

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

<b>Meeting</b>	MFRAG Ornithology Sub-Group Meeting	
<b>Date</b>	12 <sup>th</sup> of November 2015 10:30-15:00	
<b>Location</b>	Rowan Room, SNH, Battleby,	
<b>Attendees</b>	MSS SNH  RSPB BOWL MORL Natural Power MacArthur Green Royal Haskoning	Jared Wilson (JW) Erica Knott (EK) (Chair), Catriona Gall (CG), Alex Robbins (AR), Glen Tyler (GT) - conference call Aly McCluskie (AM) - conference call Lis Royle (LR) Sarah Pirie (SP), Catarina Rei (CR) Ross McGregor (RM) Mark Trinder (MT) Ben King (BK)
<b>Apologies</b>	MS-LOT MSS JNCC BOWL	Nicola Bain (NB), Catarina Aires (CA), Jessica Drew (JD) Ian Davies (ID), Robert Main (RobM) Sue O'Brien (SO), Karen Hall (KH), Enrique Pardo (EP) Jonathan Wilson (JW2)
<b>Minutes</b>	Ben King (BK)	
<b>Actions</b>	In order to expedite the agreement of documents and discussions, a separate list of actions and main agreements/decisions was circulated on the 01/12/15. The latest version (detailing progress on closing out of actions) is provided as an appendix to these minutes (version dated 07/06/2016).	

<b>1. Introductions</b>
EK opened the meeting and introductions and apologies were made. EK highlighted that the purpose of the meeting was to progress further the discussions from previous meetings, reach a final agreement on discussion points in relation to the ornithological monitoring programme and discuss the results of recent work undertaken.
<b>2. Minutes and Actions from previous meeting</b>
<b>2.1 Terms of Reference (ToRs)</b>
It was highlighted that on occasion minutes have not been circulated within the timeframe set out in the draft ToRs and also comments have not been received within proposed timeframes proposed. MORL and BOWL suggested that circulation of minutes within two weeks of the meeting was difficult to achieve due to the large number of parties that are required to review and approve them before they are issued and finalised. It was suggested that the timescales for circulation of minutes should be extended to four weeks with a summary list

of actions and decisions circulated within two weeks. This was agreed at the meeting and this change will need to be reflected in the Subgroup ToRs.

**MFRAG-O Subgroup Decision - Agreement that a change in timescales for submission of minutes to 4 weeks of the meeting is acceptable, and that the ToRs should be amended accordingly.**

SP highlighted that the ToRs are still in draft form and there is a general lack of clarity regarding the latest version. It was suggested that the ToRs (for ornithology and other subgroups) should be finalised prior to the next meeting. Both BOWL and MORL have previously commented on the draft TORs.

<b>Actions</b>	As per Actions 1 to 6 in Action List (Appendix 1).
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**2.2 Actions from previous meeting**

*Actions from meeting of the 30/03/15 (action 4 of meeting):*

Action 5- LR to discuss existing ornithology datasets with Prof Paul Thompson and identify any missing data-**ongoing**, low priority for BOWL at this point.

Action 8- SPoRRAn to discuss non-breeding birds use of wind farms and tagging technology progression. **Ongoing**, first coordination meeting of SPoRRAn subgroups scheduled for Jan 2016. JW will be a standing member of the SPoRRAn ornithology subgroup. Seven subgroups were identified (birds, marine mammals, benthic, fish ecology, hydrology and geomorphology, socio-economics and diadromous fish). The aim of the subgroups is to create a plan for identifying data gaps, planning ways to address them (including prioritisation) and to identify funding streams. The primary output will be an evidence plan and the primary focus will be on strategic monitoring. The Renewables Industry is represented on SpORRAn via Scottish Renewables, however, individual developers may be invited to attend meetings when appropriate. It was suggested (SP) that in order for MFRAG-O to feed into SPoRRAn there should be a regular tabled item on the MFRAG-O meeting agenda to allow developers to be informed on decisions/progress from SPoRRAn. JW noted that there would be opportunity to provide updates within the MFRAG meetings and that the outputs from SPoRRAn would also be available through the Marine Scotland website.

Action 12- JW to open communication with Liz Masden about tagging studies that have already been done and the current state of tag technology - **No outstanding actions**.

Action 13- AR to look into feasibility of undertaking pellet survey as a way of gathering suitable data - **Ongoing**

*Actions from meeting on the 03/07/15:*

Agenda Item 4.1- AR to provide information about the plot locations including a summary of the survey and an outline of the results to inform further discussions on the suitability of monitoring locations. Report currently being QA'd. Expected to be released by the end of 2015 or early Jan 2016.- AR to circulate link to report when finalised. **Ongoing action**.

Agenda Item 5:

- ID to investigate document storage provision and ensure minutes and other key documentation agreed in the Group are made publically available. - JW to follow up with RobM regarding getting MFRAG-O document links on website. – **Post meeting note** – MFRAG documents now available online through <http://www.gov.scot/Topics/marine/Licensing/marine/scoping/mfrag>
- JW to contact Robin Sellers (RS) to ask if he would attend an MFRAG-O meeting to discuss his gull work and attempt to develop links. - RS invited to attend current meeting (participating in the afternoon session). **Action complete.** Further discussion of actions to be reviewed after RS talk.
- All to review Adam Cross’ PhD thesis on camera monitoring of puffin colonies. Adam Cross’ PhD was reviewed by MFRAG-O members. MT highlighted that camera monitoring could be viable but would require ‘the right setting’ and probably was not relevant for the ECC and NCC SPAs. AR noted that there was one area within the ECC SPA which could be a potential monitoring site with NCC SPA potentially used as a control site (but would need a good field of view). The methodology described within Adam Cross’ PhD could be the only viable way of monitoring puffins at ECC and NCC SPAs.
- LR to confirm if SSE has any commercial/ HSE constraints in providing rings to Robin Sellers.. - LR confirmed that it should be acceptable to provide rings from a HSE perspective. **Action complete.**
- RM to undertake a power analysis to inform MORL’s pre-construction survey plans. – Discussed under agenda item 4.
- Developers to update Monitoring discussion document. – Discussed under agenda item 5.

Agenda Item 6 - MT to analyse and report on BOWL aerial surveys. – Discussed under agenda item 3.

Agenda Item 7- JW to provide update on tag summary review and invite MFRAG-O members to workshop. SP noted that Catapult was not able to fund workshops but would provide support to identify possible funding streams. **Ongoing action.** - Discussed under agenda item 7.

**General item:** JW noted that minutes should reflect group decision rather than individuals. There was a general agreement that minutes should clearly highlight where group consensus has been reached. SP noted that if this to be the case, minutes would need to be more formal in terms of outlining agreements. Meeting agendas should also clearly identify items that are being discussed to seek approval and minutes should also clearly highlight group decisions. An initial list of actions and general agreements made should be circulated within two weeks of meetings, followed by minutes within four weeks. The group is then to provide comments on minutes within three weeks- **general agreement from the group that these should be the procedures with regards to drafting, issuing and approval of minutes and actions/group decisions going forward.**

<b>Actions</b>	As per Actions 7 to 25 in Actions List (Appendix 1).
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### 3. BOWL Aerial Survey 2015 Reports

#### 3.1 Presentation of survey results

MT presented the results of the BOWL 2015 Aerial surveys, which were detailed in the report circulated prior to the meeting (Beatrice Offshore Wind Farm Pre-Construction Aerial Survey report, dated 30 October 2015).

BOWL are seeking to finalise the report ASAP. MT requested that comments on the report should be submitted in writing to BOWL within two weeks of the list of actions and decisions/main agreements being circulated.

**3.2 Group discussion of survey results**

MT confirmed that data on age of gulls and gannets had not been studied but could be extracted from existing survey data. GT queried the quantities of combined guillemot/razorbill numbers and AR highlighted that the razorbill numbers in survey 3 were very different from the remaining five surveys.

Survey 6 showed a large increase in puffin numbers in August, indicating a clearly defined distribution pattern as birds disperse post-breeding.

MT noted that the flight heights were estimated with wide confidence intervals which limits the conclusions that can be drawn from the data. JW commented that Marine Scotland are investigating the possibility of using Lidar (Light detection and ranging) as an improved way of measuring flight heights during aerial surveys. MT to discuss this with Hi-Def in relation to improving flight height data estimation methods for future surveys.

For key species of interest (large gulls and puffin) the flight direction sample size was small, especially for birds within the wind farm and buffer This limits the conclusions which can be drawn on connectivity with ECC SPA, however the fact that sample sizes were small also indicates such connectivity is likely to be low anyway.

GT asked if a multiple year approach would provide more data and increase the available power as the updated power analysis indicated that the power to detect change had fallen to 73%, slightly below the 80% target. JW added that the available power will also be important in identifying the number of years of post-construction monitoring needed. A clear hypothesis would be required in order to design a suitable post-construction monitoring programme. Habituation is likely to be difficult to predict given the current unknowns. It was agreed that additional justification in support of a single year of pre-construction surveys would be included in the revised report.

LR noted that BOWL’s first year of post-construction monitoring programme would take place during the 2019 breeding season after the first phase of construction and continued in 2020 after the second phase of installation.

<b>Actions</b>	As per Actions 26 to 28 in Actions List (Appendix 1).
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**4. Group Discussion and Agreement on Principles Presented in MORL’s Aerial Survey Power Analysis**

RM provided a summary of MORL’s Power Analysis report.

The group discussed the availability bias correction that Hi-Def would apply to puffin detections and whether this would result in under-estimating the numbers underwater and so potentially overestimating the available power. MORL clarified the approach taken.

RM outlined that the report concluded that there was sufficient power to detect a 30% change from 3 surveys during pre- and post-construction. It was highlighted that the MORL power analysis was used to determine the minimum sample size needed to detect a 30% change and the conclusions do not represent the final decision on the survey programme.

JW asked if the report could expand on the constraints/assumptions of the analysis. It was explained that MORL will design the survey programme around the agreed questions. The power analysis showed that power was not a constraint as sufficient data could be collected from 3 pre- and 3 post-construction surveys. MORL asked for feedback that the methodology used for the power analysis was acceptable and are looking for agreement that the results are correct.

**Actions**

As per Actions 29 to 31 in Actions List (Appendix 1).

**Lunch**

**6. Colony monitoring (with Robin Sellers) [note: agenda item 5 discussed after agenda item 6]**

**6.1 Presentation – by RS**

RS described the monitoring he has undertaken in Caithness between 1992 and 2015. The monitoring included great black-backed gull, herring gull, fulmar, shag, kittiwake, and guillemot, however not all species were monitored in all years. RS explained the survey methods followed and the reports produced over this period. Discussions centred on monitoring of great black-backed gull and herring gull. Great black-backed gulls were not monitored in colonies that were ringed. Herring gull monitoring included roof-nesting birds in Thurso (12 AON) and Wick (239 AON).

Cliff nesting seabird colonies appear to have been monitored over the past 3 years using digital photography, although this is still to be confirmed when RS’s monitoring reports become available.

**6.2 Discussion on presentation**

RS noted that many seabird colonies have been declining and that the decreasing size of the colonies has made monitoring increasingly difficult. As a result decreasing numbers of great black-backed gull chicks have been ringed each year.

Declines in great black-backed gull productivity and survival may explain the decline, but RS is unsure of the causes.

RS added that the ringing work is due to end soon. His next steps are:

- Writing up results of great black-backed gull monitoring;
- Writing up results of cormorant monitoring;

- Writing up results of roof nesting gulls monitoring at Wick; and
- Writing up results of a general review of birds in Caithness (although this last work is probably not to be completed soon).

It was noted by the Group that RS has put a significant amount of effort into his monitoring and he has yielded a large amount of interesting data. It was agreed that should the Group wish to contact RS again regarding his work, this would be done via a single point of contact in the Group. It was agreed that this contact would be JW.

<b>Action</b>	As per Actions 32 to 36 in Actions List (Appendix 1).
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## 5. Group discussion and agreement on the monitoring strategy for BOWL and MORL (discussion paper)

### 5.1 Monitoring Strategy

BOWL and MORL are seeking final approval on timings and frequency of monitoring for inclusion within their final PEMPs. JNCC provided comments on the Outline Monitoring Strategy Programme discussion document prior to meeting.

#### ***Pre-construction aerial surveys:***

##### *Representativeness*

There was a group discussion around 'representativeness' (following on a comment from JNCC on pre-construction surveys). There was a general agreement that it is not possible to define a representative year and this could only be undertaken after surveys were completed, thus leading to the potential requirement for open ended surveying. **It was agreed by the group that it would be impossible to take representativeness into consideration when designing and undertaking a survey programme.**

##### *Connectivity with SPAs*

There was a group discussion on whether connectivity could be dismissed based on data at this stage. If there was agreement that data showed a lack of connectivity between the wind farm(s) and the breeding colonies it would not require further consideration. BOWL completed 1 year of pre-construction data in 2015 and stated that 1 year of survey data should be sufficient to support the analysis of displacement of puffin. GT stated that he agreed that BOWL's report supported the assumption of no connectivity but there would need to be more comparison with previous baseline studies to determine whether one year of pre-construction would be enough (see Action 28 in Appendix 1).

RM highlighted that MORL's report showed that 1 year of pre- and post-construction surveys would provide sufficient power to detect a 30% change in puffin abundance in the wind farm. In addition MORL already hold a year of pre-construction aerial data collected as part of the baseline study.

##### *Pre-construction methods*

MORL and BOWL highlighted that an agreement is required on pre-construction survey methodology in order that the project PEMPs can be finalised. JNCC will have an opportunity to comment following this meeting and

it was agreed that developers will draw up a list of specific questions for JNCC which will be included within the action list to be circulated after the meeting and appended to the minutes (see Appendix 1). JNCC will have two weeks to respond to actions. Those present were requested to voice their opinion during the meeting.

**Group decision on pre-construction aerial surveys - SNH, MSS and RSPB indicated they were generally happy with the principle of pre-construction aerial surveys as laid out in the Outline Monitoring Strategy Programme table.** JNCC to confirm position after meeting (Action 40 in Actions List in Appendix 1).

***Post-construction surveys:***

*Gull tagging*

LR noted that BOWL is proposing that the first year of tagging should take place in the season following commission (which would be 2020). The results of this study would be used to determine whether further studies would be necessary. There was a general agreement that the tagging monitoring strategy was acceptable as detailed in the discussion document and that talks would progress separately about other forms of monitoring.

**Group decision on gull tagging - all present were happy with the gull tagging strategy as currently detailed in the Outline Monitoring Strategy Programme document.** JNCC to confirm position after meeting (Action 41 in Actions List in Appendix 1).

*Colony monitoring*

There is still uncertainty as to whether there is connectivity between ECC gull interests and the wind farms. This will be further investigated in the 2020 gull tagging programme. It was suggested that the Outline Monitoring Strategy Programme document table should mention that gull tagging studies and the aerial survey work will be used to investigate connectivity. Therefore, at present, it is uncertain whether colony monitoring will be necessary to investigate wind farm impacts on gull species and this matter will also be kept under review. In the meantime, SNH will circulate the data for 2015 once the SPA monitoring report is available for issue.

As at previous meetings, the developers highlighted that they considered the Forth and Tay to be a more appropriate place to monitor for wind farm impacts on puffin given the difference in available data and colony access. JW noted that this had not been agreed between all parties and that the Moray Firth monitoring strategy would still need to mention puffin. EK suggested that MORL and BOWL add some text in the monitoring table to include puffin, but noting that the opportunities for colony monitoring may be limited in the Moray Firth. It was agreed that this issue will be further considered following circulation of SNH's 2015 monitoring report for ECC and NCC SPAs (see actions 11 and 36 in Appendix 1).

**5.2 Format of monitoring strategy document**

It was agreed that fully defined monitoring plans will no longer be discussed within a joint document, but will form the basis of projects PEMP, which would be based on the principles agreed within the outline monitoring table.

JW queried the use of 'maximum' in reference to 3 years of post-construction survey (as it could be assumed that this was the agreed monitoring period which was incorrect). SP noted that the use of 'maximum' was related to the period in which a review of the monitoring strategy would be undertaken. Previous wind farm



projects have undertaken 3 years of post-construction surveys and then reviewed the need for further studies. There would need to be a discussion on what questions have been answered and what questions would need to be considered further as monitoring progressed. JW suggested that the wording should be updated to reflect that a review would be undertaken after 3 years of monitoring.

SP suggested that going forward the agreed principles should remain within the table and that this should form the basis of publically available documents (within Marine Scotland’s website). **It was agreed that BOWL and MORL would update the discussion document as discussions progress and the detailed monitoring strategy would be included within respective PEMPs.**

**Post-meeting note added at the request of SNH and JNCC (in email dated 27/05/2016)**

While SNH and JNCC have made comment on the power analyses carried out to inform pre-construction survey design for seabird interests, these comments were given without prejudice to any future advice on the amount, frequency and duration of post-construction survey work. The discussions are still ongoing, to be resolved at a later date once the timings of, and any overlap between, BOWL and MORL construction programmes is better understood.

<b>Actions</b>	As per Actions 37 to 46 in Actions List (Appendix 1).
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**7. Any Other Business**

**7.1 ORE Catapult**

SP provided an overview of the ORE Catapult project on tagging technology.

ORE Catapult has accepted to manage the project and is looking to have commercially tested tags by 2017. Funding streams are currently being investigated.

ORE Catapult will be releasing a draft of technical requirements and undertaking a commercial assessment shortly based on a review of development priorities. RM will be undertaking a review of existing literature.

<b>Action</b>	As per Action 47 in Actions List (Appendix 1).
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**7.2 Timing of next meeting**

BOWL indicated that their preference would be for the next meeting to be after their PEMP submission (which was likely to be in Q1 2016). JW noted that this would coincide with initial evidence plans from SPoRRAn which would be useful. There is potential for a meeting with all Moray Firth and Forth & Tay developers to discuss outputs of SPoRRAn if required.

**It was agreed that the group will work through the actions from this meeting and BOWL and MORL will discuss with ID the timing for the next meeting. A date for the next meeting will be finalised through doodle poll (issued by the secretariat).**

<b>Action</b>	As per Action 48 in Actions List (Appendix 1).
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**List of Acronyms:**

AOB	Apparently Occupied Burrows
AON	Apparently Occupied Nest
BOWL	Beatrice Offshore Windfarm Limited
ECC	East Caithness Cliffs SPA
JNCC	Joint Nature Conservation Committee
MFRAG	Moray Firth Regional Advisory Group
MFRAG – O	Moray Firth Regional Advisory Group – Ornithology Subgroup
MORL	Moray Offshore Renewables Limited
MSS	Marine Scotland Science
MS-LOT	Marine Scotland Licensing Operations Team
NCC	North Caithness Cliffs SPA
OWF	Offshore Wind Farm
PEMP	Project Environmental Monitoring Programme
RSPB	Royal Society for the Protection of Birds
SPA	Special Protection Area
SNCB	Statutory Nature Conservation Bodies
SNH	Scottish Natural Heritage
SpORRAn	Scottish Offshore Renewables Research Framework
ToR	Terms of Reference