











Meeting:	Forth and Tay Regional Advisory Group – Ornithology Subgroup
Location:	Virtual meeting
Date, Time :	13.00-15.00, 10/11/2022
Attendees:	Aly McCluskie (AM); Nick Brockie (NB); Caitlin Cunningham (CC); Colin (guest); Erica Knott (EK) - Chair ; Francis Daunt (FD); Gayle Holland (GH); Glen Tyler (GT); Jared Wilson (JW); Karen Taylor (KT); Gavin Kelly (GK); Sarah Arthur (SA); Andrew Logie (AL); Malcolm Fraser (MF); Murray Grant (MG); Emily Nelson (EN); Polly Tarrant (PT); Jelmer Samplonius (JS); Jude Lane (JL); Emma Witcutt (EW); Ed Thompson (ET); Maria Bogdanova (MB); Rebecca Hall (RH)
Apologies	Stuart McCallum (SM); Catherine Kelham (CK); Claire Gilchrist (CG); Keith Thomson (KT); Simon Zisman (SZ)

Minutes taken by:	Fiona Morton (Natural Power)
Date Issued – Draft for Comment:	11/11/2022
Date issued - Final:	

Minute	Minutes			
Agenda Ref	Topic (Actions are identified in red)	Action status (open/closed)	Action owner and deadline	
1.0	Introductions			
2.0	Previous Minutes and Actions (Chair) Outstanding on the Action Tracker: No. 3: Circulate Beatrice results to FTRAG-O group. This was an action for Jared from Nov '21. JW – Are these the results from analyses from DAS? [Nobody recalls having received]. EK – should be something on MFRAG website. AM – MFRAG meeting was few days ago, we are due an update of last year's data/analysis. Perhaps let JW off the hook and update with whole analysis instead of just the year? EK – sounds like a plan. GH - year 1 post-construction report is on MFRAG website. Link below: [https://marine.gov.scot/data/mfrag-main-group-beatrice-offshore-wind-farm-year-1-post-construction-ornithological-monitoring]			













Forth and Tay Regional Advisory Group (FTRAG)	Minutes o	f Meeting
ACTION : JW to let group know when results available on	Ongoing	JW
website. Further results of Beatrice to be alerted to this		
group.		
No. 9: Raise at the upcoming ScotMER coordination		
meeting the possibilities of monitoring of immature		
gannets through ScotMER.		
EK – Immature gannet raised at previous ScotMER		
coordination group meeting.		
ACTION: EK to go back to coordination group minutes to		
see it's been raised. Action to be updated for EK to check	Ongoing	EK
with ScotMER group		
man soodin En group		
No. 40 ETDAG to accept AIDWAY In the Line of December 1		
No. 10: FTRAG to contact NRW to highlight that Bass		
Rock/Grassholm research is ongoing. GHO to pass on contacts for PTA in the first instance		
GH – We have been in touch with NRW but they haven't		
been engaging regarding giving out names of contacts.		
Still keen to progress? EK - HPAI has complicated		
matters. PT – This is an awareness raising exercise rather		
than specific. Can leave it there and take opportunity if speaking to folk in other fora. EK - keep in tracker for		
now and make low priority.		
now and make low priority.		
No. 11. CHO and EVALES and thould not not be Veith		
No. 11: GHO and EKN to send thank you note to Keith Hamer.		
EK - Not done yet, too late? Still like to do this? PT/GH –	Closed	
agree too late now.		
No. 13: PTA and FDA to discuss the use of the NnG		
aerial survey auk distribution data over August to		
October.		
FD – This is ongoing. It was on hiatus but still wanting to		
do this. Regarding the auk wreck in autumn 2021 (pre-		
HPAI), we wanted to look at potential causes. Hiatus was		
because we wanted to get most detailed info from MS		
Fisheries on distribution of key forage fish at that time of		
year, but it's an involved process. Hoping to get back		
next month or two.		
No. 15: MSS, NS and RSPB to respond with a timeline		
for providing opinion on use of Gen 2.5 rig.		
EK - NS perspective is that HiDef have to move to this as		
there is no alternative. Gen 2 rig can't get equipment. NS		
are thinking through the implications of this. Have		













Forth a	ind Tay Regional Advisory Group (FTRAG)	Minutes o	i ivieeting
	RSPB/MS viewed position paper? EK - Think we should set deadline before Christmas.		
	ACTION respond to this pre-Christmas. (Nods from MS/RSPB)	Ongoing	EK
	No. 18: FTRAG members to share material for posters/talks prior to conferences.		
	EK - ScotMER symposium, hosted by SPR at the beginning of December. PT – Strix have submitted abstract for SPR conference. AM – RSPB may present organisational update on work they've been doing including tracking. Haven't submitted abstract yet but probably will. EK - keep action ongoing and alert to presentations coming out of FTRAG	Ongoing	АМ
	No. 19: FTRAG-O members to submit ideas for next ScotMER workshop.		
	ScotMER workshop is now at the end of Jan (31 st , 1 st and 2 nd of Feb). EK – ACTION keep this in mind and make it known if anyone intends to do anything.	Ongoing	All
	No. 20: Circulate status of current and upcoming Marine Scotland projects.		
	EK – There is internal discussion about providing routine updates. JW - invite to go to Drew Milne who will decide who best from team to attend. SA - Janelle has passed this on to Alex, but he wasn't able to join today.		
	No. 21: NS advisory committee report on aerial survey methods to be shared when completed.		
	EK – We shall see how quickly we can get this on to our website. ACTION – EK to advise when aerial survey methods report is on NS website	EK	Ongoing
3.0	Project Updates		
3.1	Neart na Gaoithe		
	PT – Arrival of structures in sea – south topside substation now installed and commissioned and turbine jackets. Recommencement of drilling and piling for WTG jackets. As of Monday, 1 st , 10 WTG jackets now installed. Completion of O&M base and pontoons at Eyemouth. Official opening in January. Substation export cable route onshore nearing completion. Very busy 2023 within the OWF. PEMP has been updated that went round RAG for consultation, a few items from NS to be discussed at this		













	FTRAG-O meeting and the upcoming FTRAG-MM meeting, after which NnG will submit to MS-LOT.	
3.2	Seagreen Communication with O&M team. NB – Continuation of activities – key milestone first power export at end of Aug this year. Close to 30 WTGs commissioned now. 83 jackets and 64 WTGs installed. Three export cables are now in and rock protection is coming to a close. Good progress, completion due Q2 2023, delayed due to weather and vessel availability. Difficult ground conditions. Stage 2 works for final 36 WTGs – consent variation granted for larger WTGs. Unsuccessful at AR4, no current	
3.3	Inch Cape SA – Secured CFD finally, big project milestone. Vestas as preferred turbine supplier and port of Dundee as preassembly base. Seeking variations to consent for Section 36 Marine Licence. Reduce turbine spacing and larger monopile hammer. Preferred design scenario is outlined and screened against consent. Variation sought for export cable, looking at variation to landfall installation method. Early 2023 for first plans and programmes. EK when were variations submitted? SA – Application for Section 36 is in process of being validated, so imminent, screening for Marine Licence hopefully within next month/6 weeks contingent on detail coming from contractors to do that meaningfully.	
3.4	Berwick Bank AL – Busy preparing EIA and report to inform AA. Intent to submit consent application December 2022. Since May, we have changed the project boundary. Changes to northern boundary away from Seagreen. Western edge moved away from IoM and 2 km from OFFSAB SPA. 21 SPAs, >70 named components and numerous pathways, so a big piece of work. Derogation case will be submitted with application.	
4.0	Detailed monitoring update – gannet adult survival study (RSPB/NnG) Bass Rock (JL) Two areas of work: 1. Tracking (additional tracking on behaviours in OWF footprints). Started in April, deployed 10 UVA BiTS	













tags to get incubation trip data. High resolution data. Set to every five minutes, at sea fences can change resolution to record every ten seconds in OWF footprints. Solar powered. Data can be downloaded via base stations. Ten tags deployed in April with view to deploying more in summer but hampered by HPAI. Hopefully good results soon.

2. Adult survival – building on colour ringed birds since 2010. Resighting birds in July. Aim to add 20 birds to colour ring population.

HPAI hit – it was not until the beginning of June that there were indications that something was really wrong, with dead birds washing up on local beaches. Carcasses removed from Bass Rock for testing. Recognised it's important to untangle HPAI and baseline mortality. Updated methods and funding for additional surveillance were approved by the F&T Developers which started in mid-June and continued throughout July, August and October. 37 new colour ringed birds were added to the population in 2022 as part of tracking studies started prior to the HPAI outbreak and studies investigating HPA

4.1 2022 season at Bass Rock

Dramatic decrease in gannet population. Some indication of birds that had previously abandoned had returned to colony in vicinity of chapel. NS granted exemption to a research group from Glasgow University which resulted in trackers/colour rings being deployed in August

As a result of early tracking (F&T work), and subsequent unrelated tracking and the immunity sampling undertaken in September, a total of 37 new colour rings were deployed in 2022. This consisted of 1 replacement.

During the season, 15 ringed birds found dead, 7 on bass Rock colony, 8 from UK coast, Northumbria, East Lothian, Suffolk. Handful from Denmark and Sweden.

In September, having received an exemption from NS, redirected funds from the F&T gannet work at Bass Rock and Grassholm, in collaboration with APHA (Defra), Edinburgh University and Steve Votier blood and cloacal samples were taken from adult gannets to understand the immunity and role of gannets displaying a black-eye. This work aimed to understand more about the immunity













within the population and role black-eye symptom played infection. 19 birds were sampled 9 birds with healthy eyes, 10 birds with black flecking / completely dark irises.

JL presented some early results of the antibody testing, however has these are provisional and require further testing and scrutiny, therefore the group was requested to not shared them beyond this group and have thus the details have not been recorded in the minutes.

FD – These are the best data in the country on some of these questions, well done given the situation. This gives detailed understanding of accessible area on the ground. How much drone data/photo data is there at a broader scale to get sense of how it looked across whole of Bass? JL – there is drone footage, only footage was taken 30th June (Edi uni). GT has done analysis on that. Would have been nice to get more footage from beginning of detection but didn't happen. FD - Anyone had a chance to look at snapshot – can you see pockets/uniformity across colony? JL – GT? On ground, slope vs flatter areas. Lot of sick birds tumbling from higher areas onto flat areas. Interaction with fallen birds on the flat. Spread across site, but initially low-lying areas hit first because sick fallen birds couldn't get airborne.

GT – Overview of spread/position of dead birds at the end of June is clumped/patchy. Not uniform across the site. Redistribution of birds once they're ill, not sure how this progressed as only one date snapshot.

PT – The initial 2022 monitoring plan in April changed, as situation evolved, F&T developers redirected funding for tracking work and sort additional funding for enhanced resighting trips, to do as much as possible to work out what's happening.

EK – This work has been very helpful. Appreciated what F&T developers were able to do. Thanks to all developers and to Jude. It's been tough.

GT - Blood samples from chicks?

JL – No blood from chicks. Will be plans going forward into next year, this was reactionary and time-limited. Shown what can be done, more time to plan for next year. Different age groups can sample and re-test those tested this year.













AM – a few positives – how well everyone had responded together. Developers, UKCEH, UoG, Steve Votier, supportive in what has been a challenging season. We are grateful, it is rewarding to see everyone working together when things really aren't going well. GH thanks for all efforts. Anyone know black-eyed birds does it affect longer term eyesight survival? JL – Once symptomatic, it was thought that they wouldn't survive, but indications that they were foraging; eyesight not apparently affected to the point where couldn't forage. Reacted to human presence, as if they were healthy. Presume eyesight unaffected. EK - When likely to work up shareable results? JL - will write as manuscript, this is in progress. Would like published pre 2023 breeding. Anecdotally flecking/black eyes in herring gull. Would like to have this out ASAP and will let everyone know.

4.2 2022 season at Grassholm

PT – HPAI didn't hit until later in season. Resighting trips started as planned in July. End of July dead gannet found. Resighting trips thereafter suspended. Five trips undertaken instead of 10, resighted half individuals (100 birds not 200). Monitoring by RSPB weekly boat drones. Anecdotal reports from wardens. >5,000 lost/dead/abandoned. Visit in mid-sept. Lots of chicks that had managed to fledge. So maybe not as severe as at Bass. Wait and see, nothing further so far.

Feedback on PEMP – NS query looking forward to next year and ringing additional gannet given numbers lost. GT – re comment in PEMP – might have been substantial number lost. Many lost from Bass. Could be prudent to increase sample size rather than maintenance of existing sample size. Provide additional buffer against losses.

PT – discussed Bass/Grassholm already. In agreement not knowing where we are with restrictions in 2023. Grassholm visits are usually later in season/August. Discussions to be had with RSPB site team regarding access.

JL – in principal, would like to do additional ringing at Bass as well. Planning to access colony earlier in the season.













MG – HPAI is a spanner in the gannet survival study. Any thinking done as to how feasible it might be to disentangle OWF effects over long term? Long-term, do still want to address this, anyone thought about yet? EH - From NS perspective, thinking about this, but no answers yet.

GT – These are valid concerns, don't know what's going to happen with HPAI in the future. Impact now is issue for this study. Part of thinking to boost sample size is to pick up again under little to no OWF effect. At worst could be an erratic feature.

FD – Lot of thinking going on and over course of winter – drops baseline to new level. With all assessments comparing to baselines. If perturbed to OWF effects – more susceptible to OWFs if recovered/ing? Wrapped in all of this is what permissions researchers will have to undertake work. Key emerging discussions. HPAI not only thing birds facing. Need to find ways to continue to undertake the work. Not causing significant additional problem through our work. NS were able to prioritise in enough time for JL's work to go ahead, this is important. Would have been harder otherwise. Moving forward on HPAI – building protocols to allow us to understand multi-drivers not just HPAI.

5.0 Detailed monitoring update - tracking and colony monitoring (UKCEH/RSPB/Developers)

FD – Ongoing tracking of Kittiwake, guillemot, razorbill, puffin at three colonies. Started 2018 Isle of May, due to expand to Fowlsheugh and St Abbs 2020 for kittiwake but pushed to 2021 because of covid restrictions. Intention in 2022 to repeat slightly modified works of 2021 works using protocols agreed with the FTRAG-O.. However works could not be undertaken due to the HPAI outbreak..

Lot of thinking going on over course of winter on methods of quantifying HPAI effect and effects of drop in baseline on OWF assessments. Interactive effects also important – surviving birds may be more susceptible to OWFs if have reduced condition. Key question is what permissions will be allowed for researchers to conduct research and monitoring of OWF and HPAI effects. Critical to find ways to continue research in order to understand multiple threats faced by seabirds, while ensuring appropriate biosecurity measures are in place. Precedent of NS supporting JL's work on gannets is













	important. Next steps are to develop monitoring and research protocols for the 2023 season.	
5.1	2022 season at Isle of May MB – No GPS tracking due to HPAI. Undertook behavioural and demographic observations on kittiwake, using similar protocols to previous years, in order to assess baseline foraging performance and breeding success in study plots. Puffin plots: restrictions to key areas so work couldn't be done. >100 dead kittiwake, but no evidence for elevated mortality in auk spp. Positive cases in kittiwake, puffin, Arctic tern, eider, but elevated mortality only apparent in kittiwake.	
	Kittiwake breeding success very high. Guillemot higher than average but razorbill lower; puffin couldn't be assessed. Dead kittiwake not found in colonies, but at coastal roosts/tide sites. Possible then that it was not the local breeding population affected? Watches done on single day for each study plot due to restricted time window, but watches last full length of daylight (20h). Daily nest attendance checks for three weeks during chick rearing. Nest status followed until fledging in order to record breeding success.	
	Parent changeover no different between study sites. Number of changeovers higher than previous years, suggesting birds foraging closer to colony. Chick attendance very high, higher than 2021. All data point to foraging conditions being good this season.	
5.2	2022 season at St Abbs and Fowlsheugh AM - Summary of mortalities – Findings of mainly dead birds but also symptomatic. >1,400 birds. Fowlsheugh 570 dead, 11 symptomatic, St Abbs, 814 dead 16 symptomatic. Species affected ratio is different. Fowlsheugh 67% KI, St Abbs 66% GU. To do with timing of virus arriving earlier at St Abbs than at Fowlsheugh. JS – What is composition of colonies on these two locations – If at St Abbs proportionately more guillemot, then would you expect more guillemot affected? Or as a percentage of colony size for species more strongly affected?	













AM – difference likely to be accounted for by timing of spread. Will add this in context to clarify relative densities in colony when writing this up.

Kittiwake chick survival at monitoring plots. Key thing – Fowlsheugh stable, St Abbs declined a lot. Per plot, big declines at certain areas with pockets of virus. Looks like it would have been a productive year, similar to Isle of May in absence of HPAI. In localised plots, chick survival was poorer.

Guillemot chick survival caveat because of HPAI. Don't know for sure if chicks fledged or contracted the disease late and fell off cliffs. Monitoring intensely but not enough to know the difference here. Some plots really bad numbers, high numbers of dead birds in the water and empty cliffs. Where we don't think there was HPAI, chick survival increased. Good season otherwise. Pockets of virus have driven low numbers.

Also looked at birds tagged last year which had been colour ringed, which enabled evaluation of productivity of 41 birds which were tagged last year. 32 were actively breeding. Nine sighted as non-breeders. Productivity – looks like tagged birds had higher productivity than untagged, but looking tag types, UvA tags lower than Pathtrack. May indicate tag effects from slightly heavier tags/attachment method. Need to look in more detail and context of other data, interesting initial finding.

Overall comparison of productivity of kittiwake, guillemot and razorbill. Not straightforward for some species sites. Lower/higher compared to 2021 between sites. [See graph].

5.3 Plans for winter 22/23

FD – Mindful of not having had 2022 data to do analysis as usual, can do useful things nevertheless. Data available from 2010-14 and 2018-21. Key analyses planned using all the data. Data processing to be done to ensure clean datasets. Quantifying interannual variation (apparent in kittiwake and auks) and site fidelity. These are key inputs into understanding additional effects from OWFs above prevailing environmental conditions.



6.0

monitoring season











Forth and Tay Regional Advisory Group (FTRAG) Minutes of Meeting

Secondly – BiOSS and UKCEH will undertake behavioural classification work i.e. classify each GPS fix by behaviour. Need to undertake various analyses to look for diagnostic patterns in the datathat distinguish foraging, flight and resting. Building on analyses undertaken on kittiwakes in 2021-22. AM – Extent to which CRM reflects biological realism. How sensitive Band model is to variables. Avoidance/density/speed/height etc affect Band most importantly. Model sensitive to these, vary with location/season/etc. Alongside this variation in risk. Look at this in closer detail. Flight height used data from multi sensor loggers to look at flight heights, new method space state flight height estimation. Because of Covid, no tags at Fowlsheugh or St Abbs. UKCEH got tags out on Isle of May. Didn't analyse 2020 data from Isle of May. Will complete as a priority this winter. Also correlation between GPS and barometric altitudes. Investigate GPS altitudes more. Rapid fixes – GPS altitude estimates become more accurate with higher resolution. Next year will be restricted to Pathtrack without barometric altimeters. Work will help understand if there can be any reliance on GPS to help understand. No methods for flight speed GPS tags. Looking at time lag position between fixes and tortuosity of flight path less reliable. Instantaneous method is more accurate relative doppler to satellites. Look at flight speeds and directly, tie into UKCEH/BiOSS work for behavioural classification. Put all of this into the context of risk. Processing existing eight years of tracking data from Isle of May – essential step for upcoming and future analysis. Quantifying interannual variation, improving methods of behavioural classification from tracking data, flight height analysis, flight speeds. EK anything needed from us? AM/FD - All fine, happy with that. Contingency planning for Avian flu in the 2023













EK - A task force considering contingency planning should the HPAI outbreak continue to cause significant issue in 2023. BTO facilitating JNCC workshop - awaiting the results of this workshop.

JW – This and last three years – no idea what's coming. FD and RSPB you are presumably on group working on potential scenarios/mitigation for various HPAI scenarios?

FD – on NS sub-group. Reporting in early 2023 to allow time for licensing/decision trees for NS to consider and sign off on in April. Key thing is we don't know what it will look like, need decision tree in place. I.e., If it looks like this, we do this, if looks like that, we do that. Looking at detail of what this will look like over next few months.

GT – FD is right, wait to see what group reports. Will get decision trees made. Maybe think about what can be put in place before season starts, but physical monitoring equipment can be deployed before birds arrive. Work protocols that will hopefully allow some monitoring to be undertaken, likely still some restrictions, but hope to avoid a total ban on access like 2022. Opportunity for pre-planning this year that we didn't have last year.

JW – Are site staff involved in those discussions?

EK – Head of protected areas for NS is involved in discussions. Will be cascading down the way. See what taskforce/sub-group come up with. Decision support system in place to react to whatever situation appears on the ground.

7.0 Brief monitoring update - Seabird Interactions Study and NnG DAS (NnG)

PT – Seabird interactions study. Ongoing, focussing on technical side still regarding equipment that's going to be deployed at NNG. Onshore cabinet going to be installed at Crystal Rig. Looking at camera system - five cameras on six turbines. Teams working away on camera system. In 2023 moving on to BirdTrack radar/camera system which will then be followed by offshore install when offshore turbines are commissioned, later in 2023.

NnG Digital aerial surveys continuing during construction with monthly surveys. Continuing collab with F&T developers, post-consent obligations etc. Ornithological monitoring suite as collaboration with F&T developers.













8.0	Lessons learnt/results sharing		
9.0	Strategic monitoring updates EK – A week on Friday [18 th of November] for any updates to be written and circulated. Any ScotMER work captured in this as well. ACTION – MSS and NatureScot to circulate strategic monitoring updates, including ScotMER work	Ongoing	MSS/ NatureScot
10.0	AOB/Next meeting		
	GH – re chairing sub-group meetings. Ask that we approach developers to do so on a rolling basis. MFRAG group earlier – chair ornithology and marine mammal meetings, hoping F&T developers are content with same approach. Developers take away and feed back to Gayle. Feedback from NS and RSPB at Moray Firth meeting, they are content. If any issues, can discuss. Main FTRAG still have external chair, but that developers chair the subgroups. ACTION Developers to send a combined response to Gayle. [Post meeting update – Developers responded to FTRAG and have agreed to take on this role] PT – have marine mammal sub-group soon, so need to make a decision.	Ongoing	Developers
11.0	Future meeting		
	EK – meeting before next season – discussion on decisions for what do regarding HPAI. Early March? KA – intention to book next meetings (doodle poll ACTION) getting challenging to get dates that suit, pick date for November, send now and hope calendars are free. ACTION – PT to put meeting invite in calendar for November meeting. Flag dates folk can't make. In interest of availability tied down now, invites for March and November as soon as reasonably practical after this meeting.	Ongoing Ongoing	KA PT
	EK – next meeting organised by? PT – Need to check spreadsheet. ACTION – next developer to email to organise next		













. o. a.	
	Berwick
	Bank