

### **Construction Marine Mammal Monitoring Programme for the BOWL and MORL Windfarms**

#### ***Background***

Following widespread stakeholder discussion, it was agreed that the Marine Mammal Monitoring Programme (MMMP) required under the BOWL and MORL Wind Farm Section 36 Consents and Marine Licences should be carried out as part of a broader strategic research and monitoring programme (as detailed in the relevant consent conditions).

The two-year pre-construction phase of the MMMP was initiated in May 2014, and has been conducted by the University of Aberdeen in collaboration with the University of St Andrews' Sea Mammal Research Unit. The MMMP has been 50% funded by the developers, with additional contributions from Marine Scotland, The Crown Estate, Highlands & Islands Enterprise and the Universities of Aberdeen and St Andrews.

As agreed by the MFRAG, this pre-construction MMMP has collected baseline data on the distribution, abundance and vital rates for the two priority species (harbour seals and bottlenose dolphins) during 2014 and 2015. The rationale and background for this programme, together with proposals for the construction phase of monitoring were presented to MFRAG in June 2015 (Ref 1).

These proposals have since been extended to monitor the effectiveness of the Acoustic Deterrent Devices (ADD) that will be used to mitigate impacts on marine mammals as outlined in the BOWL Piling Strategy (Ref 2) (which are in line with the MORL proposals to be included in the MORL Piling Strategy). That document also outlined plans for monitoring noise emitted from both ADDs and pile-driving that will provide important context for evaluating marine mammal responses to different phases of the construction programme.

The main purpose of this paper is to provide the MFRAG with an overview of recent progress and future research and monitoring plans under the MMMP. Specifically, it aims to inform the discussion required to obtain MFRAG approval of the construction MMMP, explore funding requirements, and prioritise different elements of the work should partnership funding for all research elements of the work be unavailable.

#### ***Progress under the pre-construction MMMP***

The first annual report for the pre-construction MMMP was presented to the MFRAG in June 2015 and is now available at <http://www.abdn.ac.uk/lighthouse/publications/reports/>. Studies continued as planned during 2015, and an interim report is provided for the December 2015 MFRAG meeting as an information paper (Ref 3).

Originally, it was anticipated that construction work on both the BOWL and MORL Wind Farms would start in 2016. Changes to project timescales mean that construction on the BOWL Wind Farm will now not start until 2017, and construction at the MORL Wind Farm will be dependent upon the outcome of the UK Government's next Contracts for Difference (CfD) auction.

#### ***Key issues for consideration by MFRAG.***

- *Pre-construction monitoring under the MMMP will need to be extended for a third year (2016), during which the outcome of the CfD auction will remain uncertain.*
- *Elements of the MMMP (bottlenose dolphin population monitoring) are funded in 2016 by SNH through their SAC Site Condition Monitoring, but additional funding is required for other aspects of the programme.*

## Proposed construction monitoring under the MMMP

During construction monitoring, the MMMP proposes to use the baseline from the pre-construction MMMP to underpin a) studies of the individual responses of harbour seals to variation (intensity and duration) in pile driving noise, and b) broader scale changes in the distribution of both harbour seals and bottlenose dolphins during the construction period. For harbour seals, observed individual variation in behavioural responses and noise exposure levels will be related to changes in body condition and vital rates to test assumptions used in the ES assessment framework. Annual estimates of abundance, reproduction and survival of both priority species will be made to compare with worst case population level impacts predicted in the ES and the pre-construction monitoring baseline (see pages 11-27 in Ref 1).

Additional construction monitoring will be conducted to assess the effectiveness of ADD devices to be deployed as described in the Piling Mitigation Protocol Document (Ref 4). The outline scope for this work was presented in pages 28-31 of the construction MMMP (Ref 1), as Work Package 3. Here, it was suggested these studies should focus upon harbour seals and harbour porpoises due to their likely occurrence within the development area, with the aim of monitoring the responses of these species to acoustic deterrents and soft start procedures, and subsequent piling activity. These plans were developed further in the BOWL Piling Strategy (Ref 2). Building upon stakeholder discussion of Ref 1, this document recognised that monitoring of harbour seal responses is likely to be limited to opportunistic studies if tagged harbour seals are close to turbine sites at the onset of piling. Consequently, the plans developed in pages 80-83 of the BOWL Piling Strategy highlight that monitoring of responses to ADDs will focus on passive acoustic studies of harbour porpoises. Page 80 of that document also highlights where underwater noise monitoring should be aligned to the construction MMMP to maximise understanding of marine mammal responses to noise.

### **Key issues for consideration by MFRAG.**

- *Confirmation that the proposed scope of construction monitoring and associated research contains appropriate levels of monitoring for BOWL and MORL to discharge their Section 36 consent conditions.*
- *Feedback on the level of methodological detail required within the Construction MMMP to permit discharge of consent, and identification of any areas where more detail is requested.*
- *Opportunities for partnership funding of the strategic MMMP.*
- *Identification of priority areas for monitoring areas if the strategic MMMP cannot be fully funded.*

### References.

1. *A strategic regional Marine Mammal Monitoring Programme for assessing the population consequences of constructing the BOWL and MORL Wind Farm Developments. V2 (dated 20/05/15) sent to MFRAG on the 11/06/15.*
2. *BOWL Piling Strategy (<http://www.gov.scot/Topics/marine/Licensing/marine/scoping/Beatrice>)*
3. *Strategic Regional Pre-Construction Marine Mammal Monitoring Programme Interim Report, Nov 2015. Sent to MFRAG with Dec 2015 meeting paper*
4. *Protocol for mitigating the risk of instantaneous death or injury to marine mammals during piling at the BOWL and MORL Wind Farms. FINAL version (dated 02/10/15) issued to MFRAG on the 09/10/15*