

MORL/BOWL POST-CONSENT MONITORING DISCUSSIONS MEETING MINUTES

Meeting	Seabird Post-Consent Monitoring within the Moray Firth	
Date	30 March 2015, 11am – 1pm	
Location	Marine Scotland, Victoria Road, Aberdeen	
Attendees	MSS	Ian Davies (ID) (Chair), Jared Wilson (JW), Robert Main (RobM)
	MS-LOT	Alexander Ford (AF)
	SNH	Erica Knott (EK), Catriona Gall (CG), Alex Robbins (AR), Glen Tyler (GT) – video conference
	JNCC	Sue O'Brien (SO), Enrique Pardo (EP)
	RSPB	Aly McCluskie (AM) – conference call
	BOWL	Liz Royle (LR), Jonathan Wilson (JW2)
	MacArthur Green	Mark Trinder (MT)
	MORL	Sarah Pirie (SP), Catarina Rei (CR)
	Natural Power	Ross McGregor (RM)
	Royal Haskoning	Ben King (BK)
Apologies	JNCC	Karen Hall
Actions	<ol style="list-style-type: none"> 1. MT to send HB Adam Cross' thesis concerning puffin photo ID monitoring when it becomes available (Action 1 from the meeting of the 02/02/15). 2. SO to circulate the final report from the JNCC demographic review once available (Action 3 from meeting of the 02/03/15). 3. AR to report progress on designing the 2015 colony survey at E & N CC SPA, including an assessment of suitable survey methods. 4. AR to report progress on designing the 2015 colony survey at E & N CC SPA, including an assessment of suitable survey methods (Action 7 from meeting of the 02/03/15). 5. Group to review list of existing datasets provided and identify any missing survey data. LR to discuss with Paul Thompson the list of datasets. 6. BOWL to develop survey monitoring proposal and submit to the group for comment (survey methodology based on concentrated effort May-July with more than 3 surveys over the 3 month period). 7. MT to undertake power analysis with different skewed data to experiment with variability. 8. SpORRAn ACTION - Discuss non-breeding bird use of wind farms and tagging technology progression. 9. BOWL to produce outline survey monitoring scope. 10. SP to approach Catapult to discuss progress with tag technology and attachment methods. 11. JW to open communication with Liz Masden about tagging studies that have already been done and the current state of tag technology. 	

12. AR to look into feasibility of undertaking pellet survey as a way of gathering suitable data.
13. RobM to produce MFRAG Ornithology sub-group Terms of Reference.
14. RobM to organise next meeting (within approximately three months).

1. Introductions

Introductions were made and apologies from Karen Hall (JNCC) were noted.

2. Minutes of previous meeting (02/03/2015)

The minutes of the previous meeting were approved by the group.

A review of the actions was undertaken:

ACTION 1 – MT to send HB Adam Cross’ thesis concerning puffin photo ID monitoring – Thesis not available yet. Ongoing action.

ACTION 2 - CR is to distribute the final Innovate UK gull study report – Action completed.

ACTION 3 - SO to circulate the final report from the JNCC demographic review once available – late Jan 2015 (Action 6 from meeting of the 14/11/14) – Report to be made available within JNCC website soon (either later today or after purdah). Ongoing action.

ACTION 4 - MT to confirm whether a power analysis for the Dudgeon wind farm could be shared – It could be shared and was (by email on 13/03/2015) - Action completed.

ACTION 5 - MT and RM to complete the MF PCM discussion document in line with comments provided at the meeting, and circulate it to the group – Action completed.

ACTION 6 - JW to establish contact with Robin Sellars – JW issued gull reports and therefore contact has now been established. No progress on discussions related to data sharing. Action completed.

ACTION 7 - AR to report progress on designing the 2015 colony survey at E & N CC SPA, including an assessment of suitable survey methods – Ongoing development of statement of requirements. The monitoring will cover the East Caithness Cliffs (ECC) and North Caithness Cliffs (NCC) and will include identification of plot locations for gulls and puffin (which will assist in the design of MORL and BOWL colony monitoring requirements). The surveys will be undertaken during May-June with reporting during late summer/early autumn. The surveys will contribute to the SMP database. Ongoing action.

ACTION 8 - AR and SO to confirm their view on a suitable breeding survey period – Action to be discussed later in the meeting.

ACTION 9 - MT and RM to complete a proposal for a monitoring design validation and distribute to the Group prior to the next meeting – Action completed.

3. Pre-construction baseline monitoring

3.1 Existing Data and Power Analysis

JW opened with discussion of existing data and how it can be used to support baseline studies and provide a more rigorous baseline data set. MT passed around handouts with table of existing distribution surveys done to date that have been undertaken and asked the group to review and provide feedback on any additional studies not captured in the table. There was a general agreement that the list was complete but the group was asked to provide confirmation. LR said that she would ask Paul Thompson after the meeting to see if he was aware of any other existing datasets

ID highlighted that the result of the discussion from previous meeting was that 1 year of pre-construction aerial survey would be sufficient. It was noted that reassurance was required by JNCC that enough data would be collected. CR pointed out that there is already 1 year of preconstruction aerial survey data (MORL EIA surveys).

AR raised the subject of data comparability between boat based and aerial survey types and suggested a review of existing study parameters should be done to ensure comparability. MT stated that it is a difficult question and answering it would require semi-quantitative assessment of new survey data and ideally to overlay new data on existing data. SO suggested that this is a good approach for providing a general picture but needs Power Analysis to be undertaken to determine change and that pre-construction data needs to be sufficient to detect post construction change. AR noted that the MRSEa package is not really being used, RM noted that it was used for Robin Rigg (as detailed in the report provided by NPC to Eon about two months ago).

ID proposed that monitoring proposals should be written on the basis of 1 year of pre-construction survey but should include a justification of how existing survey data can be used to add strength to analysis.

Actions

- ***Group to review list of existing datasets provided and identify any missing survey data. LR to discuss with Paul Thompson the list of datasets.***

3.2 Pre-construction Monitoring Strategy.

MT stated that BOWL would be looking to conduct aerial pre-construction surveys in 2015 rather than 2016 as previously planned. This means that there is now a tight timeline for contracting and starting of surveys and a pressing need to agree survey methodologies. The pre-construction survey approach would expect to consist of an aerial survey between the BOWL site plus buffer and the ECC SPA, with 2km separation and as many transects as possible. MT suggested that BOWL would be aiming to submit the proposal within the next few weeks but would need a quick turnaround with regards to comments from stakeholders to be able to start the survey campaign in May.

JW questioned whether the analysis methodology would include Power Analysis, and if not, what would be the point of the survey? MT provided handouts showing results of Power Analysis based on a modelled random allocation of 3000 puffins with a similar approach to modelling as was used for Dudgeon. The Power

Analysis found an 80% likelihood of detecting a statistically significant change in density of 50% (with an alpha of 0.05) for most scenarios tested. All modelled scenarios were based on 3000 puffins as it was expected to be a reasonable estimate for puffins based on a recorded 1500-2000 breeding pairs in the area. In addition, other species are more abundant to power possibly higher and more able to detect change.

SO expressed concern about underestimating variability in encounter rate which could result in difficulties to draw conclusions over wind farm impacts vs natural variation as variability may simulate more aggregated populations. MT replied that he would try to run power analysis with skewed data to understand what effect it would have on the results. ID pointed out that answers from the Power Analysis depend on the inputs and divergent data. SO suggested 2-3 surveys a month to gather sufficient amount of data for Power Analysis and that boat based data might help to characterise variability.

ID suggested that an analysis of patchy distribution could be undertaken as part of the validation process. This could use real data from surveys to assess effectiveness and then revise scope for future surveys. SO asked that if a failed scope was determined from 2015 surveys, would this then require a 2016 survey season? ID suggested that this should be a point of discussion for future survey programmes. RM suggested that data from existing studies should provide sufficient data but JW stated that existing studies would not be suitable for validation of abundance in the wind farm area and it would not be possible to compare absolute abundances from previous surveys with pre-construction data.

ID suggested that some 2015 surveys should be used as validation, SO suggested running models on early surveys to identify data needs for Power Analysis/validation and then modifying survey programme in response to results if necessary. SO stated that if sufficient data from first year surveys was gathered to undertake Power Analysis then a second year of surveys would not be required.

LR stated that due to timescales, May would be the first month of survey.

ID concluded discussion and that BOWL will look to start a monitoring programme in 2015, model data from early surveys and then monitor the survey programme to see if sufficient data is being gathered.

Action	<ul style="list-style-type: none"> • <i>BOWL to develop monitoring proposal and submit to the group for comment.</i> • <i>MT to undertake power analysis with different skewed data to experiment with variability.</i>
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3.3 Breeding Bird Season

JW raised the point that August may not be classed as breeding season as fledglings leave the nest and disperse into surrounding sea area during August. AR stated that April to August is generally considered to be the breeding season with August seeing a peak in bird numbers offshore due to fledgling dispersal. The big question is whether behaviour is different outside of the breeding season. JW suggested that post-breeding distribution is a separate question that must be addressed separately to distribution in other (breeding) months. Additional surveying in August would be required to answer this question. CR commented that as breeding birds are the key receptor, this would represent an increase in survey effort at a time that is not of particular importance. JW noted that August has been discounted as a breeding bird month for Forth and Tay

surveys. MT noted that the inclusion of WF impacts on post-breeding dispersal would make the connectivity question harder to address. CG stated that any impact from the WF would be as a barrier effect rather than a dispersal/foraging issue. ID suggested that this would represent a research question. SO agreed that it would be difficult to link post-breeding dispersal survey results with connectivity.

JW2 stated BOWL will attempt to cover the breeding season starting in May as survey in April were now not possible. MT suggested that increased effort May, June and July with a single survey in August may be a suitable approach. SO noted that more surveys would increase the data for the Power Analysis. RM suggested that due to very low densities of gulls that it was very unlikely there would be sufficient power to detect a change.

ID concluded that the survey programme should run from May to July with more than 3 surveys undertaken in that period plus 1 survey in August. JW said he would prefer to have more surveys in July and perhaps not have the August survey. ID concluded that surveys should be concentrated on the core 3 breeding months and none in August.

Action

- ***BOWL to develop survey methodology based on concentrated effort May-July with more than 3 surveys over the 3 month period.***

4. Other points of discussion

4.1 Non-Breeding Gulls

SO discussed undertaking non-breeding surveys at previous meeting and wanted to discuss further. An assessment into non-breeding gulls has been undertaken to look at theory that SPA gull populations are sedentary and other gulls move in to the area during the non-breeding season. These birds are not part of the SPA but SO wanted to explore the possibility of non-breeding surveys to look at connectivity. ID suggested that tagging these birds could provide useful data on SPA vs incoming birds. JW noted that connectivity had not been found in breeding birds but not explored in winter birds.

MT asked whether tagging for longer periods would be possible/useful? JW suggested that more long term data would be useful and that as the survey would be in two years' time there was time for tag technology to develop sufficiently. ID noted that tagging is the main method of gathering data on gulls, but tag development work was required. ID suggested Catapult as a source for tag development. EK stated that tag technology could be discussed/developed through Catapult and it may need to be elevated to SPORRAN for discussion – but SPORRAN not ready yet. AR suggested that the use of wind farms by non-breeding birds is a research related question and could be discussed at SPORRAN once initiated.

JW suggested including long term tagging in proposed monitoring methodology with the view that tagging technology will be at a sufficient level by time the time of the survey. Developers would need to include a desk based review of the current state of tagging technology to inform this. AM mentioned that a study of tagging technology is already being done by Liz Masden and this includes tag with underwater tracking. AR also mentioned a Crown Estate/Natural England study of using tag data for flight height data.

SP mentioned that Catapult could provide a forum for technology providers to come together to discuss technology and focus on industry needs. It would be a good point to focus tag technology in a strategic manner to ensure progression is in right direction. JW noted that tagging technology is largely in place and the main issue is method of attachment. ID suggested that approach to Catapult should be through SP as there is existing line of communication.

AR mentioned that there is ongoing colony work to look at stable isotopes in pellets and that this is showing fine scale foraging data and that would be particularly useful for looking at terrestrial vs marine foraging and could be an effective way of collecting further data.

Action

- **SPORRAN ACTION** – Discuss non-breeding bird use of wind farms and tagging technology progression.

5. Next steps

5.1 Survey Scope

ID stated that the Developers now have sufficient information and steer to produce a survey programme methodology for approval. JW2 stated that BOWL's priority is to get the survey scope out and agreed so that pre-construction surveys can begin in May. MT reiterated that survey will cover 10% of the site with 2km transect separation and requested feedback about this general approach. There was a general agreement that the approach was likely to be suitable.

JW2 stated BOWL would look to get initial scope out in the following few days and would appreciate a one week turnaround if possible. JW asked the number of days required to cover the survey area? MT suggested that there should be approximately 20 transects of 26 km and that this should take a single day to survey. SO reiterated that at least 4 surveys should be done in May to July. SO questioned whether less separation would be better for the Power Analysis? MT suggested that there would be no significant benefit to do this. JW suggested that further Power Analysis should be undertaken to inform survey requirements.

Actions

- **BOWL to produce outline survey monitoring scope.**
- **MT to undertake further Power Analysis to inform survey approach.**

5.2 Tags

Discussion with Catapult should begin to look developing tags that meet technological requirements and also find suitable ways of attachment.

Actions	<ul style="list-style-type: none"> • <i>SP to approach Catapult to discuss progress with tag technology and attachment methods.</i> • <i>JW to open communication with Liz Masden about tagging studies that have already been done and the current state of tag technology.</i> • <i>AR to look into feasibility of undertaking pellet survey as a way of gathering suitable data.</i>
5.3 AOB	
<p>ID- Liz Masden's paper should be available on the NERC website.</p> <p>ID- this informal group will become the formal MFRAG ornithology sub group. RobM will produce the ToRs and will send the group for comment</p>	
Action	<ul style="list-style-type: none"> • <i>RobM to produce MFRAG Ornithology sub-group Terms of Reference.</i>
6. Next Meeting	
<p>ID asked when need to meet again, given MFRAG/MFRAG subgroup/SpORRAn meetings are attended by the same people. JW2 suggested that within 3 months should be sufficient.</p>	
Action	<ul style="list-style-type: none"> • <i>RobM to organise next meeting (within approximately three months).</i>

List of Acronyms:

BOWL	Beatrice Offshore Windfarm Limited
ECC	East Caithness Cliffs
F&T	Forth and Tay
JNCC	Joint Nature Conservation Committee
MFRAG	Moray Firth Regional Advisory Group
MORL	Moray Offshore Renewables Limited
MSS	Marine Scotland Science
MS-LOT	Marine Scotland Licensing Operations Team
NCC	North Caithness Cliffs
RSPB	Royal Society for the Protection of Birds
SNCB	Statutory Nature Conservation Bodies
SNH	Scottish Natural Heritage
SpORRAn	Scottish Offshore Renewables Research Framework