■ indicated that legal advice received on the definition of 'reckless' within the MS Marine EPS Guidance would, need to be fully considered.
- **Action 3. MS (■■■ or ■■■)** to advise SNH of plans / timescales for guidance revision. NB As when first drafted, SNH will be keen to support MS in any re-drafting required.
- ■■■ emphasised that, given the implications for shooting seals and the balance of seal control and aquatic animal welfare, there is a need to understand the 'end game' and asked SNH what they sought to achieve through an EPS licensing process for ADDs. MS expressed concern at introducing an administrative process, without clear understanding of the effects of ADDs on EPS and what positive outcomes are expected, against a backdrop of reducing the administration of other aspects of fish farming control.
- CT (and others) outlined three objectives:
 - Securing a mechanism for monitoring and managing the use of ADDs, so as to safeguard EPS (and especially HP within the cSAC) in the face of growing use of ADDs, increasing scientific evidence of their potential to cause disturbance and a growing aquaculture industry;
 - Reducing or preventing the risk of legal challenge / infraction of MS, in relation to non-delivery of its statutory functions, under the Habitats Regulations (insofar as they apply to EPS) and noting high levels of public/ NGO scrutiny on such issues;

- Consistency with other industries in Scotland that are using or planning to use ADDs.

3. Practical Measures for Regulating and Managing ADD Use

- CC continued her presentation, focusing on the cSAC, and covering:
 - Details of ADD use supplied by fish-farmers
 - Sound propagation models
 - Modelled maps of ADD sound propagation and potential zones of disturbance to HP around relevant fish-farms, and the caveats that apply to their interpretation
- LW & SH outlined initial discussions with industry on best practice use of ADDs within the cSAC, including managing the:
 - Frequency of devices (use those to which HP / other cetaceans are less sensitive)
 - Duration of disturbance (ensure no continuous noise emission / use automatically triggered devices and limit duration of use)
 - Zone of disturbance (use devices with reduced range of noise output)
- ■ observed that recent research by SMRU, around salmon netting stations in NE Scotland, indicated that triggered use of ADDs was less effective than constant use, in terms of seal deterrence. The seals appeared to be more willing to tolerate the triggered ADD output in the knowledge that a potential food source is available (which they would, under constant ADD use, have been unaware of).
- ■ observed that, in relation to fish-farm management we (collectively) are trying to manage a range of competing impacts, namely: escaped fish, shot seals and disturbed cetaceans. By changing the approach we take to management of any one of these (eg cetacean disturbance) we risk increasing other, undesirable impacts. ■ emphasised that improved management may be better delivered through guidance than a legislative approach.
- SH & LW suggested that, as the cSAC has policy protection, measures to protect the qualifying species would need to be enforceable, and hence the need for a legislative approach (whether that be via EPS legislation, planning legislation or another mechanism). **Action 4. SNH (SH/LW)** to confirm with Greg Mudge.
- ■ noted that Scottish Govt is strongly advocating the streamlining of aquaculture regulation and that any introduction of a new licensing regime (irrespective of the justification or otherwise for that) would be inconsistent with this. ■ also indicated that any new EPS licensing regime would be a huge administrative burden for MSLOT and effectively undeliverable with current resources.
- In response, CT and others outlined various options for reducing this burden, based in part on advice received previously by Ben Ross (SNH Licensing Mgr). An effective licensing regime could, in SNH's view, be introduced that would not be onerous on MS or developers. Options covered included:
 - **Introducing EPS process for all aquaculture ADDs**
 - Introduce a 'class licence' which permits use of ADDs in less sensitive locations, subject to registering devices with regulator and providing certain information (such as model, location, whether or not linked to triggering mechanism etc). Operation may be permitted without restrictions or subject to general terms and conditions applicable to all devices covered by the Licence

- In sensitive locations, require a site-specific licence which sets out site-specific mitigation to be conditioned
 - **Using planning conditions as first stage mitigation**
 - Condition 'best practice' mitigation at all sites through planning (likely to be through an Environmental Management Plan).
 - Any breach of these conditions would breach planning consent but could also be considered reckless disturbance and a potential offence, leading to requirement for an EPS licence.
 - For sensitive locations, 'best practice' mitigation may not be sufficient and so additional mitigation may be required (potentially including no ADDs without an EPS license or that use of ADDs would be inappropriate in certain locations).
- The pros and cons of these and other options for managing ADD use, whether via EPS or development management under the planning system, were discussed. ■ emphasised that planning legislation can't be used to address and manage impacts covered under other regulatory regimes (such as EPS legislation). A view on whether ADD use for aquaculture is encompassed by the EPS legislation, or not, is therefore a prerequisite before options for control via the planning system are investigated. ■ later also advised that if management via the planning system is considered the most appropriate mechanism for addressing this issue then any subsequent discussions need to involve LA representatives.
- SH & GL asked MS whether they shared the SNH view that this (ADD use by the aquaculture industry) was an issue that needed to be addressed and managed. Without agreement on that, the discussion and identification of a practical option for managing ADD use was premature.
- MS (■■■■) were less certain that there is an outstanding concern, at this time, which can't be managed under current working practices. NB. IW later offered the view that EPS licensing of ADD use by aquaculture was appropriate in some circumstances.
- **Action 5. MS (Policy and LOT)** to confirm whether, in their opinion, the concerns raised by SNH regarding ADD use, by the aquaculture industry, inside and outwith the cSAC, require to be addressed and whether they justify changes to current regulatory practices.

4. Additional Perspective from MS Policy & Concluding Remarks

- ■ joined the meeting by t/c. ■ has led on the EPS guidance within MS Policy, and ■ indicated that she would be best placed to advise on the issues being covered by the meeting, on her return, but in summary:
 - He did not believe there was a significant policy issue at the moment regarding ADD use. In his experience, SNH advise when they have concerns about a particular deployment and MSLOT respond accordingly, generally in accord with SNH advice
 - The introduction of the HP cSAC did not change that position.
 - The Marine EPS Guidance would need to be updated, in relation to its description of Reg 39(2).
- SNH noted that the wording of section 1.2.3 of the Guidance is confusing as it brings in EPS test 3 (would actions be detrimental to FCS of species) as a potential defence against an offence being committed (and therefore whether an

EPS licence is needed?). SNH interpretation of the Regulations section 44 (3) is that the FCS test is considered later in the process, when determining whether to grant an EPS licence. This is in line with the flowchart in the current EPS Guidance.

- **Action 6. MS ()** to clarify advice received on Reg 39(2) and implications for need to revise the marine EPS Guidance
- **Action 7. SNH (CT/AII).** To compile a list of questions for MS and also to include, for further discussion, our initial views on possible approaches that could be implemented (whether via EPS legislation or otherwise) to address the concerns we are raising. See Annexes 1 and 2.
- SNH emphasised the opinion that ADD use by the aquaculture industry, and the associated EPS licensing issues, is an issue of growing concern, that needs to be addressed to ensure safeguard of HP and compliance with European legislation.
- **Action 8. MS** To provide a timetable to SNH for addressing the points raised at today's meeting.

George Lees.
8 December 2016.

Annex 1. Actions / questions for Marine Scotland in relation to ADD use by the aquaculture sector.

1. MS to provide SNH with a copy of the legal question posed and the advice received from lawyers on defining reckless behaviour (and on Reg 39 (2)) and provide written confirmation of how MS interpret that advice (Actions 1 and 6).
2. The aquaculture industry widely acknowledges that ADDs can impact cetaceans. Our understanding is that the legal advice received by MS regarding the definition of reckless is 'culpable indifference and blameless disregard'. Does MS conclude that an ADD left on continuously throughout the production cycle, with no mitigation, and given common understanding of potential risk to cetaceans, is not a reckless action which could result in the disturbance of cetaceans? If so then what is the justification for this conclusion?
3. MS to clarify which parts of the Marine EPS guidance they intend to update e.g. the definition of reckless and/ or description of Reg 39(2); and set out timescales / process for this revision (Action 3).
4. In areas of higher cumulative pressure it seems logical that there is an increased risk to cetacean species. In some areas this could theoretically result in their exclusion from significant areas for significant periods of time. Do MS agree this is a reasonable conclusion and if so what are the implications in relation to Regulation 39 (and within the HP cSAC, the ability to achieve Conservation Objectives on avoiding significant disturbance and maintaining access to all parts of the cSAC)?
5. Does MS consider that the concerns raised by SNH regarding ADD use for aquaculture inside and outwith the cSAC, require to be addressed? If not, what is the basis for that decision? If so, does this justify changes to current regulatory practices and do the options in annex 2 merit further consideration? Can MS clarify their timescale for providing a clear and formal policy statement that sets out the government position (Action 5 and 8)

Annex 2. Potential approaches for addressing concerns about impact of ADD use on cetaceans and ensuring compliance with legislative requirements.

- **Options for EPS licensing for all aquaculture ADDs:**
 - Introduce a 'general licence' which permits the use of ADDs in less sensitive locations, provided that they comply with general mitigation conditions (e.g. advertised on website and promoted to industry). Note that this approach does not require any application process and therefore no information on devices is submitted, which would make future monitoring of cumulative impacts more difficult. An offence is still committed if non-compliance with conditions can be demonstrated.
 - Introduce a 'class licence' which permits use of ADDs in less sensitive locations, subject to registering devices with regulator and providing certain information (such as model, location, whether or not linked to triggering mechanism etc). Operation is permitted subject to general terms and conditions applicable to all devices covered by the Licence. An offence is committed if these conditions are not complied with. This approach may provide a good trade-off between provision of information and potential for compliance monitoring via a light-touch and simple approach to licensing process.
 - Individual EPS licence may still be required for sensitive / higher risk locations, with specific mitigation conditions attached to the licence.
- **Using planning conditions as first stage mitigation**
 - Condition 'best practice' mitigation at all sites through planning (likely to be through an Environmental Management Plan).
 - Any breach of these conditions would breach planning consent (enforcement action?) but could also be considered reckless disturbance and a potential offence, leading to requirement for an EPS licence?.
 - For sensitive locations, 'best practice' mitigation may not be sufficient and so additional mitigation may be required (potentially including no ADDs without an EPS license or that use of ADDs would be inappropriate in certain locations).
 - Issues with this approach are that it is not deemed competent for planning conditions to cover matters that are dealt with under other legislation, and LA may be reluctant to condition issues over which they have little control / experience. This approach could only be applied gradually as sites apply for planning consent for other aspects, so would mean a piecemeal approach to managing ADDs and difficulties in monitoring and managing any cumulative issues.

Potential mitigation conditions (currently under discussion with industry):

- No continuous use of ADDs at any site.
- Use of automatic triggered devices (with some guidance on frequency / duration of triggering)
- Use of low frequency devices
- Reporting requirements (to be agreed)
- Use of strategic area-wide approach to ADD deployment?
- Seasonal restrictions on ADD use?
- Consideration of cumulative impacts and possible further restriction / no ADD use in areas of highest risk (NB Further work and discussion is required to clarify the location of such areas and the basis for their identification).

Rhoda Davidson

From: Cathy Tilbrook
Sent: 03 November 2016 16:19
To: Caroline Carter; Liam Wright; Suzanne Henderson; Jane Dodd
Subject: RE: SASWG 17 Meetings dates
Attachments: SASWG Meeting 17 Horsham Draft agenda.obr

Hi all

To note draft agenda (plus an update on our recent discussions on ADDs to be added).

Are any of you available / interested in linking to this meeting and delivering an SNH update (afraid I can't do that date)?

Thanks, Cathy

From: [REDACTED]@st-andrews.ac.uk]
Sent: 03 November 2016 15:40
To: Cathy Tilbrook
Cc: Caroline Carter; Suzanne Henderson; Liam Wright
Subject: RE: SASWG 17 Meetings dates

Hi Cathy – I am still trying to confirm the agenda – as it is dependent on people having things to present, so your input would be much appreciated.

I am aware that you have been doing some things on ADDs – saw a map of sound exposure somewhere recently - and would be interested to learn more.

Here is the very draft agenda – I will update and circulate tomorrow.

[REDACTED]

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

Please note I generally work Tues, Wed, Thur.

On other days, if urgent, please contact my job-share Katie Gillham (Katie.Gillham@snh.gov.uk) Tel 01463 725324.

From: Cathy Tilbrook
Sent: 10 October 2016 19:05
To: [REDACTED]
Cc: Caroline Carter
Subject: RE: SASWG 17 Meetings dates

Hi [REDACTED]

Thanks for this and sorry not to have responded earlier. We will definitely seek to connect remotely to the meeting and may wish to table an item on ADDs and harbour porpoise (although could be tricky to discuss properly by virtual link). I'm now off on leave until 25 Oct but will ensure we get back to you promptly on my return then to confirm how we plan to engage and who will do so. If you have an urgent query in the meantime then please contact Caroline in my absence.

Thanks, Cathy

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]@waitrose.co.uk); [REDACTED]@rspca.org.uk); [REDACTED] SSPO; [REDACTED]

[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
Mobile: [redacted] – please note new number

Please note I generally work Tues, Wed, Thur.
On other days, if urgent, please contact my job-share Katie Gillham (Katie.Gillham@snh.gov.uk) Tel 01463 725324.

From: [redacted]@st-andrews.ac.uk]
Sent: 19 September 2016 18:07
To: [redacted] International Animal Rescue; [redacted]@thecrownstate.co.uk); [redacted] Sainsbury's; [redacted]@campaign-whale.org); Caroline Carter; Cathy Tilbrook; [redacted], Marine Scotland; [redacted]@waitrose.co.uk); [redacted]@rspca.org.uk); [redacted] SSPO; [redacted]@freedomfood.co.uk); [redacted]@bornfree.org.uk); [redacted] Suzanne Henderson
Subject: SASWG 17 Meetings dates

Dear All,

For some reason I am unable to get Doodle Poll to work for our next meeting. But some preliminary enquiries have resulted in just three suitable dates so far. These are Tuesday 1st November, Monday 7th November or Tuesday 8th November.

Please could you email me your availability for each of these three dates as I will collate the results manually on Thursday.

We are hoping to meet at RSPCA HQ which I realise will restrict the ability of some to attend, but we have been meeting North of the border for some time.

I have so far only received a couple of suggested agenda items. Please also give this some consideration.

With best wishes

[redacted]

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



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Tha am post-dealain seo agus fiosrachadh sam bith na chois dìomhair agus airson an neach no buidheann ainmichte a-mhàin. Mas e gun d' fhuair sibh am post-dealain seo le mearachd, cuiribh fios dhan manaidsear-siostaim no neach-sgrìobhaidh.

Thoiribh an aire airson adhbharan gnothaich, 's dòcha gun tèid sùil a chumail air puist-dealain a' tighinn a-steach agus a' dol a-mach bho SNH.

Rhoda Davidson

From: Caroline Carter
Sent: 08 April 2016 10:23
To: Suzanne Henderson; Cathy Tilbrook; Liam Wright; Jane Dodd
Subject: RE: SASWG - confirming attendance?
Attachments: SASWG 16 - meeting notes drafted by CC.obr

Hi All,

Please find attached some notes I have put together for our info following this meeting. Suz, please feel free to add or amend if there is anything I've misunderstood.
Any questions – please shout.

Best,
Caroline

From: Suzanne Henderson
Sent: 05 April 2016 12:01
To: Cathy Tilbrook; Liam Wright; Jane Dodd; Caroline Carter
Subject: RE: SASWG - confirming attendance?

Hi Cathy,
Liam is on annual leave.

I just looked at travel – and Rosyth is not easiest to get to – so would prefer to VC/teleconference if you want me to attend – but happy to do that.
Cheers
Suz

Direct Dial: 01463 725238
Email: Suzanne.henderson@snh.gov.uk

From: Cathy Tilbrook
Sent: 05 April 2016 11:10
To: Suzanne Henderson; Liam Wright; Jane Dodd; Caroline Carter
Subject: SASWG - confirming attendance?

Hi all
Caroline is able to go to the meeting, but we agreed that another of us would attend this time to provide some continuity and also because the ADD presentation may be useful (although makes sense for only one person to attend this group in future). I have booked a pool car from BBY and will go if needed but am very pushed for time, prior to going on annual leave after Thurs, so if anyone else is able to attend with Caroline then that would be really helpful. Alternatively, Jane offered to v/c or t/c from Oban so we could check with Simon if these facilities are available for the meeting. I think timing is 10.30-3.30, but again we should check this is confirmed. I'm in a phone conference for much of the day but will be on emails periodically, so can discuss that way.
Thanks, Cathy

From: Suzanne Henderson
Sent: 31 March 2016 17:11
To: Liam Wright; Cathy Tilbrook; Jane Dodd; Caroline Carter
Subject: RE: SASWG No 16

Hi

I have not heard of Pulcea either!

My planned time off next week is still tentative – but happy to attend if I am around.

I see that Jane is still on holiday though.

Suz

Direct Dial: 01463 725238

Email: Suzanne.henderson@snh.gov.uk

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

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

From: [REDACTED] [\[REDACTED\]@st-andrews.ac.uk](mailto:[REDACTED]@st-andrews.ac.uk)

Sent: 25 March 2016 16:01

To: [REDACTED] International Animal Rescue; [REDACTED] [\[REDACTED\]@thecrownestate.co.uk](mailto:[REDACTED]@thecrownestate.co.uk); [REDACTED] Sainsbury's; [REDACTED] (Seal Protection Action Group); Cathy Tilbrook; [REDACTED] Marine Scotland; [REDACTED] [\[REDACTED\]@waitrose.co.uk](mailto:[REDACTED]@waitrose.co.uk); [REDACTED]

[REDACTED] [\[REDACTED\]@rspca.org.uk](mailto:[REDACTED]@rspca.org.uk); [REDACTED] SSPO; [REDACTED] [\[REDACTED\]@bornfree.org.uk](mailto:[REDACTED]@bornfree.org.uk); [REDACTED]

Cc: [REDACTED]@freedomfood.co.uk); [REDACTED]@rspca.org.uk
Subject: SASWG No 16

Dear All,

Please find attached a very draft agenda and list of attendees.

Please confirm whether you will be attending as soon as you can.

Please also look at the draft agenda and feel free to make further suggestions.

Note that [REDACTED] has suggested inviting a new ADD company to make a presentation of their ideas before lunch.

[REDACTED] and [REDACTED] will join us therefore around 12:30 and will hopefully stay for lunch.

I will be away next week (28-1st) but will collate responses and finalise a draft agenda for adoption at the meeting on 4th.

I look forward to seeing you there.

[REDACTED]

[REDACTED]

Sea Mammal Research Unit

University of St Andrews

Bute Building

Queens Terrace

St Andrews

Fife KY16 9TS

[REDACTED]

From: [Suzanne Henderson](#)
To: [Liam Wright](#); [Cathy Tilbrook](#); [Jane Dodd](#); [Caroline Carter](#)
Subject: RE: SASWG No 16
Date: 31 March 2016 17:10:59

Hi

I have not heard of Pulcea either!

My planned time off next week is still tentative – but happy to attend if I am around.

I see that Jane is still on holiday though.

Suz

Direct Dial: 01463 725238
Email: Suzanne.henderson@snh.gov.uk

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

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Cheers

Liam

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

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

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1. Freedom Food –
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 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
-

From: [REDACTED] [@st-andrews.ac.uk](mailto:[REDACTED]@st-andrews.ac.uk)
Sent: 25 March 2016 16:01
To: [REDACTED] International Animal Rescue; [REDACTED] [@thecrownestate.co.uk](mailto:[REDACTED]@thecrownestate.co.uk); [REDACTED]
[REDACTED] Sainsbury's; [REDACTED] (Seal Protection Action Group); Cathy Tilbrook;
[REDACTED] Marine Scotland; [REDACTED]
[@waitrose.co.uk](mailto:[REDACTED]@waitrose.co.uk); [REDACTED] [@rspca.org.uk](mailto:[REDACTED]@rspca.org.uk); [REDACTED] SSPO;
[@bornfree.org.uk](mailto:[REDACTED]@bornfree.org.uk); [REDACTED]
Cc: [REDACTED] [@freedomfood.co.uk](mailto:[REDACTED]@freedomfood.co.uk); [REDACTED] [@rspca.org.uk](mailto:[REDACTED]@rspca.org.uk)
Subject: SASWG No 16

Dear All,

Please find attached a very draft agenda and list of attendees.

Please confirm whether you will be attending as soon as you can.

Please also look at the draft agenda and feel free to make further suggestions.

Note that [REDACTED] has suggested inviting a new ADD company to make a presentation of their ideas before lunch.

[REDACTED] and [REDACTED] will join us therefore around 12:30 and will hopefully stay for lunch.

I will be away next week (28-1st) but will collate responses and finalise a draft agenda for adoption at the meeting on 4th.

I look forward to seeing you there.

[REDACTED]

[REDACTED]

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

[REDACTED]

■ [REDACTED]

■ [REDACTED]

■ [REDACTED]

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 injury 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.

<ul style="list-style-type: none"> • 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. <ul style="list-style-type: none"> ▪ Also deployed an underwater camera at four sites. <ul style="list-style-type: none"> • 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. <ul style="list-style-type: none"> ○ Study into sound propagation around fish farms. <ul style="list-style-type: none"> ▪ 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. 	
<p>Meeting minutes taken by ██████████ to follow.</p> <p>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.</p>	<p>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 –ie makes it continuous rather than having gaps between the pulses.</p> <p>Comment [CC2]: This could make a difference in the seal approaching the net from the 'quieter' direction.</p>

End.

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 ??

DRAFT AGENDA

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]
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.

Rhoda Davidson

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

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St Andrews
Fife KY16 9TS
[REDACTED]

Rhoda Davidson

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

* Time slightly flexible depending on arrival times from the airport and return flight timings may need to end earlier

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)
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)

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** ■ 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** ■ to consult with group on suitable dates later, and with ■ about venue availability
- ■ 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** ■ to find regional figures for PBR calculations and circulate to group.
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
4. **Action** ■ to take suggestions for further analysis of shooting incidents back to MHS
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
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
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

* 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

From: FOI
To: [REDACTED]
Subject: RE: FOI on ADDs, predator control and salmon farms since 1 Jan 2016
Date: 18 May 2017 15:38:00
Attachments: A2293361.pdf

Dear [REDACTED]

You recently contacted us to ask some questions about information we released to you under the Environmental Information (Scotland) Regulations 2004. I have collated your questions and will respond to each in turn below.

1. "page 13 and running to page 39 what is the reference/source/date for the document? And on page 15 it refers to Map 2: Where is this map? Could you please provide a copy."

The document is an internal working version of this document <http://www.snh.gov.uk/docs/A1918723.pdf>. It was produced by SNH in consultation with Marine Scotland and JNCC. The public version contains map 2, the map you referred to in your email.

2. ", the web-links do not work:
<https://erdms.snh.gov.uk/id:A2102461/document/versions/published>
<https://erdms.snh.gov.uk/id:A2102462/document/versions/latest>
Could you please make these documents available?"

These links are automatically generated by SNHs electronic record and document management system when documents are shared internally from this system. They cannot be accessed from outside SNH. However, I have attached the documents the links refer to for your information.

3. "Do you have the contact details for the two MSc students cited below?
Do you have a copy of the maps cited above?
Is this research published yet?"

Information about the MSc students were redacted from the information we released to you because releasing their names in response to your request would breach the Data Protection Act (1998). Sharing the contact details of these individuals in response to this query would also breach the Data Protection Act 1998.

We do not hold a copy of the research and do not know how far through academic review process it is. But we feel it would be inappropriate for us release any information related to this research, beyond the summary in the email you highlighted, before it has completed SAMS and St Andrews University's academic process.

4. " what does CO stand for in your email below?"

CO is an abbreviation of Conservation Objective.

I hope this information answers your queries. I understand you spoke to Cathy Tilbrook about a

spreadsheet released in response to your FOI request. However, Please don't hesitate to contact us if you have any further questions.

Yours sincerely

Jennifer Ryles
Information Officer

Model wording – Appraisal

The proposal lies within Inner Hebrides and the Minches candidate Special Area of Conservation (cSAC) selected for its harbour porpoise. The site's status means that the requirements of the Conservation (Natural Habitats, &c.) Regulations 1994 as amended (the "Habitats Regulations") or, for reserved matters the Conservation of Habitats and Species Regulations 2010 as amended apply. Consequently, The Highland Council is required to consider the effect of the proposal on the cSAC before it can be consented (commonly known as Habitats Regulations Appraisal). The SNH website has a summary of the legislative requirements (<http://www.snh.gov.uk/docs/A423286.pdf>).

5b. Likely significant effect but information provided/assessment already carried out shows that the effect on integrity can be avoided with changes/ mitigation

C. Conditioned objection

Summary

This proposal could be progressed with appropriate changes/mitigation. However, because it could affect internationally important natural heritage interests, **we object to this proposal unless it is made subject to conditions so that the works are done strictly in accordance with the changes/mitigation detailed in our appraisal below.**

Appraisal

In our view, this proposal is likely to have a significant effect on harbour porpoise within Inner Hebrides and the Minches cSAC. Consequently, The Highland Council is required to carry out an appropriate assessment in view of the site's conservation objectives for its qualifying interest. To help you do this, we advise that in our view on the basis of the information provided, if the proposal is undertaken strictly in accordance with the following changes/mitigation then the proposal will not adversely affect the integrity of the site:

- If ADDs are used which are within the hearing range of harbour porpoise they must be devices which are only triggered by the presence of predators. They should not sound continuously or be set to intermittent unless agreed in writing by the Highland Council.
- For each device deployed, an accurate record should be kept by the operator of dates when the devices are operating, how often they sound and for what duration. A description should be provided of the noise profile of the devices when they are sounding.
- The use of ADDs should be subject to regular review by the Highland Council, in consultation with SNH, which should initially be on an annual basis. The Highland Council should have the power to amend/restrict the types of devices used and how they are used.
- If secondary anti-predator nets are proposed this must be agreed in advance with THC in consultation with SNH.

The appraisal we carried out considered the impact of the proposals on the following factors:

- Subsequent to completion of EIA scoping the area around the site has been selected as a cSAC for harbour porpoise. An overview of the sightings and modelling data used to

Comment [AT1]: Not sure if we need this? Can we assume that Marine Scotland will take the cSAC into consideration if the use of gill nets is proposed in the event of an escape?

inform cSAC selection is available at: <http://www.snh.gov.uk/docs/A1918277.pdf> This demonstrates that Sound of Raasay is an important part of the cSAC for harbour porpoise.

- The hearing range of harbour porpoise includes the sound frequencies emitted by the proposed ADD model. The use of ADDs may result in disturbance/habitat exclusion. The evidence of impacts on cetaceans from ADDs currently in use is varied and is dependent on many variables (e.g. noise characteristics of device, how the device is used, the topography, animal behaviour and importance of the area/habitat where the ADD is being used). However, the quoted sound output for the proposed device and the topography of the area suggests that it is likely to be audible across a large part of the Sound of Raasay. Disturbance is likely in a smaller (but nevertheless significant) area around each device.
- Sound of Raasay has a number of other fish farms which currently use, or have the option to use, ADDs in an unregulated manner. Working with industry, we are currently undertaking a review of ADD use within the cSAC. This will determine the level of ADD noise emission currently in operation and whether further constraints should be considered.
- In the meantime we consider that it is important to minimise additional noise inputs into the cSAC, monitor the usage of ADDs and have in place a mechanism to address any issues arising from ADD usage at the proposed farm, by itself or in combination with existing farms in the area. It is also important that the Council retains the opportunity to influence best practice in order to reduce the overall noise levels in the future.
- Deployment of secondary anti-predator nets has been quoted as a possibility. Such nets present an entanglement hazard if deployed incorrectly. Gill nets such as those used in recapturing escaped fish also present an entanglement hazard. However we would expect Marine Scotland to take porpoise into account in deciding whether to grant approval for the use of such nets at this site.

Comment [AT2]: Do we need this?

You may wish to carry out further appraisal before completing the appropriate assessment.”

Suggested wording regarding the ‘status’ of the response (Planning applications only)

If the planning authority intends to grant planning permission against this advice without the suggested changes/mitigation, you must notify Scottish Ministers.

HABITATS REGULATIONS APPRAISAL PROFORMA

This proforma should be used to record SNH's Habitats Regulations Appraisal when SNH is a competent authority. It should also be used to record SNH's appraisal of a plan or project when SNH is providing advice to a competent authority.

The proforma is available in an [electronic form](#) on the SNH Dashboard. The Dashboard version is particularly suited to dealing with more straightforward Natura casework.

NB: There is orange text in some of the boxes: this is summary guidance, and is included for convenience. Reference to the main text of the Natura Casework Guidance should be made where clarification is needed. The orange text should be deleted as the proforma is completed.

APPRAISAL IN RELATION TO REGULATION 48 OF THE CONSERVATION (NATURAL HABITATS, &C.) REGULATIONS 1994 AS AMENDED¹ (HABITATS REGULATIONS APPRAISAL)

Casework Management System Ref.

NATURA SITE DETAILS

Name of Natura site(s) potentially affected:

Inner Hebrides and the Minches cSAC (Candidate SAC - submitted to EC)

Name of component SSSI if relevant:

N/A

Natura qualifying interest(s) & whether priority/non-priority:

Harbour porpoise

Conservation objectives for qualifying interests:

The conservation objectives of the site are:

1. To maintain site integrity and ensure the site continues to make a contribution to harbour porpoise remaining at favourable conservation status in UK waters.
2. To avoid significant killing, injury, or disturbance of harbour porpoise.
3. To maintain the habitat and prey of harbour porpoise in favourable condition.

STAGE 1: WHAT IS THE PLAN OR PROJECT?

Proposal title:

Portree Outer fish farm planning application

Name of consultee:

The Highland Council

Name of competent authority:

The Highland Council

Details of proposal (inc. location, timing, methods):

The Portree Outer development comprises 10 x 120m circumference (38m diameter) cages arranged in one group of 5 x 2 cages. The cage grid spacing is 80m x 80m. The

¹ Or, where relevant, under regulation 61 of The Conservation of Habitats and Species Regulations 2010 as amended, or regulation 25 of The Offshore Marine Conservation (Natural Habitats, &c.) Regulations 2007 as amended.

proposed site will lie circa. 500m east of the existing fish farm (Torvaig) in Loch Portree and will share a feed barge with the existing site. The existing farm was granted planning permission for the current configuration (also 10 x 38m diameter cages) in December 2013 (13/02678/FUL).

The Site-specific predator control plan and ES state:

- The anti-predation devices in the following document will be reviewed annually by the site manager and area manager to assess their effectiveness, if found to be unnecessary or ineffective, the appropriate actions will be taken to remedy the situation
- Mortalities are removed by a Lift-Up system although manual removal of mort and moribund fish is also completed as required.
- Scottish Salmon Company typically employs a net tensioning system rather than external predator nets to deter seal predation. Seal Blinds may also be used.
- It is not common practice for SSC to use anti-predator nets, as there is a high risk of entanglement to diving birds and mammals. However, SSC may consider using these nets in certain circumstances. The site manager will consult with the regional manager prior to deploying these nets.
- SSC proposes to reduce the 'duty cycle' and only use triggered ADDs.
- The ADDs proposed will be the OTAQ SealFENCE 2 System, which is currently installed at the existing Portree (Torvaig), to deter a seal attack. The Signal is a 10kHz gated sine wave with Bandwidth 1kHz and the Sound level is 198dB re 1uPa@ 1m. The device will be implemented when site staff note high risk seal activity within the vicinity of the site. A log will be kept of the incidence of attack, and timings and duration of the ADD activation, to be assessed by the site and regional managers annually to determine usage. If ADDs are used at the site, in order to minimise any potential interaction with cetaceans, SSC will only use these devices when deemed necessary. Also, they will not be used indiscriminately and will be trigger operated (therefore limiting the duration of impact). These triggered ADDs are only activated when fish become agitated by the presence of a predator and bump into the trigger units.
- The plan also contains details of trigger mechanisms prior to ADD deployment and utilisation. A log will be kept of the incidence of attack, and timings and duration of the ADD activation, to be assessed by the site and regional managers annually to determine usage.
- Porpoise are also noted within the site logbook of the adjacent Portree (Torvaig) site. Porpoises are noted up to three times on average through the summer, and on each occasion they can remain in the area for a week at a time. Such sightings confirm that fish farming operations have coexisted for many years with populations of porpoise. This is the same ADD as is used on the existing Portree Outer site, and its current use does not deter existing populations of porpoise. Thus, the use of the same ADD on the proposed Portree Outer site is not considered to present a negative effect porpoise populations known to frequent the local waters around Portree and Skye.

Comment [AT1]: No external input – decisions made entirely within the company

Comment [AT2]: No external input – decision made entirely within the company

Comment [AT3]: Not clear what the duty cycle is?

Comment [AT4]: This appears to be similar to the Airmar/MAG/Ace Aquatec devices. Need to ask Caroline to check manufacturers website to confirm.

Comment [AT5]: Not clear from website that these devices can be triggered.

Comment [AT6]: Fits in with requested condition

Comment [AT7]: Not very convincing!

STAGE 2: IS THE PLAN OR PROJECT DIRECTLY CONNECTED WITH OR NECESSARY TO SITE MANAGEMENT FOR NATURE CONSERVATION?

The following points should be considered:

- Has the effect on all qualifying interests been considered?
- Is the proposal part of a fully assessed and agreed management plan?
- Is there a clear rationale to justify the connection with the conservation objectives?

- iv) If there is a clear connection with the conservation objectives will any benefits arising from the proposal outweigh any negative effects?
- v) Have any alternative methods of implementing the proposal been explored to demonstrate that this is the least damaging option?
- vi) Give a YES/NO conclusion in terms of whether the plan or project is considered directly connected with or necessary to site management for nature conservation.
- If **YES** for all elements of a plan or project, for all the Natura qualifying interests (preferably as part of a fully assessed and agreed management plan), then consent can be issued. The rationale should be detailed below and no further appraisal is required (no need to proceed to stage 3 or 4).
 - If **No** for all Natura qualifying interests then proceed to stage 3.
 - If a plan has multiple elements (e.g. a range of policies or management objectives), elements of the plan considered directly connected with or necessary to site management for nature conservation should be discussed below and a rationale given for this conclusion. No further appraisal is then required for those elements. All other elements of the plan must proceed to stage 3.

No. The proposals are not directly connected with or necessary to site management for nature conservation.

STAGE 3: IS THE PLAN OR PROJECT (EITHER ALONE OR IN COMBINATION WITH OTHER PLANS OR PROJECTS) LIKELY TO HAVE A SIGNIFICANT EFFECT ON THE SITE?

Each qualifying interest should be considered in relation to their conservation objectives. The following points should be considered:

- i) Briefly indicate which qualifying interest could be affected by the proposal and how; if none, provide a brief justification for this decision, and then proceed to v), otherwise continue;
 - ii) refer to other plans/projects with similar effects/other relevant evidence;
 - iii) consider the nature, scale, location, longevity, and reversibility of effects;
 - iv) consider whether the proposal contributes to cumulative or incremental impacts in combination with other plans or projects completed, underway or proposed;
 - v) Where the impacts of a proposal are the same for different qualifying interests these can be considered together however a clear conclusion should be given for each interest
 - vi) give Yes/No conclusion for each interest.
- If **yes, or** in cases of **doubt**, continue to stage 4.
 - If potential significant effects can easily be avoided, record modifications required below.
 - If **no** for **all** features, a consent or non-objection response can be given and recorded below (although if there are other features of national interest only, the effect on these should be considered separately). There is no need to then proceed to stage 4.

Yes, the Site Specific Predator Control Plan includes the possible use of ADDs and anti-predator nets. ADDs may cause hearing damage at close proximity and habitat exclusion/displacement. The Sound of Raasay is a narrow water body with existing fish farms which utilize ADDs so there are likely to be both individual and cumulative impacts.

The following text is included for guidance but should be deleted once considered as is not part of the audit trail

The test of Likely Significant Effect (LSE) is a simple screening stage to determine whether or not an appropriate assessment is required. **Keep as brief as possible** and deal with similar interests together wherever possible to avoid repetition.

Consider whether there is connectivity between the proposal and any of the qualifying interests i.e. are there processes or pathways by which the proposal may influence the site's interests? Conclude no LSE only if there is no connection, or it is obvious that the proposal will not undermine the conservation objectives despite a connection. The potential for negative effects on the qualifying interests may be immediately obvious, in which case conclude likely significant effect and move straight to the next step.

Types of effects which **in all cases** are likely to be significant and indicate an obvious need for appropriate assessment include:

- Causing reduction in the area of habitat or of the site.
- Causing direct or indirect change to the physical quality of the environment, hydrology or habitat within the site.
- Causing ongoing disturbance to qualifying species or habitats.

Refer to any advice obtained.

If there is not a clear cut case for concluding either LSE or no LSE, it may be possible to clarify by seeking basic additional information. For example, if the timing of a proposal is unknown but crucial to the determination of its effects, this fact might easily be obtained. However, if more detailed information or complex analysis is required, such an appraisal should not be included in the consideration of LSE; instead it should form part of the appropriate assessment stage.

If in doubt about LSEs but the potential exists, conclude likely significant effect and move to the appropriate assessment stage (stage 4).

Mitigation or modifications required to avoid a likely significant effect & reasons for these:

Mitigation:

Reason:

STAGE 4: UNDERTAKE AN APPROPRIATE ASSESSMENT OF THE IMPLICATIONS FOR THE SITE IN VIEW OF ITS CONSERVATION OBJECTIVES

(It is the responsibility of the competent authority to carry out the appropriate assessment. The competent authority must consult SNH for the purposes of carrying out the appropriate assessment. SNH can provide advice on what issues should be considered in the appropriate assessment, what information is required to carry out the assessment, in some circumstances carry out an appraisal to inform an appropriate assessment and/or provide comments on an assessment carried out. Where we are providing advice to a competent authority our appraisal of the proposal should be recorded here.)

The following points should be considered:

- Describe for each qualifying interest the potential impacts of the proposal detailing which aspects or effects of the proposal could impact upon them and their conservation objectives.*
- Evaluate the potential impacts, e.g. whether short/long term, reversible or irreversible, and in relation to the proportion/importance of the interest affected, and the overall effect on the site's conservation objectives. This should be in sufficient detail to ensure all impacts have been considered and sufficiently appraised. Record if additional survey information or specialist advice has been obtained.*
- Each conservation objective should be considered and a decision reached as to whether the proposal will affect achievement of this objective i.e. whether the conservation objective will still be met if the proposal is consented to.*

All the potential impacts relate to conservation objective 2 - To avoid significant killing, injury, or disturbance of harbour porpoise.

Killing

The **Site-specific predator control plan** and ES state

- *It is not common practice for SSC to use anti-predator nets, as there is a high risk of entanglement to diving birds and mammals. However, SSC may consider using these nets in certain circumstances. The site manager will consult with the regional manager prior to deploying these nets.*

In addition the **Escapes Contingency Plan** includes the option of using gill nets to recapture escaped fish. It notes that *'permission to use gill nets in an attempt to capture escapee farmed fish must be sought from Marine Scotland and the local DSFB.*

Once permission to deploy gill nets has been granted, SSC will seek advice on how the nets are to be deployed from the local Fisheries Trust and DSFB. Nets will be deployed and manned during daylight hours and will cease when no farmed stock has been caught for 48 hours, or when otherwise directed by the DSFB. If any wild salmonids are caught, fishing effort will immediately cease and any decision to continue this method of recapture will be the responsibility of the local DSFB.

The prospect of gill nets being deployed is low and they will be manned and only used during daylight hours, so could be taken in if cetaceans were sighted in the area. **Our judgement is that the risk of killing or injury is therefore not significant. However, the need to take the presence of cetaceans into account in any decision to deploy gill nets should be highlighted in our planning response.**

The Site-specific predator control plan states that:

'The anti-predation devices in the following document will be reviewed annually by the site manager and area manager to assess their effectiveness, if found to be unnecessary or ineffective, the appropriate actions will be taken to remedy the situation'

Mortalities are removed by a Lift-Up system although manual removal of mort and moribund fish is also completed as required.

Scottish Salmon Company typically employs a net tensioning system rather than external predator nets to deter seal predation. Seal Blinds may also be used.

It is not common practice for SSC to use anti-predator nets, as there is a high risk of entanglement to diving birds and mammals. However, SSC may consider using these nets in certain circumstances. The site manager will consult with the regional manager prior to deploying these nets.

SSC proposes to reduce the 'duty cycle' and only use triggered ADDs.

The ADDs proposed will be the OTAQ SealFENCE 2 System, which is currently installed at the existing Portree (Torvaig), to deter a seal attack. The Signal is a 10kHz gated sine wave with Bandwidth 1kHz and the Sound level is 198dB re 1uPa@ 1m. The device will be implemented when site staff note high risk seal activity within the vicinity of the site. A log will be kept of the incidence of attack, and timings and duration of the ADD activation, to be assessed by the site and regional managers annually to determine usage. If ADDs are used at the site, in order to minimise any potential interaction with cetaceans, SSC will only use these devices when deemed necessary. Also, they will not be used indiscriminately and will be trigger operated (therefore limiting the duration of impact). These triggered ADDs are only activated when fish become agitated by the presence of a predator and bump into the trigger units. The plan also contains details of trigger mechanisms prior to ADD deployment and utilisation. A log will be kept of the incidence of attack, and timings and duration of the ADD activation, to be assessed by the site and regional managers annually to determine usage.

Porpoise are also noted within the site logbook of the adjacent Portree (Torvaig) site. Porpoises are noted up to three times on average through the summer, and on each occasion they can remain in the area for a week at a time.

Such sightings confirm that fish farming operations have coexisted for many years with populations of porpoise. The proposed ADD for Portree Outer is a SealFENCE 2 System which has a signal comprising a 10kHz gated sine wave. It has a Bandwidth of 1kHz and a Sound level of 198dB re 1uPa@ 1m. This is the same ADD as is used on the existing Portree Outer site, and its current use does not deter existing populations of porpoise. Thus, the use of the same ADD on the proposed Portree Outer site is not considered to present a negative effect porpoise populations known to frequent the local waters around Portree and Skye.

The following text is included for guidance but should be deleted once considered as is not part of the audit trail

An '*appropriate assessment*' consists of two parts: a scientific, reasoned **appraisal** (stage 4) and a **conclusion** (stage 5). Consider the proposed plan/project, its impact on the qualifying interests assessed against their conservation objectives, and take account of any possible in combination effects with other plans or projects.

Identify the **potential impacts on**, and likely consequences for the conservation objectives of the qualifying interests.

- For each impact assess the **probability** of it undermining the conservation objectives.
- For each impact assess the **magnitude, duration & reversibility** of the effects.
- Consider mitigation proposed and its potential to be effective in removing or reducing impacts.
- Record any assumptions made and evidence or advice used.

You should give sufficient detail to allow you to conclude whether the plan or project **will not adversely affect site integrity for the qualifying interests of the Natura site** – or otherwise. It need not be complex, particularly where the impacts are clear. It is essential, however, that the assessment should be fully reasoned, and any decisions arrived at clearly recorded along with reference to any advice obtained.

Where an EIA or SEA has been undertaken under other legislation, it can inform the appraisal component of *appropriate assessment*. It is however a **Competent Authority (CA)** that must always reach a formal conclusion as to whether there are no adverse effects from the proposal on *site integrity*, for an *appropriate assessment* to be complete.

STAGE 5: CAN IT BE ASCERTAINED THAT THE PROPOSAL WILL NOT ADVERSELY AFFECT THE INTEGRITY OF THE SITE?

In the light of the appraisal, ascertain whether the proposal will not adversely affect the integrity of the site for the qualifying interests. Conclusions should be reached beyond reasonable scientific doubt. If more than one SAC and/or SPA is involved, give separate conclusions. If mitigation or modifications are required, detail these below.

The following text is included for guidance but should be deleted once considered as is not part of the audit trail

Conclude whether it can be ascertained that **site integrity** will not be adversely affected.

If SNH is the CA (e.g. for Operations Requiring Consent on a SSSI) a final conclusion can be stated – otherwise briefly state what our advice to the CA is – e.g. **“SNH considers that it has not been ascertained that the proposal will not adversely affect the integrity of the site”**

Mitigation or modifications required to ensure adverse effects are avoided, & reasons for these.

Mitigation:	Reason:
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ADVICE SOUGHT

Include here details of or clear reference to, advice sought from PAD staff, Natura team, Ops staff, Area colleagues etc. If no advice sought, give brief reasons/justification.

CONCLUSION/ADVICE IN RELATION TO PLAN OR PROJECT

When SNH is the competent authority

In view of the appraisal above outline below whether the plan or project can be consented/approved/undertaken.

When SNH is advising the competent authority

In view of the appraisal above outline below the corresponding Natura model response position that will be used when advising the competent authority. Also include the response type from the [Development Management and the Natural Heritage](#) guidance as appropriate (see [Development Management and the Natural Heritage](#), Annex 2, Table 1 and guidance in Annex 3 of the Natura Casework Guidance)

Natura model response position:

Enter the response from the appropriate model response type

Development management response type:

Enter the response type from the Development Management and the Natural Heritage guidance as appropriate

Appraised by	
Date	
Checked by	It is recommended that the proforma is checked by an appropriate member of staff e.g. the relevant Operations Manager, particularly when cases are complex or contentious, or where the appraiser is relatively inexperienced.
Date	

Sharon Phipps

From: FOI
Sent: 18 May 2017 15:39
To: Don Staniford
Subject: RE: FOI on ADDs, predator control and salmon farms since 1 Jan 2016
Attachments: A2293361.pdf

Dear Mr Staniford,

You recently contacted us to ask some questions about information we released to you under the Environmental Information (Scotland) Regulations 2004. I have collated your questions and will respond to each in turn below.

1. "page 13 and running to page 39 what is the reference/source/date for the document?
And on page 15 it refers to Map 2. Where is this map? Could you please provide a copy"

The document is an internal working version of this document <http://www.snh.gov.uk/docs/A1918723.pdf>. It was produced by SNH in consultation with Marine Scotland and JNCC. The public version contains map 2, the map you referred to in your email.

2. " , the web-links do not work.
<https://erdms.snh.gov.uk/id:A2102461/document/versions/published>
<https://erdms.snh.gov.uk/id:A2102462/document/versions/latest>
Could you please make these documents available?"

These links are automatically generated by SNHs electronic record and document management system when documents are shared internally from this system. They cannot be accessed from outside SNH. However, I have attached the documents the links refer to for your information.

3. "Do you have the contact details for the two MSc students cited below?
Do you have a copy of the maps cited above?
Is this research published yet?"

Information about the MSc students were redacted from the information we released to you because releasing their names in response to your request would breach the Data Protection Act (1998). Sharing the contact details of these individuals in response to this query would also breach the Data Protection Act 1998

We do not hold a copy of the research and do not know how far through academic review process it is. But we feel it would be inappropriate for us release any information related to this research, beyond the summary in the email you highlighted, before it has completed SAMS and St Andrews University's academic process.

4. " what does CO stand for in your email below?"

CO is an abbreviation of Conservation Objective.

I hope this information answers your queries. I understand you spoke to Cathy Tilbrook about a spreadsheet released in response to your FOI request. However, Please don't hesitate to contact us if you have any further questions.

Yours sincerely

Jennifer Ryles
Information Officer