











Meeting:	Forth and Tay Regional Advisory Group – Ornithology Subgroup
Location:	Virtual meeting
Date, Time:	13.00-17.00, 16/11/2021
	Sue O'Brien (SOB) – MSS
	Tom Evans (TEV) – MSS
Apologies	Rebecca Bamlett (RBA) – MS-LOT Janelle Braithwaite (JBR) - Marine Scotland Catherine Kelham (CKE) – RSPB Julie Miller (JMI) – MSS













Minutes taken by:	СВА
Date Issued – Draft for Comment:	09/12/2021
Date issued - Final:	18/01/2022

Minute	es		
Agenda Ref	Topic (Actions are identified in bold)	Action status (open/closed)	Action owner and deadline
1.0	Introductions		
	Two papers were circulated before the meeting: 1. Bogdanonva et al. 2021. GPS tracking of common guillemots, razorbills, Atlantic puffins and black-legged kittiwakes on the Isle of May in 2020 in relation to the Neart na Gaoithe offshore wind farm 2. HiDef 2021. Digital video aerial surveys of seabirds and marine mammals at the Neart na Gaoithe offshore wind farm: Preconstruction report June 2018 to July 2020.		
2.0	Previous Minutes and Actions (Chair)		
	1. JWI to enquire within MSS as to possibilities for additional sandeel surveys to complement the proposed monitoring in the Firth of Tay. JWI – Action completed. Sandeel surveys will be conducted as part of the upcoming PrePARED project 2. If required CEH to issue updated plan for the tagging and colony monitoring for 2021, depending on	Closed	JWI
	the outcomes of the analysis of the 2020 data. FDA – Action completed. Updated plan for 2021 breeding season was circulated for agreement prior to 2021 breeding season 3. PT/ NB/SA to have discussions with JNCC on the long-term management and return to FTRAG-O with	Closed	FDA
	updates. Anyone interested in discussions should email SO after the meeting to be involved. PTA – Discussions with JNCC commenced in late 2020 and are ongoing re management of gannet project ongoing. Current plan is for the F&T Developers to manage 2022 breeding season, with JNCC planned to take over from 2023 onwards. 4. CBA to check with Steve Votier if they are able to include the requirement / value of a 3 rd colony into	Closed	PTA/NBR/SAR













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	the power analysis and if achievable feedback outcomes to FTRAG-O	Closed	СВА
	CBA/PTA – Action completed. Power analysis examined power of two colonies (Bass Rock & Grassholm) to detect change, and concluded that there was sufficient power using two colonies. Power Analysis was circulated around FTRAG-O for agreement in May 2021 and finalised in June 2021.	Cioseu	CBA
	5. JMI to provide Jana Jeglinski contact details to SAR		
	SAR - Action completed.	Closed	JMI
	6. PTA to provide feedback on processes involved with the study/proposals [for seabird interactions study] with lessons learned etc to FTRAG-O group.	Closed	РТА
	PTA – some feedback will be provided at this meeting. Will be a further presentation to FTRAG-O group at the next meeting, once commercial agreement with other developers is fully signed off. 7. PTA/NBR/SAR to add Lessons learned and		
	ScotMER/Strategic Projects update to FTRAG-O meeting agenda Completed and added to agenda for this meeting.	Closed	PTA/NBR/SAR
	Completed and added to agenda for this meeting. 8. JWI to find Beatrice results and circulate to FTRAG-		
	O group -Outstanding Action	Open	JWI (Jan
	9. GHO to contact KOWL to suggest setting up meeting with MSS and NS to discuss how they can fulfil their puffin monitoring requirement. GHO- Action completed - meeting was held with KOWL.	Closed	2022) GHO
	EK suggested that an Action Tracker should be developed to keep better tables on progress with actions, particularly when meetings are infrequent. ACTION: F&T Developers to create an Action Tracker and populate with ongoing actions identified in meetings. [Populated action tracker circulated with these meeting minutes] ACTION: F&T Developers to include updated Action Tracker in FTRAG quarterly update emails.	Closed	PTA/NBR/SAR SAR/NBR/PTA (Jan 2022)
3.0	Project Updates		
3.1	Neart na Gaoithe (CGI) Offshore construction is continuing with cable installation and burial undertaken, along with boulder clearance in the development area and pre-trenching of inter-array cable routes. Both substation platforms are on transportation barges to the site. Onshore		













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	work is almost complete – should be finished by end 2021.	
	EKN asked when next quarterly update was due? PTA replied that this would be circulated in January 2022.	
3.2	Seagreen (NBR)	
	Offshore construction is underway, with boulder clearance, UXO identification and site demarcation. WTG jacket installation commenced in October 2021, with 10 jackets installed to date. First OSP jacket substation and inter-array cable installation due in November. Turbine installation starting in December 2021, with 114 turbines completed by late 2022. In 2023 36 turbines will be installed, with final commissioning in Q4 2023. Operations base in Montrose is nearly complete, and work is ongoing at Export Cable landfall at Carnoustie. EKN asked whether there had been any thought on inviting Operational teams to FTRAG meetings? NBR responded that the plan was to bring someone from SSE O&M to the next FTRAG-O meeting. PTA added that NnG were also planning for this but had no date yet, although there is regular	
	communication with O&M team.	
3.3	Inch Cape (SAR) SAR is now Offshore Consents Manager, with KTH new Project Consents Manager. There are some ongoing offshore activities including an offshore Geotech campaign, plus nearshore borehole drilling. The recent update to the CfD process should mean more certainty of winning a CfD next year. Project Programme has been revised so that offshore construction is planned to commence late 2023, becoming fully operational in late 2025.	
3.4	Berwick Bank (ALO)	
	ALO is Consents Manager at Berwick Bank. The former Berwick Bank and Marr Bank projects have been combined into one 4.1GW project – Berwick Bank. The project Scoping Report was submitted on 6/10/2021, with the LSE Screening submission on 28/10/2021. Work is ongoing on the Baseline Technical Report, as well as CRM modelling, displacement assessment, PVA etc. EIAR drafting between November 2021 and April 2022, with submission in late May 2022.	













	EKN asked if slides for project updates could be circulated. ACTION: PTA to send slide pack with draft minute.	Closed	PTA (Dec 21)
	[Slides circulated with these minutes]	Cioseu	FIA (Dec 21)
4.0	Monitoring Update – Tracking and colony monitoring FDA gave a summary of monitoring at the Isle of May (IoM) in the 2021 breeding season, detailing results of individual-based studies that will be used to investigate sub-lethal effects on demographic rates		
	and population size at SPA colonies. The two key questions are:		
	 Do changes in demographic rates occur between the pre-construction, construction and operation period? Can we attribute these effects to offshore 		
	renewable developments vs other drivers?		
	A power analysis was conducted to examine what sample size would be needed to detect a percentage change in both survival and breeding success. This was presented as a paper to the FTRAG-O group in April 2021. The main recommendation was an increase in		
	sample size from 25 to 50 tagged kittiwakes. The 2021 monitoring season followed		
	recommendations in the April 2021 paper. Four species were studied – guillemot, razorbill & puffin on the IoM, and kittiwake on IoM, Fowlsheugh and St Abb's Head.		
	A combination of loggers were used to obtain data on location, behaviours and flight height:		
	 Guillemot & razorbill – GPS & TDR Puffin – GPS only 		
	 Kittiwake - GPS only, GPS + accelerometer + altimeter 		
	In addition, behavioural observations were carried out to assess potential device effects in puffins and kittiwakes.		
	GPS plots for 2021 for the 4 species from IoM were presented. Guillemot and razorbill both showed inshore and offshore movements from the IoM. Puffin		
	movements were north-east to south east from IoM. Kittiwake movements were offshore from the 3 study colonies, with not much overlap between birds from		
	the 3 colonies. Observations on device effects on puffins in the 2021 season followed the same protocol as used in 2020.		
	Concerns were raised from FTRAG-O group in April		













2021 about handling effects independent of device effects included consideration of alternative capture methods and consider approaches to improve the value of tracking data in the context of offshore wind impact analyses.

These topics were discussed after the presentation. A summary of the study to examine device effects on kittiwakes at IoM, Fowlsheugh and St Abb's Head was also presented. This involved monitoring treatment and control nests and weighing chicks and adults during the course of the study. Effects on the at-sea distribution and behaviour of kittiwakes will be studied comparing 2021 results from the different types of tags used from all 3 colonies. By processing the data, it is possible to determine duration of foraging trips, as well as time spent at the colony. Also should also be possible to obtain flight height estimates with minimised error.

TEV – asked how tracking was working across all OWF projects?

FDA – There is an integrated approach across all SPAs and developers. Kittiwake is the key focus, but there is a common approach applied for all species. Discussion of earlier noted FTRAG questions: EKN highlighted that there is a new system for deciding what research will be happening on the IoM. GTY commented that having two different tags for kittiwakes is a good approach but there is no real control group – would it be possible to mark birds? For puffin – could you use a passive marking technique e.g. a dye sponge that marks them with no handling?

TEV questioned whether the data is useful if its not possible to separate out device effects?

AMC stated that the RSPB had tried to investigate tag effects at Bempton this season but that nothing had really worked. The CEH approach is pretty unique and has not really been done anywhere else, so is worthwhile. He also made the point that for the puffin methods, Ellie Owen (RSPB) has had input into the CEH experimental design too.

FDA made the point that CEH still need to work through the 2021 kittiwake data and then consider any possible changes for 2022. For puffin, different things have been tried, with device effects recorded













with all approaches, but overall the consensus is that it is worthwhile conducting the tagging because they know that supplementary feeding works. It looks like different individuals show different degrees of responses, so it may be possible to look at using less sensitive individuals. It also may be possible to look at distributions of tagged birds compared to "normal" atsea distributions. This was planned for the 2021 season, but was not possible to do due to foggy conditions at the critical time.

EKN proposed that CEH come back to the group with proposals for kittiwake for the 2022 season after looking at the 2021 results.

EKN also suggested that a paper should be prepared on empirical and analytical approaches that could be used to maximise insights from puffins data given known device effects in this species.

MBO made the point that some individuals have been followed over several years and so it is possible that previously tagged birds could end up as controls subsequently, which could potentially be an issue.

EKN asked for a timeline of what the group can expect and when responses are needed, prior to the start of the 2022 season.

PTA suggested that notes on approaches could be emailed around the group for confirmation, as had been done in previous years, and this was agreed by the group.

TEV asked about the possibility of using GLS tags on puffins, as these can record light/dark and wet/dry and so can be used to give an idea of activity – could this be compared to fully tagged birds?

FDA replied that this is a nice idea in theory but would need to be balanced against additional potential device effects associated with adding another logger to birds. The possibility would be included in the paper.

GTY suggested that taking puffins out and returning them to burrows might be better, and that













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	provisioning rates could be measured at other sites		
	where puffins are being trapped?		
	FAU made the point that Mike Harris did lots of comparisons of how to best ring puffins back in the 1970's, and that there was also a question of the appropriate scale for a study – even if disturbance is minimised at a site, disturbance levels can add up if you need to spend longer at the site looking at more aspects.		
	GTY commented that the comparison of at-sea and tagged puffins sounded interesting. FDA agreed because it is the only way of comparing the distribution at sea of tagged individuals with unmanipulated controls. Further, it is likely that most puffins seen at sea will have originated from the Isle of		
	May, because it is much the biggest colony in the area. However, there are important caveats associated with this approach, which will be detailed in the note to FTRAG.		
	EKN then asked if any of the F&T developers had any thoughts or comments. PTA said that collaboration between the funding developers and two research groups (CEH & RSPB) has been really good, and that the developers would work with CEH & RSPB on the timeline for the paper. Both NBR and EAH agreed with PTA.		
	Non and Lan agreed with FTA.		FDA (Feb 22)
	ACTION: CEH to circulate proposals for kittiwake for the 2022 season after looking at the 2021 results.	Open	
	ACTION: CEH to prepare a paper on empirical and analytical approaches to maximise insights from puffins data given known device effects in this species.	Open	FDA (Feb 22)
	ACTION: F&T Developers to prepare a timeline of what the group can expect and when responses are needed, prior to the start of the 2022 season.	Closed	PTA/NBR/SAR (Jan 22)
5.0	Monitoring update – Gannet adult survival study PTA – In early 2021 Heriot Watt University undertook a power analysis on 2010-2020 data from gannet colour-ringing project on Bass Rock and Grassholm colonies. Conclusions:		













- there is strong evidence that the existing study design at these two colonies alone is sufficient to detect a 4.5% decline in adult gannet survival rates, which is the change needed to alter the Bass Rock population trajectory from increasing to flatlining.
- High statistical power at Grassholm for this site to function as a robust control, allowing any future changes in survival at Bass Rock to be assigned to a wind farm effect with a higher degree of confidence.

2021 season on Bass Rock:

- Re-sightings >230 birds.
- 15 additional birds fitted with new colour rings
- 13 cases of ring loss were also identified; these were fitted with replacement rings.
- GPS tagged 20 adult gannets (11 males, 9 females)
 2021 Report (Lane & Hamer, 2021) circulated to
 FTRAG-O for comment in October 2021.

ACTION – PTA to circulate Final Report on 2021 Bass Rock Gannet Monitoring season [Post meeting update – issued 17.11.2021]

2021 season on Grassholm:

- Resighted 188 individual colour-ringed gannets
- Additional 37 adult gannets were colour-ringed in August 2021 (including replacement rings).

The study will continue following recommendations in Lane & Hamer, 2021.

Following Keith Hamer's retirement, NnG are working with Jude Lane and RSPB to transfer contract and delivery to the RSPB led by Jude Lane. Will continue to be jointly funded by NnG, Seagreen and Berwick Bank for the agreed 5 period of 2020 - 2024.

This is a long term strategic study, with the aim to transfer management to JNCC long-term. Handover will be held off until 2023 when existing scopes and contracts are in place with RSPB and Heriot Watt University. Dialogue with JNCC remains.

MBO asked if there were any plans to look at an immature gannet tracking study? PTA responded that there were no plans to do so, as this is not part of the monitoring requirements. JLA said that there were lots of specific questions to explore and that it would be good to look at some of these. MBO said that there is a need to keep an eye on other gannet age groups, not just adults.

Closed PTA













Forth a	nd Tay Regional Advisory Group (FTRAG	6) Minutes	of Meeting
	EKN proposed an action to look at possibilities of monitoring of immature gannets through ScotMER. TEV asked if MS comments on the Power Analysis had been addressed in that report. PTA and CBA confirmed that they had been in the final version issued in June 2021. EKN asked what the implications on the study would be if OWF projects are built within foraging range of the Grassholm colony? AMC stated that there were floating wind projects proposed for the Celtic Sea and off the coast of Wales. MGR said that it was important to understand how many years there could be between any wind farms in this area becoming operational compared to the F&T projects. So that the Bass Rock could be impacted while Grassholm is a control, and then Grassholm could start to experience impacts. EKN suggested that contact should be made with NRW to make them aware of the long term gannet study on Bass Rock/Grassholm. SOB also suggested that JNCC should be contacted about the Welsh projects. AMC said that one of the Welsh projects (Erebus) had spoken to Steve Votier and that AMC had told them about FTRAG. AWE made the point that St Kilda would probably be the last colony to be impacted by OWFs so could consider that as a monitoring option? ACTION - EKN to raise at the upcoming ScotMER coordination meeting the possibilities of monitoring of immature gannets through ScotMER ACTION - FTRAG to contact NRW to highlight that Bass Rock/Grassholm research is ongoing. GHO to pass on contacts for PTA in the first instance.	Open Open	EKN (Jan/Feb 22) GHO (Dec 21) GHO/EKN (Dec 21)
6.0	ACTION – GHO & EKN to send a thank you to Keith Hamer. Monitoring Update – Digital aerial surveys (HiDef)		
6.1	Pre-construction digital aerial surveys at NnG (MSC) MSC presented an update of pre-construction digital aerial surveys by HiDef at NnG. There were 27 surveys undertaken between June 2018 and July 2020. A report on the two years of pre-construction surveys has been circulated to the FTRAG-O group and comments have been received. These comments are being addressed, and the final report will be circulated		













	soon. Aerial surveys are continuing through the construction phase.	Closed	PTA (Dec 21)
	ACTION - PTA to circulate Final Report once complete [Post meeting update – issued 02.12.2021]	3.5534	(20022)
6.2	Berwick Bank EIA & Technical data preparation (MSC)		
	MSC gave a brief overview of the analysis of baseline digital aerial survey data for Berwick Bank. The analysis will be based on 25 digital aerial surveys. There is an ongoing Road Map process between MS-LOT, MSS, NS, RSPB and SSE to agree assessment parameters and approach. Application submission planned for May 2022.		
	FDA made the point that in relation to the recent high levels of auk mortality along the east coast it would be useful to use aerial survey auk distribution data over August to October from previous years and compare them to the same period this year.		
	ACTION - PTA and FDA to discuss the use of the NnG aerial survey auk distribution data over August to October	Open	PTA/FDA (March 2022)
6.3	Next generation Hi-Def rigs		
	AWE gave a presentation on the switch from the HiDef Gen 2 digital aerial camera rig to the 2.5 camera rig. The Gen 2 rig was brought into service in late 2012. However, some sensors and lenses are no longer available from manufacturers. There is a need to replace some of the older rigs and also to prepare for a Gen 3 rig. The principal objective is not to change basic specification of GEN 2 rig and give performance at least as good as GEN 2. The main difference is that the survey altitude is slightly lower than the altitude used for the Gen 2 rig. However, comparing Gen 2.5 data with existing data has shown no indication of any obvious effect of flying lower, and no obvious difference in image quality. It is important not to focus on minor differences in survey methods, as day to day or even hour to hour seabird variation is greater than any minor effects from survey rigs.		
	There are no plans to use the Gen 2.5 rig on the ongoing NnG digital aerial surveys. However, the conclusions are that it is acceptable to use Gen 2.0 and 2.5 rigs interchangeably for monitoring surveys, in different months and years. It is not proposed to mix rigs on same day surveys until further investigations		













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	demonstrate that this is acceptable. Further rig		
	improvements may be needed in the future, subject		
	to acceptable trial results.		
	TEV stated that he had not seen this level of detail		
	regarding Gen 2.5 rigs previously, and asked if slides		
	would be available or if there would be a write-up?		
	AWE stated that slides can be circulated, but that a		
	write-up would take longer.		
	AMC said that it was good that the new rig is not		
	being introduced now, and that he would be really		
	interested in seeing more data and to discuss with		
	RSPB colleagues before giving a response.		
	GTY also said that he had not seen as much detail on		
	this previously and would need to discuss with		
	colleagues before giving a response. What would the		
	timescales be for a write-up?		
	AWE stated that the rig is currently being used in		
	France so there should be more data available in		
	Jan/Feb 2022. HiDef are not planning on doing any		
	more Gen 2 vs Gen 2.5 comparison trials.		
	EKN proposed that after the slides are circulated, NS,		
	MSS and RSPB will respond with a timeline on when they can provide advice on this.		
	GTY asked about the likely timescales for moving to a		
	Gen 3 rig. AWE replied that the Gen 3 rig is likely to be		
	ready in early 2022.		
	ACTION - Circulate HiDef presentation slides with		
	meeting minutes. [Slides circulated with these		
	minutes]	Closed	PTA (Dec 21)
	ACTION - MSS, NS and RSPB to provide timeline for		
	giving an opinion on the use of the Gen 2.5 rig.	Open	EKN (Jan 21)
7.0	Monitoring Update – Seabird Interaction Study (NnG)		
	PTA gave a summary presentation on the Seabird		
	Interaction Study at NnG. NnG fully executed contract		
	with the preferred tenderer in July 2021. Work is		
	ongoing on finalising the commercial agreement		
	between the three developers, NnG, Seagreen and		
	Berwick Bank/SSE to share the cost of the study.		
	Details of the study remain commercially sensitive		
	until this is executed. However, this has not slowed		
	down the work that NnG have undertaken to ensure		
	down the work that NnG have undertaken to ensure that the windfarm structures and systems are being		
	down the work that NnG have undertaken to ensure that the windfarm structures and systems are being designed and built to accommodate the monitoring		
	down the work that NnG have undertaken to ensure that the windfarm structures and systems are being designed and built to accommodate the monitoring equipment that will be installed on the wind farm to		
	down the work that NnG have undertaken to ensure that the windfarm structures and systems are being designed and built to accommodate the monitoring		













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	The Study aims to improve understanding of seabird behaviour and interactions around operational offshore wind turbines with a focus on acquiring empirical measures of collision risk and three-dimensional flight behaviour around wind turbines for the key species (gannet and kittiwake) which occur in the area. One of the key lessons learnt is that the programme for the study has significantly influenced the ability for offshore infrastructure to accommodate monitoring equipment. In addition, collaboration has been and will be key to providing complete delivery of the study. EKN and AMC both asked if this feedback will be passed on to the ORJIP SBMon project? PTA said that it would be.		
	ACTION – PTA to feedback lessons learnt from procurement of NnG Seabird Interactions Study to ORJIP SBMon study EKN suggested that there should be a bespoke FTRAG-O meeting about the whole Seabirds Interaction Study when it can be made fully public. ACTION – Forth and Tay Developers to arrange a specific FTRAG-O meeting focusing on the Seabirds	Closed	PTA (Dec 21) SAR/NBR/PTA
9.0	Interaction Study		(Q1/2 2022)
8.0	Lessons learnt/results sharing (all) EKN stated that people should be thinking about what we can share from FTRAG at conferences. AMC said that CEH and RSPB have submitted 2 abstracts to the upcoming CWW conference in April 2022. EKN said that it would be good to agree a principle to share what is going to be presented in posters/talks prior to conferences. TEV agreed that abstracts should be shared prior to submission, or in the case of last-minute opportunities, to be circulated as soon as possible after submission. GHO added that the key would be making the most of opportunities to share knowledge and results. ACTION: FTRAG members to share material for posters/talks prior to conferences	Open	All (ongoing)
9.0	ScotMER/Strategic Ornithology updates (MSS, NS, JNCC) Slide showing strategic ornithology updates from RHA (JNCC) will be circulated with draft minutes.		













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	The next ScotMER workshop will be in late January/early February – FTRAG-O members were asked to submit any thoughts to GHO, TEV or EKN. SOB added that she would be happy to collate any ideas for ScotMER.		
	SOB gave a short overview of the PrePARED project looking at predators and prey around renewable devices and the evidence in change process. This project will commence in January 2022.		
	TEV gave an overview of current and upcoming MSS research projects. There will be an updated Strategic Review of Migratory Birds early next year for ScotWind. The report on the strategic aerial surveys conducted by APEM will also be published soon. Analysis of this data is currently under procurement but should start early 2022.		
	GHO talked about work on the regulatory side of the development process, including a Compensatory Measures Framework, with advice sought for compensatory measures and IROPI, which will be published in spring 2022. The final version of the Cumulative Effects Framework is due in June 2022.		
	EKN gave an update from NatureScot. Guidance is currently being collated on bird impact assessment – there will be 11 pieces of guidance on this, to help inform ScotWind bidders.	Onen	All (Dos 21)
	ACTION: FTRAG-O members to submit ideas for next ScotMER workshop	Open	All (Dec 21)
	ACTION: Circulate status of current and upcoming Marine Scotland projects.	Open	GHO/TEV (Dec 21)
10.0	AOB		
	EKN suggested that members think about the format and frequency of the FTRAG-O meetings. TEV said that it is difficult to focus for long meetings and suggested that shorter, more focussed and more frequent meetings with less subjects might be better. AMC agreed with this. SAR suggested and it was agreed by the group to keep these meetings online as it is easier to co-ordinate online meetings, particularly given the number of attendees. Finally everyone wished EAH all the best in her new role and thanked her for the work she has done for		
	the FTRAG-O group.		