

MORL/BOWL POST-CONSENT MONITORING DISCUSSIONS MEETING MINUTES

Meeting	MFRAG Marine Mammal Sub-Group Meeting	
Date	17/11/2016 11:00-15:00	
Location	Marine Scotland, Aberdeen	
Attendees	MSS	Jared Wilson (Chair), Kate Brookes (KB), Robert Main (RM), Laura Williamson (LW)
	SNH	Catriona Gall (CG), Caroline Carter (CC)
	JNCC	Sarah Canning (SC)
	WDC	Fiona Read (FR)
	BOWL	Nick Brockie (NB)
	MORL	Sarah Pirie (SP), Catarina Rei (CR)
	University of Aberdeen	Paul Thompson (PT), Isla Graham (IG)
	RPS	Tessa McGarry (TM) – conference call
Apologies	MS-LOT	Nicola Bain
	MSS	Ian Davies
	SNH	Erica Knott
	JNCC	Sonia Mendes, Karen Hall
	BOWL	Lis Royle
Actions	<ol style="list-style-type: none"> SNH / MS-LOT to confirm which licensing authority would issue the licence for the ADD playback studies prior to piling at BOWL. WDC to provide comments on BOWL's construction MMMP by the 25 November 2016. 	

1. Introductions and purpose of meeting
<p>Introductions were made and it was highlighted that the main purpose of the meeting was to discuss BOWL's construction Marine Mammal Monitoring Programme (MMMP) with MFRAG-MM, as well as to share project updates from BOWL and MORL.</p>
2. Minutes of previous meeting (15th December 2015)
<p>A review of the actions from the previous meeting was undertaken.</p> <ol style="list-style-type: none"> RM to confirm JNCC response and to provide details KB to remind MS-LOT to provide confirmation on developer monitoring requirements to meet consent condition requirements RM still to finalise ToRs JNCC will review engagement with MFRAG following completion of their organisational review Action is ongoing

All other actions are closed.

No comments were provided on the latest version of the minutes (circulated prior to the meeting) and therefore the MFRAG-MM considered them as Final.

3. Project Updates

3.1 BOWL

An update on BOWL's project was provided by NB.

Key programme milestones:

- BOWL is currently carrying out a UXO survey campaign within the wind farm and has a licence to remove any UXO found;
- The EPCI contractors have been confirmed;
- The onshore works have started at the Blackhillock substation;
- Boulder clearance along the inter-array cable route is due to take place during February 2017. It is expected that approximately 10-20% of the cable route will require boulder clearance.
- HDD commencement at landfall is scheduled for March 2017.
- Final commissioning is planned for October 2019.

Consent plans update:

- Most plans already discharged, including wind farm Construction Method Statement (CMS), wind farm Construction Plan and wind farm Cable Plan (CaP);
- Plans currently being discharged include Offshore Transmission Works (OfTW) CMS and OfTW CaP.
- Some plans will be updated and MS-LOT will provide guidance on requirement for further consultation to approve updated plans.

Other project details:

- The offshore construction will start with the installation of piles, jackets and OTM topsides (April 2017 to January 2018). 'Stanislav Yudin' (floating heavy lift vessel with 8 point anchor mooring spread c. 1500 m) will be undertaking piling activities.
- The array cable installation will be carried out by Siem Offshore. 140 km of inter array cable will be buried (0.6 – 0.8 m target burial depth) through jetting techniques. It has been estimated that the time between cable lay and burial could take' days to week's. Guard vessels will be used as required.
- The jackets will be transported from Burntisland, Belgium and Denmark and will be installed between July 2017 and August 2018. The vessel 'Oleg Strashnov' will undertake jackets installation.
- The wind turbines will be assembled in Nigg and installed onsite between July 2018 and March 2019. The 'Pacific Orca' vessel will undertake wind turbine installation.
- The OfTW cable installation will be undertaken mainly through jetting apart from the last 10 km nearshore where ground conditions require a combination of jetting, surface lay and rock armouring and mechanical trenching. The 'Nexans Skaggerak' vessel will undertake the cable laying operations.

3.2 MORL

An update on MORL's project activities was provided by SP.

Eastern Development Area (EDA):

- An announcement on the round 2 of Contracts for Difference (CfD) auction was made on the 9 November.
- The results of the auction are expected between June and August 2017.
- Ongoing project activities include: production of a Supply Chain Plan (to be submitted in January 2017) as part of eligibility to participate in the CfD auction, discussions with investors and funders, selection of preferred bidders (EPCI contracts), refinement of project procedures and procurement of ongoing Construction Management Services.
- Discharge of consent conditions work include: finalisation of Piling Strategy (currently being reviewed to address stakeholder comments received on first draft) - submission currently scheduled for January 2017; drafting of the Project Environmental Monitoring Programme (PEMP) - consultation targeted for early 2017; and Environmental Management Plan (EMP) – likely to be consulted on in late Q1 2017.
- Strategic research work – ongoing set up of Project Tag. This project has been created to support the development of tag technology for large gulls. The project will be managed by ORE Catapult with funding from MORL, BOWL, Marine Scotland Science (MSS) and Highlands and Highlands Enterprise (HIE). The project is currently scheduled to kick off in December and to run for about 6 months.

Western Development Area (WDA):

- Scoping launched in May 2016 for the WDA wind farm infrastructure.
- The consultation period was completed in August 2016. A total of 23 responses were received, including seven from statutory stakeholders. A further 20 stakeholders were consulted.
- Public exhibitions were held in Wick, Helmsdale, Buckie and Fraserburgh during August 2016.
- Pre-application consultations are ongoing with National Grid and SHE-Transmission regarding onshore connection point.
- Ongoing procurement for the WDA EIA work. The scoping for the transmission infrastructure is due to commence in Q1 2017.

4. Presentation of Pre-Construction MMMP outcomes, Year 2 & Year 3

An overview of the pre-construction Strategic MMMP for the Moray Firth was provided by PT.

The pre-construction MMMP started in May 2014 and two full years of monitoring have now been completed. The third year is ongoing.

The pre-construction MMMP consists of two main work packages (WP): harbour seal monitoring and bottlenose dolphin monitoring.

Harbour seal WP main findings to date:

1. Individual based studies of vital rates:

Loch Fleet was selected as the main study area for the harbour seal studies. At Loch Fleet there are

now eleven years of baseline data available on reproductive success and survival. There are over 250 recognisable harbour seals in the population with seal numbers increasing significantly between 2006 and 2015.

2. Trends in Abundance

The number of Loch Fleet haul out counts has increased steadily since 1998 [as shown in a graph in the presentation].

3. Characterisation of foraging areas

Harbour seal tagging was undertaken over two campaigns in September 2014 and February 2015. The results show some individuals foraging outwith the Moray Firth (including the Pentland Firth and Orkney), however there is uncertainty on why those specific individuals have chosen to forage so far away. The results also show very limited foraging activity within the wind farm sites.

Tracking undertaken in the early 2000s had indicated higher foraging activity within the wind farm sites. These data were used in the wind farm Environmental Statements (ESs) and therefore if the assessments were to be undertaken now the results would be different.

Bottlenose dolphin WP main findings to date:

1. Individual based studies of vital rates

There are now 27 years of baseline data available of bottlenose dolphin monitoring in the Moray Firth. Vital rates are more difficult to study in bottlenose dolphins than harbour seals because calves are more difficult to record. Fecundity rates need to take into account the probability of seeing a calf in the year that it was born.

2. Abundance trends in the SAC

The long term datasets of bottlenose dolphin within the SAC show a population that is stable. Combining the Moray Firth data with Forth and Tay data collected by SMRU provides a more robust estimate of abundance for the entire East coast population. There is evidence that the East coast bottlenose dolphin population is slowly increasing.

3. Baseline occurrence of dolphins

Ten years of monitoring at core sites is now available for bottlenose dolphins with four summers of data at additional sites within the Moray Firth south coast. Data shows that bottlenose dolphins' frequency varies significantly throughout the year at the Sutors, but are more frequent between April and December. Within the Spey Bay dolphins are slightly more frequent over the summer months.

FR asked when BOWL's export cable works was due to take place. NB replied that it would be over several months, including the summer (2017 and part of 2018).

5. Presentation of BOWL Construction MMMP – detailed monitoring plans

PT provided an overview of the monitoring programme designed to take place during BOWL's construction

works.

The aims of the monitoring are to assess impacts of construction on harbour seal and bottlenose dolphins and to collect data to validate / optimise frameworks used to support Habitats Regulations Assessments and consenting of alternative approaches to marine mammal mitigation during piling.

The construction MMMP has four WPs:

- WP1 (harbour seal monitoring), WP2 (bottlenose dolphin monitoring) and WP 4 (noise measurement and modelling) aimed at assessing population consequences of disturbance.
- WP 3 (responses to Acoustic Deterrent Devices, ADD, and soft start) and WP 4 (noise measurement and modelling) focused on characterising shorter term responses to piling and ADD use.

WP3 (Responses to ADD and soft starts) aims to address the following key questions:

- To what extent are animals displaced from piling areas by ADD use prior to and during soft starts?
- How long does it take for animals to move back into the piling area during breaks in piling?
- How do levels of response and return times vary in relation to: a) habitat quality, b) time since the start of construction?

WP4 (Underwater noise monitoring) aims to address the following key questions:

- How do predicted source and near-field noise levels vary temporally in relation to changes in hammer energy?
- How do predicted far-field levels of piling and ADD noise vary spatially?
- How do predicted far-field levels vary through construction, particularly in relation to cumulative noise exposure to harbour seal?

WP3 Responses to ADD and soft starts:

- Harbour seals: The aim will be to deploy 32 GPS-GSM tags at Loch Fleet during February/March in advance of construction.
- Harbour porpoises: the aim is to undertake PAM studies to assess fine-scale changes in distribution. Two phases of work are planned for 2017. In the first phase the animals would be naïve (i.e. not used to the piling noise) whilst in the second phase animals would have already been exposed to piling noise. All the kit will be deployed during the first phase and the second phase would be more open (final design to be confirmed).
- Fine scale studies: the array design was designed based on the predicted piling sequencing at BOWL and based on the design of German studies.
- All the CPODs and noise monitoring devices will be deployed with subsurface moorings to be recovered with ROV (as there were issues previously using acoustic releases). The kit will be deployed a couple of months prior to start of piling activities.
- Broader scale studies: the design was created based on a previous seismic study design (with the seismic area becoming the 'control area'). Far field monitoring will also be undertaken in the southern Moray Firth targeted to areas used by seals.

WP4 Noise measurement and modelling:

- Noise measurements will be undertaken near-field and far-field. The far-field monitoring will be carried out in collaboration with MSS (using data from MSS's long term monitoring sites).

- The noise monitoring devices used will be 'sound trap' type. The SM2M model (previously used in a number of studies in the Moray Firth) is no longer produced and there are issues with the SM3Ms.
- ADD playbacks will be carried out prior to start of piling (and after the monitoring kit has been deployed). The UoA would aim to apply for a research licence to carry out the ADD playbacks at the end of November / early December.
- The underwater noise modelling will be carried out by CEFAS following the approach used in the inner Moray Firth (Nigg harbour piling) and for MORL's Piling Strategy assessment.
- A detailed risk assessment for the monitoring work was carried out by the UoA. The main risk is 'timing', i.e. additional costs may be incurred in case of delay in the piling activities. The risk of 'not enough resourcing' has been mitigated with an additional PhD student placement (focused on seal studies) and one additional staff has been hired to carry out data processing.
- Another currently unknown risk is the ability to maintain the bottlenose SAC site monitoring given potential access restrictions through implementation of safety zones from ship-to-ship oil transfer activities proposed by Cromarty Firth Port Authority.

It was suggested at the meeting that ADD playback studies licence would be issued by SNH, nevertheless confirmation would be required from SNH / MS-LOT.

RM confirmed that no Marine Licence would be required for the monitoring kit moorings as they will be subsurface and therefore will not affect navigation

SNH queries / comments on the construction MMMP:

- CC enquired why using 'peak-to-peak' noise measurements and not just 'peak'? PT replied that this reflected previous reports but that 'peak' could also be provided. It is also worthwhile noting that a distinction would also be required between 'impulsive noise' and 'continuous noise'.
- CC asked further about the risk of the CPODs' buffer 'filling up' due to piling noise (particularly for the CPODs located very close to the piling events). IG replied that this is an issue currently under discussion but that there are ways to reduce this risk. KB added that this was not a problem during the seismic surveys.

MSS queries / comments on the construction MMMP:

- KB enquired if during the pre-piling testing of the kit (ADDs, CPODs and noise recorders) would there be vessels in the area. NB confirmed that there will be vessels undertaking cable corridor clearance prior to the deployments. KB enquired further about potential issues with baseline and PT replied that the activity will be characterised as best as possible.

JNCC queries / comments on the construction MMMP (provided by SC on behalf of Sonia Mendes):

- SC enquired about changes in bottlenose dolphin activity but PT replied this was predicted to be unlikely, but acoustic monitoring on the south coast was in place confirm that displacement did not occur.

No further queries were provided and it was agreed that WDC would provide comments within a week.

The MFRAG-MM subgroup agreed that further updates on the construction MMMP would be provided at key stages through BOWL. No specific date was agreed for the next meeting but it was suggested that it could take place prior to start of Phase 2 of monitoring (i.e. around mid-July). Confirmation on the date for the next meeting will be provided through the MFRAG-MM secretariat as required.

Actions	<ul style="list-style-type: none"> • <i>SNH / MS-LOT to confirm which licensing authority would issue the licence for the ADD playbacks studies prior to piling at BOWL. COMPLETED – it is SNH</i> • <i>WDC to provide comments on BOWL’s construction MMMP by the 25 November 2016.</i>
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6. Moray Firth extension of the DEPONS model - update

NB explained that the initial DEPONS model did not include the Moray Firth and that BOWL had commissioned Aarhus University to extend the model so that the Moray Firth was included.

The work was undertaken using summer harbour porpoise data collected by University of Aberdeen for a previous DECC funded study. There was some scaling of the data required to make it consistent with the wider model domain but the work had now been completed.

TM enquired what data modelling / calibration was undertaken. PT said that the project report had been delayed because of new data showing reduced response times that better reflected understanding of harbour porpoise behaviour.

KB asked if BOWL’s piling data would be used to update the model. PT confirmed that these data should be available if funding is available for Aarhus to incorporate them. PT added that it would be worthwhile to expand the DEPONS model to harbour seal. There is an ongoing piece of work comparing the Seal Assessment Framework and iPCoD which should be completed during Q1 2017.

The DEPONS project report is due to be published in early 2017.

7. SpORRAn update

An update on SpORRAn activities was provided by MSS (RM, JW and KB).

All the seven SpORRAn specialist groups have now met at least once. The main SpORRAn group met last week and it was agreed that the evidence maps for all the subgroups will be finalised by January 2017 to feed into the Scottish Govt. strategic research programme such that potential funding streams can be identified for specific projects (through Contract Research Funding, CRF, or NERC for example). Webpages will be set up

within the Marine Scotland website detailing the evidence maps and any projects identified through SpORRAn.

The marine mammal evidence map will be provided by Aquaterra. No drafts have been reviewed by the marine mammal specialist group yet.

JW stated that NERC may coordinate the programme of research under SpORRAn. SpORRAn is also looking for ecosystem scale projects. PT expressed concern that SpORRAn does not appear to take a holistic view of research programmes. JW responded that the process is intended to target funds where research projects are required.

List of Acronyms:

ADD	Acoustic Deterrent Device
BOWL	Beatrice Offshore Windfarm Limited
CaP	Cable Plan
CfD	Contract for Difference
CMS	Construction Method Statement
DEPONS	Disturbance Effects on the Harbour Porpoise Population in the North Sea
EDA	Eastern Development Area
EIA	Environmental Impact Assessment
ES	Environmental Statement
iPCoD	Interim Population Consequences of Disturbance
JNCC	Joint Nature Conservation Committee
MMMP	Marine Mammal Monitoring Programme
MFRAG	Moray Firth Regional Advisory Group
MFRAG – MM Subgroup	Moray Firth Regional Advisory Group – Marine Mammals Subgroup
MORL	Moray Offshore Renewables Limited
MSS	Marine Scotland Science
MS-LOT	Marine Scotland Licensing Operations Team
OfTW	Offshore Transmission Works
PAM	Passive Acoustic Monitoring
PEMP	Project Environmental Monitoring Programme
PS	Piling Strategy
SAC	Special Area of Conservation
SNH	Scottish Natural Heritage
SpORRAn	Scottish Offshore Renewables Research Framework

SMRU	Sea Mammal Research Unit
ToR	Terms of Reference
UoA	University of Aberdeen
UXO	Unexploded Ordnance
WDA	Western Development Area
WDC	Whale and Dolphin Conservation
WP	Work Package