

[REDACTED]

Sent: 3 February 2021 08:48

To: [REDACTED]

Cc: [REDACTED]

Subject: RE: Gannets and nets

Hi [REDACTED]

I hope all is well with you.

I had a further random thought around possible approaches to mapping of exposure/risk in relation to gannets and fishfarm top nets, which I thought best to pass on while fresh in my mind. This is to consider if there is any data that would enable us to highlight locations and times of year where mackerel are known to or may be likely to shoal in coastal waters. I've seen a couple of accounts now, which I can't share for reasons of commercial confidentiality, suggesting that interactions with gannets may in some instances be triggered when gannets exploiting such mackerel shoals come across fishfarm cages stocked with smolts and having wide gauge top nets that they can dive through. I suspect it may be difficult to find any such data, but thought I'd add this to the mix just in case!

Best wishes,

[REDACTED]

I am currently working compressed hours Tuesday to Friday from home. I have full access to emails and can be contacted on my mobile number below.

[REDACTED] Ornithology

NatureScot [REDACTED]
[REDACTED]

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From: [REDACTED]

Sent: 22 January 2021 14:22

To: [REDACTED]

Cc: [REDACTED]

Subject: RE: Gannets and nets

Hi [REDACTED],

Thanks for this and sorry I wasn't able to get back to you sooner.

Excellent news that you can access the Waggitt et al mapping layers, especially at that finer spatial resolution.

With respect to management areas, in casework terms it is understanding connectivity to (SPA) colonies that is most crucial. I understand your point on this about tracking data, but wonder if for adult gannets in the breeding season there is scope to use available tracking data together with the

would be a more complete analysis, and a more beneficial project for the student if it is less species specific. It would also allow to highlight differences between species, and could form the basis for another project that aims to monitor seabird activity at the farm level e.g. with camera traps, in the future.

I look forward to hearing your thoughts on the above. I will be able to draft a brief project proposal once I have had the meeting with James and know on what data I can rely, I reckon around the end of this week.

Thanks,

█

From: █

Date: Friday, 8 January 2021 at 08:52

To: █

Cc: █

Subject: RE: Gannets and nets

Hi █,

Thanks for this; let me know if there is any additional information you need when you are drafting the proposal.

Ultimately, if we could get to some form of GIS layer showing projected levels of gannet activity at different seasons across the west and north coasts and isles linked to SPA and non-SPA colonies overlain on locations of existing fishfarms and with symbology on those farms to indicate which already have pole-mounted top nets and ceiling mesh sizes linked to underlying database of entanglement data that would be fantastic. I definitely don't expect this from an initial MSc project, but targeted exploration of available data, including on gannet distributions, age-specific seasonal movements, and foraging behaviours, to devise a framework/approach to utilising available information consistently for casework would be brilliant. I liked Julie's idea of including the west coast data from the CalMac ferry observers.

Look forward to seeing a draft proposal when you have a chance to work on this. All the best with juggling everything in this latest lockdown and let's hope things will get easier in coming months.

Cheers

█

From: █

Sent: 07 January 2021 20:19

To: █ t

Cc: █

█

Subject: Re: Gannets and nets

Hi █,

Thanks so much for being so flexible about meeting today – and I share your excitement about the potential Msc study this year and future options for more work on this topic. I'll be in touch with a draft proposal as soon as I can manage in these squeezed difficult times, and I'll be keeping J [redacted] and [redacted] in the loop.

All the best to Orkney until then,

[redacted]

From: [redacted]

Date: Thursday, 7 January 2021 at 13:21

To: [redacted]

Cc: [redacted]

Subject: RE: Gannets and nets

Hi [redacted],

Really good to meet with you both and Tom this morning and thanks for your collective interest in and support around this emerging issue.

I am excited about potential to take forward an MSc project this year to pull together spatial and temporal data/evidence on gannets' usage of Scottish waters to inform our casework advice and identify key evidence gaps. As discussed, I will review the draft proposal when you've had a chance to work this up. I note that this would be for a project between June and October this year.

Lots of useful discussion around possible future projects too, including analyses of monitoring data (when we have more of this) and deployment of cameras to examine behaviour of other birds, such as gulls, when interacting with these types of top nets.

Really great to be able to draw on your expertise to help explore some of these issues and work towards industry best practice.

Best wishes,

[redacted]

I WILL BE WORKING FROM HOME UNTIL FURTHER NOTICE. MY LANDLINE IS REDIRECTED TO MY MOBILE (SEE BELOW). I HAVE FULL ACCESS TO E-MAILS AND CAN ATTEND VIRTUAL MEETINGS.

[redacted]

NatureScot | [redacted]

[redacted]

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From: [REDACTED]
Sent: 06 January 2021 11:52
To: [REDACTED]
Cc: [REDACTED]
Subject: RE: Gannets and nets

Hi [REDACTED],

Happy New Year.

I thought you and Julie must know one another, so good to have that connection confirmed and to have collective brain power applied to thinking on this!

Completely understand issues for folk arising from latest lockdown, so no worries about rescheduling. I've actually ended up with a couple of pretty urgent items on my desk this week, so if we need to amend the time anyway might we be able to postpone until next Thursday (anytime other than 9.30-11.30) or Friday? However, if your or Julie's schedules for identifying possible projects are tighter than this, I can manage the suggested revised slot tomorrow.

Can I please leave to you and Julie (assuming Julie wants to join) to agree and confirm preferred slot and if necessary send me an updated appointment?

Thanks

[REDACTED]

From: [REDACTED]
Sent: 06 January 2021 11:39
To: [REDACTED]
Subject: Re: Gannets and nets

Dear Kate,

Happy New Year, I hope you had a good and relaxing break.

I am afraid the newest COVID restrictions have hit our childcare arrangements and subsequently how and when I can work during the day – unfortunately tomorrow afternoon doesn't work anymore. Would you be able to meet tomorrow at an earlier point in time? I have provisionally scheduled a zoom meeting at 10:30 but I can change the time easily and am flexible between 7 am and 12:00 pm. Very happy to have Julie on board, we know each other well 😊
I hope meeting earlier is possible, thanks so much!

Looking forward to speaking about gannets tomorrow!

[REDACTED]

[REDACTED] is inviting you to a scheduled Zoom meeting.

Topic: gannets top-nets
Time: Jan 7, 2021 10:30 AM London

Join Zoom Meeting

<https://uofglasgow.zoom.us/j/96549793245?pwd=M2l1MzBqdHBibVRNYkcwWHhvbTRndz09>

Meeting ID: 965 4979 3245

Passcode: 327293

From: [REDACTED]

Date: Wednesday, 6 January 2021 at 10:23

To: [REDACTED]

Cc: [REDACTED]

Subject: RE: Gannets and nets

Hi [REDACTED],

Happy New Year – I hope you had a relaxing break.

We have circulated the attached Interim Technical Briefing Note to LPAs and SSPO/operators and are providing advice on all relevant cases, including Prior Notifications of proposed changes to top nets at existing sites. To date we have responded to c. 10 planning advice requests plus a few pre-application enquiries. In all cases we are strongly advising need for systematic monitoring and reporting to both increase the evidence base to help us understand the issue better and to enable adaptive management (e.g. ceiling net replacement) at individual farms if this should prove necessary to prevent risk of Adverse Effect on Site Integrity.

Once we start seeing monitoring returns from a range of sites / net configurations we may be clearer as to circumstances under which risks to gannets (and/or other birds) may arise and be able to refine our advice accordingly. Research along the lines of any form of field trial / direct observations is problematic for a number of reasons, including:

- Habitat Regulations implications (i.e. all Scottish inshore waters have connectivity to SPA gannet colonies and we cannot encourage trial adoption of top net configurations that we believe may pose a significant risk to SPA birds).
- Difficulty in predicting when and where any, presumably relatively rare, incidents might arise – to date we know of one summer incident in Kintyre and one winter incident in Orkney.

However, there are a number of other areas that might be of value:

- Tracking of gannets and associated analysis of their behavioural responses to fishfarms (i.e. can we determine if and under what circumstances gannets may be attracted to fishfarms and how they behave in the vicinity?). However, this might require unrealistically large sample sizes (assuming that only a minority of birds will either casually or more directedly seek to exploit this potential food resource)?
- Population modelling to identify any colonies and associated foraging locations that may represent relatively higher or lower colony or wider population level risks in event of entanglement or entrapment at fishfarms in given regions (LPA areas).

- A review of literature on some physiological aspects of gannets, including body diameters when plunge diving and vision, in particular to assess likely ability accurately to perceive nets of varying mesh size, cord thickness and colours.

Dedicated resources to assist us in keeping track of the locations and net configurations of fishfarms with pole-mounted top nets and with systematic analyses of monitoring returns to enhance the evidence base would also be helpful.

Incidentally, I have also been approached by [REDACTED] (copied in here) who is a colleague in NatureScot but also a part-time Research Fellow at the University of Glasgow working on movement ecology of immature gannets and the consequences for metapopulation dynamics. [REDACTED] is interested in whether there might be any potential for an MSc project on this issue and I'm scheduled to have a chat with her tomorrow afternoon at 13:00 – if you would like to join that call I can send you details.

Best wishes,

[REDACTED]

Pole-mounted top nets and marine birds - Technical Briefing Note for LPAS - FINAL - 12 Nov 2020
<https://erdms.nature.scot/documents/A3339962/details>

From: [REDACTED]
Sent: 06 January 2021 08:32
To: [REDACTED]
Subject: Gannets and nets

Hi [REDACTED],

Happy New Year- let's hope 2021 is a good year for humans and wildlife alike!

I am writing to ask about any developments in the gannet/fish farming net issue. I think it was last mentioned at NS/MSS joint catch up and I wondered if there is any update of information or more detail on the issue? Alongside that, while we discuss priorities for next year, is there any useful research that could be done in this area to facilitate understanding of or resolution of issues?

Hope you're well and speak soon,

[REDACTED]

[REDACTED]
Renewables Environmental Advice Group | Marine Scotland Science
Scottish Government

w: <http://www.scotland.gov.uk/Topics/marine/science>

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Pole-mounted top nets and birds at finfish farms

1. Pole-mounted top nets

The finfish farming sector in Scotland is increasingly seeking to adopt “pole-mounted” top nets (Figure 1) for marine cages, in place of the more familiar “hamster wheel” system, to improve fish welfare. Flexible poles are attached to the floatation collar and typically extend c.5m above the hand rails. The poles support a “side net/skirt” above and around the cage circumference, plus a “ceiling net” across the top of the cage. Details such as mesh sizes¹, net colours, and angle and tensioning of supporting poles may vary (e.g. recent configurations for side/ceiling net mesh sizes include 50mm/50mm, 75mm/200mm and 150mm/200mm).



Figure 1 Example of a pole-mounted top net system

2. Potential threats to marine birds - gannets

Reports of an emerging threat to marine birds come from two instances, in different regions of Scotland at sites operated by different companies, where significant numbers of gannets have become entrapped under and/or entangled within ceiling nets after plunge diving into cages from above. In neither instance does Scottish Natural Heritage, acting under its operating name NatureScot, have full details of overall numbers of birds involved or their fates. However, one case involved tens of birds at a time and both persisted for periods of over a week. There is currently no requirement for such incidents to be reported to Local Planning Authorities (LPAs) or other statutory bodies and consequently there may potentially have been additional similar instances that we are unaware of.

In both known cases, the ceiling net mesh size was 200mm or greater, and as such sufficiently wide for gannets to dive through into the cages. Entrapped birds may be released alive but

¹ Throughout this document, mesh size refers to the dimensions of the sides of the mesh square as deployed on site. Net suppliers and manufacturers refer to this as the “half-mesh” dimension.

suffer sub-lethal effects associated with stress from handling or loss of feeding opportunities while confined. In addition to individual welfare considerations, such effects could impact longer term survival or ability to rear young and hence ultimately impact gannet populations. The practicalities of safely releasing large numbers of birds over prolonged periods are also uncertain.

Smaller mesh sizes, particularly of 100mm or less, might reduce risk to gannets, but this is yet to be established. We also lack information on how mesh size may interact with other features of these systems (e.g. lower tensioning and finer mesh filament, angling of the nets, reduced opportunity for perching, and net colours) to determine overall risk to gannets and other birds. One operator has reported practical issues, and associated safety concerns, when using smaller (50mm) mesh ceiling nets with pole-mounted supports and recent applications suggest an industry preference for 200mm mesh ceiling nets.

2.1 Implications with respect to Special Protection Areas (SPAs)

Under the Habitats Regulations, LPAs have a legal duty as the Competent Authority to consider the likely impact of any planning proposals, whether within or outwith an SPA, on the site's qualifying interests². In Scotland, there are eight breeding colony SPAs and two marine proposed SPAs for which gannets are a protected feature (Figure 2). Breeding gannets have a mean foraging range of 120.4km (± 50.0 km) and a mean maximum foraging range of 315.2km (± 194.2 km) (Woodward *et al.*, 2019). Consequently, **there is potential connectivity between gannets from SPA colonies and all marine waters across Scotland suitable for finfish aquaculture.**

On the basis of best available current evidence, **NatureScot consider that Likely Significant Effect (LSE) should be concluded with respect to gannet qualifying features of SPAs for all marine finfish farms involving deployment of pole-mounted top net systems with ceiling net mesh sizes of 200mm or greater.** Risk of LSE for gannets is likely to be lower for smaller ceiling mesh sizes, particularly under 100mm, but cannot be ruled out, particularly in areas known to be regularly used by foraging gannets. NatureScot will provide advice in these instances, considering also other marine bird species (see Section 3).

Where LSE is concluded, Appropriate Assessment is required². Potential for Adverse Effect on Site Integrity (AESI) may generally be low with respect to short-duration one-off incidents. However, prolonged or repeated entanglement/entrapment of gannets at a single site, or incidents across multiple sites, could result in AESI. LPAs should therefore ensure that a suitably precautionary approach to permitting this style of top nets is adopted to minimise this risk and ensure compliance with the Habitats Regulations.

² Guidance is summarised at <https://www.nature.scot/natura-sites-and-habitats-regulations-how-consider-proposals-affecting-sacs-and-spas-scotland>

Based on the currently available information, NatureScot advise a presumption against use of pole-mounted top net systems with ceiling net mesh sizes of 200mm or greater in areas likely to be regularly used by foraging SPA gannets³. We further advise that any permissions for pole-mounted top net systems, irrespective of mesh sizes, should include consent conditions enabling timely enforcement of mitigating adaptive management if required (see Section 3).

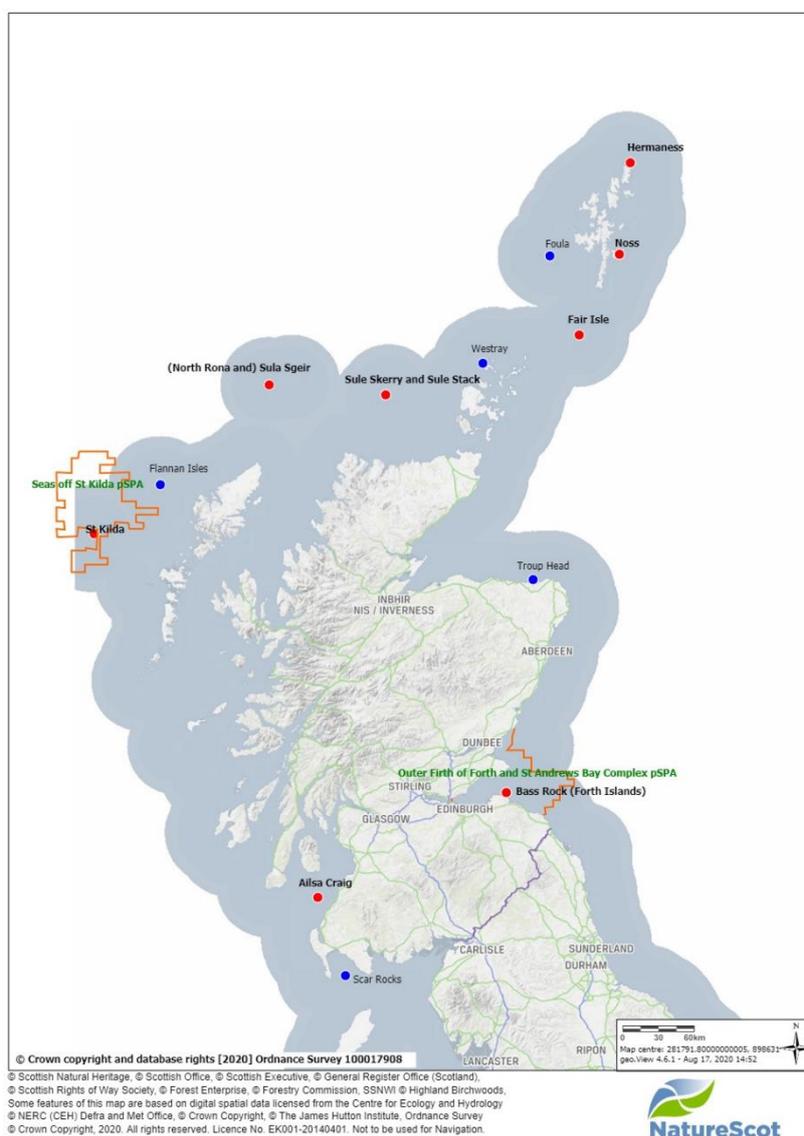


Figure 2 Gannet colonies in Scotland. SPA colonies - red dots and bold text; other substantial colonies - blue dots and plain text; marine pSPAs -orange boundary lines and green text. Colonies with fewer than 50 nests are not shown. Full details are in Murray et al (2015).

Until we have further evidence on this issue (see Section 3), NatureScot will provide advice on request with respect to all cases involving proposed use of pole-mounted top nets systems,

³ As indicated by tracking studies systematic surveys of at-sea distributions and other relevant data sources.

including Prior Notifications of proposed changes to existing top net systems under Permitted Development Rights⁴. Where a fishfarm is located in proximity to SPAs with cormorant, shag, gull or skua features, our advice will also consider these species. Please ensure that the information listed at Annex A is provided with advice requests.

3. Monitoring, Reporting and Enforcement Considerations

Improved understanding of the nature and extent of bird interactions with pole-mounted top net systems at marine fishfarms will assist NatureScot when advising on future applications for use of these top net systems in Scotland and provide greater certainty to the industry and LPAs around consenting. Development of a robust evidence base requires systematic monitoring and reporting of entanglement / entrapment data at sites adopting these systems.

Prompt notification of potentially significant emerging incidents is also required, alongside powers to enforce rapid amendments to related planning permissions, to enable Natura compliant adaptive management and avoidance of AESI.

NatureScot therefore advise that any permissions for use of pole-mounted top net systems should be subject to review, underpinned by systematic monitoring and by requirements for immediate notification in event of emergence of patterns of entanglement or entrapment of marine birds that might ultimately result in AESI.

Specifically, we advise that Planning Consents should require the following:

- operators to maintain daily records of wildlife entanglement / entrapment using a standardised proforma⁵ and to submit regular (typically six-monthly) returns to the LPA, copied to NatureScot;
- immediate notification by operators to both the LPA and NatureScot in event of any significant entrapment or entanglement of gannets, and any other SPA interests identified as relevant to a particular fishfarm (e.g. involving three or more birds of any named species on any one day and/or a total of ten or more birds in the space of any seven day period and/or or repeat incidents involving one or more birds on four or more consecutive days); and,
- Adaptive management approaches should be agreed between the planning authority and the applicant in consultation with NatureScot.

⁴ The PDRs include a provision stating that “where changes to the equipment in use are proposed the planning authority should have regards to visual impacts and potential increases to net area (**and therefore entanglement risks**) and exercise discretion in determining whether to consult with Scottish Natural Heritage.”

⁵ NatureScot will provide this on request

4. Next steps

NatureScot will continue to engage proactively with LPAs and the finfish industry with the following objectives:

- to raise awareness of this issue and implications with respect to compliance with the Habitats Regulations;
- to ensure that we consistently provide proportionate advice, based on best available evidence, to LPAs with respect to their role as Competent Authorities. At present, as detailed at Section 3, this advice will be case-specific where required, but we aim to develop more detailed Standing Advice once we have sufficient information to do so;
- to encourage systematic monitoring and reporting to enhance the evidence base and assist in assessing the scale and significance of this issue and the specific circumstances under which it may arise; and,
- to assist the aquaculture industry to develop best operational practice to minimise entanglement / entrapment risks to marine birds and other wildlife.

It is anticipated that understanding of this emerging issue will improve over time as more evidence becomes available. This Interim Technical Briefing Note will be reviewed and updated as appropriate.

5. References

Murray, S., Harris, M.P. & Wanless, S. (2015). The status of the Gannet in Scotland in 2013–14. *Scottish Birds*: 35(1), pp3-18.

Woodward, I., Thaxter, C.B., Owen, E and Cook, A.S.C.P. (2019). Desk-based revision of seabird foraging ranges used for HRA screening. Report of work carried out by the British Trust for Ornithology on behalf of NIRAS and The Crown Estate. BTO Research Report No. 724.

Annex A: Information Requirements if Seeking Advice from NatureScot

The following information should be provided when seeking advice from NatureScot on cases involving proposed use of pole-mounted top nets. If not included in the original application or notification, please obtain these details before seeking advice:

- Fishfarm location, including grid reference.
- Number and dimensions of cages
- Type of case (e.g. full planning application for new fishfarm; full planning application for amendments to existing fishfarm; Prior Notification of intended change under Permitted Development Rights)
- Current top net configuration (for cases relating to existing fishfarms)
- Details of proposed pole-mounted top net system including: numbers of pole supports per cage; supporting pole lengths and height above hand rails; side net/skirt mesh size(s); ceiling net mesh size; and, net colours.

Any available existing data on bird entanglement at the relevant site and/or at sites in adjacent waters should also be included in advice requests (see Section 3).

Document Control

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