

## MORL/BOWL POST-CONSENT MONITORING DISCUSSIONS MEETING MINUTES

<b>Meeting</b>	<b>Seabird Post-Consent Monitoring within the Moray Firth</b>	
<b>Date</b>	<b>16 December 2014, 10am – 12pm</b>	
<b>Location</b>	<b>EDP Renewables, 40 Princes Street</b>	
<b>Attendees</b>	MSS	Ian Davies (ID) (Chair), Jared Wilson (JW)
	MS-LOT	Roger May (RM)
	SNH	Erica Knott (EK), Catriona Gall (CG), Alex Robbins (AR) - conference call, Glen Tyler (GT) – conference call
	JNCC	Sue O'Brien (SO) – conference call, Karen Hall (KH) – conference call
	RSPB	Aly McCluskie (AM)
	BOWL	Lis Royle (LR)
	MacArthur Green	Mark Trinder (MT), David MacArthur (DM) – conference call, Bob Furness (BF) - conference call
	MORL	Sarah Pirie (SP), Catarina Rei (CR), Holly Best (HB)
	NPC	Ross McGregor (RM2)
<b>Apologies</b>	<b>Jonathan Wilson – BOWL</b>	
<b>Actions</b>	<ol style="list-style-type: none"> <li>1. AR to look into the feasibility of puffin colony monitoring.</li> <li>2. BF to send HB Adam Cross' thesis concerning puffin photo ID monitoring.</li> <li>3. CR is to distribute the final Innovate UK gull study report.</li> <li>4. 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).</li> <li>5. JW to re-structure the MF key ornithology discussion document.</li> <li>6. JW to change Question 1.08 to encompass 'change that can be attributed to the wind farm'.</li> <li>7. JW to amend Table 2 or 3 to include turnover.</li> <li>8. ALL to send comments on the discussion document to JW.</li> <li>9. <b>SPORRAN ACTION:</b> MS-LOT to pass on strategic concerns to Scottish Ministers.</li> <li>10. SNH to provide feedback on how site condition monitoring will be undertaken.</li> <li>11. BF to discuss gull demographics with local ringers.</li> <li>12. BOWL and MORL to develop data collection/monitoring methods for the next meeting</li> <li>13. RM2 to confirm whether a power analysis for the Humber Gateway could be shared. MT to confirm similarly for Dudgeon wind farm.</li> <li>14. HB to organise a date for the next meeting (through doodle pool) for the second half of February.</li> </ol>	

<b>1. Introductions</b>	
ID welcomed everyone and highlighted that the purpose of the meeting was to move towards tighter monitoring parameters clarifying the scope of the ornithology monitoring and the accompanying methodology.	
<b>2. Seabird Post-Consent Monitoring Meeting of 14 November 2014 – Approval of Meeting Minutes</b>	
<b>2.1 Puffin Counts</b>	
<p>JW looked back over the minutes of the previous meeting and confirmed that CR's comment had already been addressed. It was noted that MT's comment had not been addressed yet as additional clarification was required. MT stated that his understanding was that it had been agreed that puffin monitoring was very difficult and that there were good reasons not to undertake puffin monitoring at the East Caithness Cliffs (ECC) and North Caithness Cliffs (NCC) SPAs. He considered that the paragraph within the previous set of minutes was too open-ended. ID agreed that population monitoring was difficult however asked whether there was a possibility for plot or colony counts to be undertaken. JW confirmed that it was difficult to understand what monitoring would be required as there was no information on puffin distribution and therefore the first step should be to explore what data is already available. Adult and chick rates may be difficult to obtain however plot counts could be feasible.</p> <p>AR agreed with JW that plot counts had not been ruled out at the previous meeting. She confirmed that a feasibility study is something that could be further looked into by SNH, and that it should be done before ruling out or progressing with the study. AR stated that monitoring through photo ID methods may be possible however acknowledged that there were limitations with this method. JW confirmed that potential impacts at population level were fundamental to understand, however feasibility to collect meaningful data was a concern. ID asked whether SNH could then look into the feasibility of carrying out a population study. AR said that SNH could discuss colony monitoring at the seabird colony monitoring meeting. ID asked AR to report back once feasibility was determined.</p> <p>BF mentioned that Adam Cross had recently completed a thesis on seabirds which included photographic monitoring of puffins. The findings of the study were that it was very difficult to estimate population numbers. Therefore BF concluded it was likely that the distribution of puffins at ECC would be too sparse to allow for puffin monitoring to be undertaken using this method. ID asked if BF was able to provide the reference of Adam Cross's study to the group. BF confirmed that the study would be available online within in two weeks and that he would be sending HB the study reference.</p> <p>JW noted that one of the actions from the last meeting (Action 2) was for AM to check which covariates were collected as part of previous RSPB studies and asked if AM had an update on this. AM noted that previous RSPB studies on auks had confirmed that water temperature affects fish distribution, which may in turn affect auk behaviour.</p>	
<b>Actions</b>	<ul style="list-style-type: none"> <li>• <b>AR to look into the feasibility of puffin colony monitoring.</b></li> <li>• <b>BF to send HB Adam Cross' thesis concerning puffin photo ID monitoring.</b></li> </ul>

## 2.2 Gull Study

CR provided a project update and confirmed that CEH had now completed the data analysis and started the report writing. CR confirmed that a draft report would be sent to the Project Steering Group (PSG). ID asked if the final report could be distributed to the group. CR noted that the final report would be issued by 14 February 2015 in line with the contract requirements with TSB (now Innovate UK) and that the report could be made available then. CR confirmed that although not within the project scope a meeting with the SNCBs could be explored to discuss this report since they are not on the PSG.

ID queried whether GPS tracking was being used to determine flight heights. CR said she had been in touch with Steve Votier (University of Exeter) and that his feedback was that speed and flight height could be calculated by GPS. CR added that beating movements (accelerometry data) could also indicate speed however it was less accurate. ID asked whether this data was to be included within the final report. CR responded that the analysis of flight height was outwith the project's scope but the data could be explored for further analysis.

BF provided an update with regards to Action 4 from previous meeting (contact with the Caithness local bird ringer). BF noted that he had spoken to Robin Sellers and Mark Oksien for more information about bird ringing at Caithness, and highlighted that it could be difficult to work within an area that has been surveyed by another party for such a long time. BF added that he was still planning on meeting Robin Sellers (local bird ringer) in early January.

In relation to Action 5 (Ruedi's work on gull feeding behaviour) AR stated she'd been unable to make contact and would follow this up again. BF commented that Ruedi's research was looking at carbon isotopes to infer diet as marine and terrestrial food have a different carbon isotope ratio. This can be done using feather samples or studying chicks. CR noted that some information on food remains had been collected during the tagging study but that it had not been analysed in detail. Nevertheless feedback from the fieldwork team was that it was of marine origin. ID suggested that an analysis of diet could be added to the study. CR proposed that existing data could be used instead.

### Action

- ***CR is to distribute the final Innovate UK gull study report.***

## 2.3 Other actions

ID highlighted per Action 6 SO to circulate the JNCC demographic data review, but that it would only be available in 2015. ID therefore noted that this action was still to be completed.

ID concluded that the minutes and actions had been **approved**.

### Action

- ***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).***

### 3. Discussion Document: Key Questions in MF Ornithology Post Consent Monitoring

#### 3.1 Overview

JW provided an overview of the discussion document which had been sent to the group which identified key questions for Moray Firth Ornithology Post Consent Monitoring. JW stated that the document was based on the outputs of the last meeting, and that monitoring specific to the Moray Firth (MF) was presented in green.

It was agreed that the document was useful as a starting point. There were some concerns that some of the questions had tipped into research (as opposed to monitoring). MT emphasised that ‘population consequences’ should be the driver for monitoring and suggested that there was a step missing: the rationale behind the monitoring. RM2 was in agreement with this. AM stated that the issue was structural, and the document would need to be more focused on what can be achieved. JW said that the main focus should be on the green shaded questions. ID stated that the logical argument of population effects needed to be re-introduced, and to focus on the green shaded questions.

ID highlighted there was a need to develop data collection/monitoring methods for developers to cost. LR asked whether the developers would need to answer all the questions listed in Table 1. JW responded that each question should be considered when developing methods and then the monitoring strategy presented by each of the developers should justify what is or isn’t being proposed based on the questions. ID added that many questions may be answered under the one method.

There was discussion in relation to the need to separate questions for research from questions for wind farm monitoring purposes and also a need to separate ‘strategic monitoring questions’ from ‘individual wind farm monitoring’ questions. JW stated that consent was based on a number of assumptions concerning displacement, therefore displacement was not a strategic issue. MT noted that consent was based on many assumptions, however these should not all be monitoring targets. AR responded stating that some of those assumptions were critical and that they would need to be ranked. CG noted that gulls were high priority species whilst auks were less priority.

#### Action

- ***JW to re-structure the discussion document***

#### 3.2 MFRAG and SPORRAN responsibilities

EK highlighted that there was an issue with people’s perception on what could be achievable at wind farm level, and what was being missed here due to a lack of funding. EK stated it was unclear how the MFRAG would cover this and expressed concern that strategic issues could be lost and duplicated efforts would result from this. RM noted that a post-consent workshop had been organised for the 26<sup>th</sup> January to discuss these questions. SP suggested in the interim that MORL and BOWL could take the secretariat role for MFRAG and in the minutes could highlight the key issues identified at these meetings as being for SPORRAN to discuss which MSS could then ensure are discussed within SPORRAN.

#### SPORRAN Action

- ***MS-LOT to forward strategic issues to the Ministers on the structure, role and resourcing of MFRAG and SPORRAN***

### 3.3 GBBGU and collision risk

MT stated that population impact was what monitoring should be focused on, arguing that even with collision incidents the population can be sustained. AR responded that population estimates are difficult to establish and that collision and displacement effects are much easier to prove and that these could then link back to population.

AM expressed concern that collision was not being directly addressed in Table 1. JW answered that it was addressed in Table 3 as a strategic question, and that it could be answered through a forum similar to ORJIP. RM responded that collision had to be a strategic question as individual wind farms could not study it. MT suggested that an index of collision likelihood was more useful than measuring collision directly as the recording equipment was not deployable everywhere, hence collision impact could not be measured. ID suggested an ORJIP clone in the MF where the key issue was GBBGU. It was highlighted that the likelihood of recording any collisions in the MF would be very low. AM suggested that this issue could be explored using collision risk modelling ('directing the question to the model'). ID then enquired if the best way to study collision would be through the investigation of avoidance rate. MT replied that a behavioural response would be more useful and ID stated that it would also be more deliverable. ID clarified that direct collision measurements were not to be taken in the MF.

### 3.4 GBBGU and connectivity

MT highlighted that the key question was to establish the connectivity with SPAs, but RM2 noted that connectivity had not been proven yet (from the 2014 gull tagging studies) so the main question was 'connectivity to where'. ID noted that the assessments had considered connectivity to the ECC SPA and therefore it should be the starting point.

SO mentioned there was a Baltic Sea study being undertaken on red-throated divers where the birds were caught from boats, so the possibility of catching gulls within the wind farm sites was a realistic idea. There was discussion of various issues associated with tagging. ID confirmed that the monitoring questions would need to be defined before their methodologies and asked whether the connectivity questions were reasonable which was agreed. LR queried whether there would be a definite focus on the ECC. ID confirmed it would be.

ID asked whether the gull tagging study established connectivity to the wind farms and if the study was representative. CR confirmed that the study was focused on the southern part of the ECC SPA for a number of reasons (including distribution and accessibility) but that more information would be provided in the final report. ID noted that this would be discussed further after the report was finalised.

### 3.5 Displacement effects and power analysis

JW clarified that the reasoning for questions 1.07 and 1.08 was that puffin was a key species to consider, and that displacement for auks was considered 60% in the MORL and BOWL assessments. MT said that a lower percentage for puffin displacement rate had been consented taking into account qualitative considerations such as turbine spacing. JW agreed that turbine spacing had been taken into account within the assessments. AR noted that displacement rates would be a strategic issue and that it would probably be better studied in the F&T as they would be studying three wind farms with different turbine densities and therefore more meaningful results would be achieved. Following discussion of the sample size within the MF SO noted that a power analysis was required.

ID suggested that question 1.08 (are 60% of birds displaced from the wind farm) could be addressed in the MF and question 1.12 (displacement rate does not decline with increasing wind turbine spacing/density) elsewhere. AR confirmed that 1.08 was a key assumption for the award of consent and therefore should be monitored in the MF. RM2 stated that it would be very difficult to measure 60% displacement, and questioned whether a change in density between years could be attributed to wind farms as changes can be due to other factors such as 'natural changes'. RM2 stated that if the relationship between the results and wind farms could not be understood then it would be pointless to pursue and therefore suggested that 'change of density' should be the focus of 1.08. JW stated that this would be included in the power analysis.

MT highlighted that the inputs for a power analysis would be failure to breed, leading to what percentage was needed to cause a population change. RM2 and MT questioned the significance of 60%. AR suggested to rephrase the question in a way that would still encompass the 60% figure, as 60% was not based on anything quantitative. Following discussion there was agreement that what was relevant was the change attributable to the wind farms. JW confirmed question 1.08 should take into account displacement and re-distribution and therefore would be changed to address what can be attributed to the wind farm.

AR added that the only question associated with displacement that had not been included in the list was turnover. JW agreed that turnover could be incorporated in Table 2 or 3. ID commented that there was a project with CEH due to start very soon concerning turnover. ID asked the attendees to think about macro-avoidance and flight height (questions 1.01 - 1.32) and feedback comments.

<b>Actions</b>	<ul style="list-style-type: none"> <li>• <b><i>JW to change question 1.08 to encompass 'change that can be attributed to the wind farm'.</i></b></li> <li>• <b><i>JW to amend Table 2 or 3 to include turnover.</i></b></li> <li>• <b><i>ALL to send comments on the discussion document to JW.</i></b></li> </ul>
----------------	--

3.6 Displacement – colony counts	
<p>ID asked what else should be included in questions 1.33 - 1.36 and to consider what is feasible. JW commented that for gulls this was straightforward but more difficult for puffins. MT confirmed that we would be in better position to discuss the question after BF's meeting with Bob Sellers in January. RM2 stated that the SMP database could be checked for count records. JW noted that in some areas there are seabird productivity monitoring plots but was unsure if there were any along this coast.</p> <p>JW stated that the counts would need to be more frequent than those undertaken by SNCBs. AR stated that the plots at the ECC SPA were not for auks; rather kittiwakes, fulmars and shags. EK stated that any additional counts to those taken by SNCBs as part of their site condition monitoring duties would be the Developers' responsibility. ID stated that what needed to be determined was what plot counts would be useful and their feasibility. RM2 stated this was dependent on connectivity and queried why colonies would be counted with no connectivity other than as a control. JW stated that a population count should be a basic requirement for monitoring if feasible.</p> <p>RM2 queried whether the site condition monitoring methods were appropriate here. AR said this would be discussed at the January seabird colony monitoring meeting. CG confirmed that the next meeting could include feedback on the seabird colony monitoring meeting at which developers would not be represented.</p>	
<b>Actions</b>	<ul style="list-style-type: none"> <li>• <b><i>BF discuss gull demographics with local ringers.</i></b></li> <li>• <b><i>SNH to provide feedback on how site condition monitoring will be undertaken.</i></b></li> </ul>
4. Further discussion	
4.1 Methods	
<p>ID requested that, as item 4 (Methods Decision Process) on the agenda had not been reached, developers should bring forward their thoughts on data collection/monitoring methods for the next meeting. BOWL and MORL agreed.</p> <p>There was discussion in relation to the delivery of item 4a (Power Analysis). JW stated he had written a power analysis concept note to help reach a decision on this. RM2 stated that NPC had undertaken a power analysis for the Humber Gateway and would look into the possibility of sharing it with the group. MT added that he had also undertaken a power analysis for the Dudgeon wind farm and could possibly share it too. AR asked if a power analysis could be done for the Moray Firth reasonably soon and stated that colony monitoring at ECC SPA would require some focus. ID confirmed that when questions are clarified this can be started. AM requested that this was done in time for the next meeting which was agreed.</p>	
<b>Actions</b>	<ul style="list-style-type: none"> <li>• <b><i>BOWL and MORL to develop data collection/monitoring methods for the next meeting</i></b></li> <li>• <b><i>RM2 to confirm whether a power analysis for the Humber Gateway could be shared. MT to confirm similarly for Dudgeon wind farm.</i></b></li> </ul>

<b>4.2 Regional advisory group update</b>	
<p>JW asked for an update on the RAGs. RM responded that the RAG terms of reference were being brought together (already seen and commented on by the MF Developers) and were to be agreed at the first MFRAG meeting which may be held in February. ID confirmed that whether this group was ultimately an MFRAG sub-group for birds would be known after the first MFRAG meeting. SP wished to clarify that no new contingencies would be brought into the group after the FTRAG was established. JW confirmed there was an ornithology meeting for F&amp;T in January which would be before the MFRAG meeting. LR confirmed that the MFRAG meeting was needed as soon as possible to meet the developers' timescales.</p>	
<b>5. Next Meeting</b>	
<p>ID suggested a meeting should be arranged for the second half of February, and that comments were to be forwarded on to JW.</p>	
<b>Action</b>	<ul style="list-style-type: none"> <li><b><i>HB to organise a day for the next meeting (through doodle poll) for the 2<sup>nd</sup> half of February.</i></b></li> </ul>



# **List of Acronyms:**

BOWL	Beatrice Offshore Windfarm Limited
CEH	Centre for Ecology and Hydrology
ECC	East Caithness Cliffs
F&T	Forth and Tay
FTRAG	Forth and Tay Regional Advisory Group
GBBGU	Great black-backed gulls
GPS	Global Positioning System
JNCC	Joint Nature Conservation Committee
MF	Moray Firth
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
ORJIP	Offshore Renewables Joint Industry Programme
RSPB	Royal Society for the Protection of Birds
SNCB	Statutory Nature Conservation Bodies
SNH	Scottish Natural Heritage
SPORRAN	Scottish Offshore Renewables Research Framework