Partners in UK offshore wind

MORGAN OFFSHORE WIND PROJECT: GENERATION ASSETS

Annex 3.5: Response to Natural England ExQ2 MM2.10 submission: Sub bottom profile surveys - clarification note

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Glossary

Term	Meaning
Applicant	Morgan Offshore Wind Limited.
Development Consent Order (DCO)	An order made under the Planning Act 2008 granting development consent for a Nationally Significant Infrastructure Project (NSIP).
Morgan Array Area	The area within which the wind turbines, foundations, inter-array cables, interconnector cables, scour protection, cable protection and offshore substation platforms (OSPs) forming part of the Morgan Offshore Wind Project: Generation Assets will be located.
Morgan Offshore Wind Project: Generation Assets	This is the name given to the Morgan Generation Assets project as a whole (includes all infrastructure and activities associated with the project construction, operations and maintenance, and decommissioning).
The Planning Inspectorate	The agency responsible for operating the planning process for applications for development consent under the Planning Act 2008.

Acronyms

Acronym	Description
ExA	Examining Authority
IPMP	In Principle Monitoring Plan
MDS	Maximum Design Scenario
SBP	Sub Bottom Profiler
SPL_{rms}	Sound Pressure Level Root Mean Squared

Units

Unit	Description
dB	Decibel
Km	Kilometres
µPa	Micro Pascal (10^{-6})

1 APPLICANTS RESPONSE TO NATURAL ENGLAND EXQ2 MM 2.10 SUBMISSION: SUB BOTTOM PROFILE SURVEYS

1.1 Introduction

1.1.1.1 This document has been prepared in response to the Natural England's submission in response to EXAQ2.10 on Sub Bottom Profiler (SBP) surveys (REP5-080). The EXA Q2 question and NE response is as follows:

1.1.2 MM 2.10

1.1.2.1 Sub Bottom Profiler Surveys In response to the ExQ1 MM 1.23 [REP4- 043, row C37] Natural England advises that there is a need for monitoring to fill the knowledge gap on the impact of SBP surveys on harbour porpoises. Natural England advises that monitoring should be considered with the aim to collect data before, during and after SBP surveys to examine changes in the baseline, and that inclusion of this monitoring in the In Principle Monitoring Plan (IPMP) would resolve this issue. The Applicant is asked if it is willing to accept the advice and include the monitoring in the IPMP. If so, please submit a revised IPMP at D5. If not, provide an explanation.

1.1.3 Natural England's response:

1.1.3.1 Natural England welcomes this request and will review the Applicant's response at the relevant deadline.

1.2 Response

1.2.1.1 The Applicant re-iterates that the impact assessment for injury and disturbance from elevated underwater sound generated from site investigation survey sources (see section 4.9.6 of Volume 2, Chapter 4: Marine mammals (S_D6_19 Volume 2, Chapter 4: Marine Mammals) concluded that there was no potential for significant effects as a result of site investigation survey sources (including Sub-Bottom Profilers (SBP)).

1.2.1.2 In light of the ongoing discussion around the need for monitoring of SBPs, and the disturbance ranges presented in Volume 2, Chapter 4: Marine mammals (S_D6_19 Volume 2, Chapter 4: Marine Mammals), the Applicant has reviewed the SBP specifications presented in the maximum design scenario (MDS) of Volume 2, Chapter 4: Marine mammals (S_D6_19 Volume 2, Chapter 4: Marine Mammals) (Table 4.16). The estimated maximum range for onset of disturbance modelled for the SBP MDS (chirp/pinger) (based on a threshold of 120 dB re 1µPa (SPL_{rms})) presented in Table 4.48 of Volume 2, Chapter 4: Marine mammals (AS-010) was modelled out to 17.3 km (all marine mammal species).

1.2.1.3 The Applicant has identified the specification of the SBP most likely to be used at the Morgan Generation Assets. The SBP specification considered to be the MDS (Table 4.16 of Volume 2, Chapter 4: Marine mammals (S_D6_19 Volume 2, Chapter 4: Marine Mammals)) comprised traditional sonar sources (chirper/pinger) with a maximum source level of 240 dB re 1µPa (Sound Pressure Level (SPL) (rms)). The SBP specification (identified as the most likely to be used at the Morgan Generation Assets, and based on site investigation surveys deployed for Morgan Generation Assets in recent surveys of Morgan Generation) comprises a parametric SBP with a maximum source level of 215 dB re 1µPa (SPL_{rms}). The Applicant would fully expect

future surveys will adopt similar specifications. This information has been shared with Natural England through discussions between Deadline 5 and 6.

1.2.1.4 The Applicant has undertaken further SBP noise modelling for a range of source levels (otherwise applying the same parameters to the same model as used in the EIA, and presented in Volume 3, Annex 3.1: Underwater sound technical report (APP-028)) which encompasses the specifications for the parametric SBP with a source level of 215 dB re 1µPa (SPL_{rms}) (see Figure 1.1).

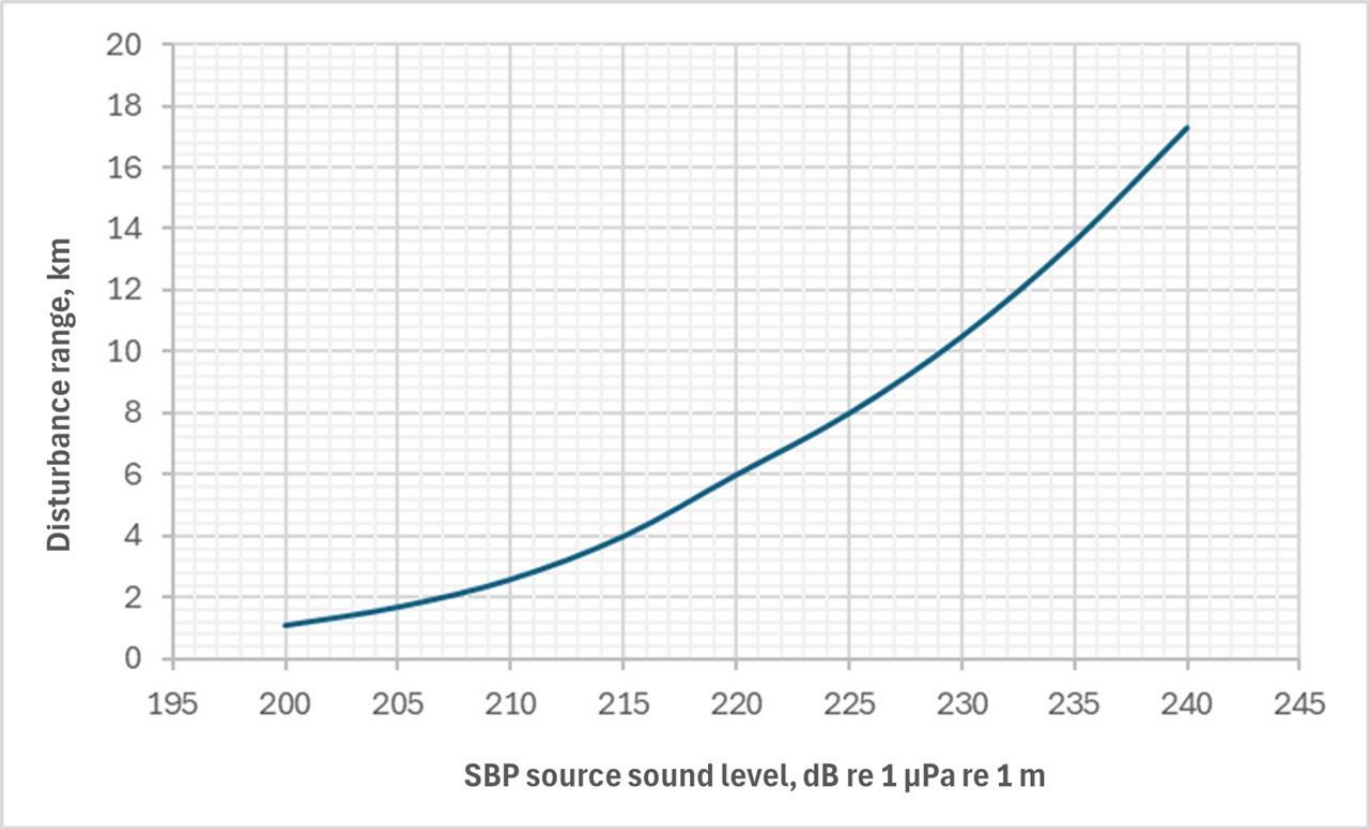

Figure 1.1: Modelled disturbance ranges for Sub Bottom Profilers (SBP) based on a range of sound source levels (dB re 1µPa²s re 1 m).

1.2.1.5 Figure 1.1 shows that for a SBP with a sound source of 240 dB re 1µPa (SPL_{rms}) estimated maximum range for onset of disturbance would extend out to more than 16 km but less than 18 km from the source (which aligns with those SBP disturbance ranges presented in Table 4.48 of Volume 2, Chapter 4: Marine mammals (S_D6_19 Volume 2, Chapter 4: Marine Mammals), representing the EIA SBP MDS. Figure 1.1 also shows that for a SBP with a sound source of 215 dB re 1µPa (SPL_{rms}) the estimated maximum range for onset of disturbance would extend out to ~4 km from the source, which is considerably smaller than the 17.3 km presented in Table 4.48 of Volume 2, Chapter 4: Marine mammals (S_D6_19 Volume 2, Chapter 4: Marine Mammals)). Furthermore, the parametric SBP identified as the most likely to be used at the Morgan Generation Assets allows for a highly focused sonar beam with minimal side lobes (preventing unwanted sound spreading through scattering), and as such it is expected that the equipment used in the surveys would have effect ranges in the order of ~4km, rather than the assessed 17.3 km (and therefore a much smaller area of effect). As such, any disturbance impacts to marine mammals would subsequently be considerably smaller than that presented in Volume 2, Chapter 4: Marine mammals (S_D6_19 Volume 2, Chapter 4: Marine Mammals)).

1.2.1.6 Natural England in their update to Natural England's Risk and Issues log at Deadline 4 stated that "the issue with the large disturbance ranges and potential displacement of harbour porpoises (Veneruso *et al.,* 2024) remains" (C37, REP5-082b). Veneruso *et al.,* 2024 refers to a presentation given at the European Cetacean Society Conference (2024). The authors presented an overview of results from monitoring of a scientific seismic survey during site characterisation of a tidal energy development. Monitoring included mean daily detection rate of harbour porpoises using acoustic recorders (in the form of porpoise positive 15 minutes). The results presented showed that mean daily porpoise detections significantly changed on the first day of the seismic survey, and displacement response lasted at least 4 days after the vessel had left the study area, which was posited by the authors as a possible sign of recovery. The authors also highlighted that published studies of porpoise response to seismic (airgun) surveys (e.g. Thompson *et. al.,* 2013; van Beest *et. al.,* 2018) have reported shorter responses compared to this study. The Applicant highlights that these studies were referenced in Volume 2, Chapter 4: Marine mammals (S_D6_19 Volume 2, Chapter 4: Marine Mammals).

1.2.1.7 The Applicant now understands that the scientific seismic survey (using a SBP) was conducted using an Applied Acoustics S-Boom DC SBP, with a maximum SPL capability of 222 dB re 1µPa (personal communication, G. Veneruso, 18 February 2025). The Applicant highlights that this SBP is a completely different type of sound source with different characteristics to the proposed SBP to be used at Morgan Generation Assets. Boomers are broadband impulsive sound sources, compared to the narrowband sinewave type character of the pingers/chirpers modelled for Morgan Generation Assets. The Applicant highlights that boomers are an older system that have been replaced by chirp systems for site investigation surveys. In addition, new mitigation guidance has emerged from the JNCC which states that mitigation is not required specifically in relation to parametric SBPs (on the condition that the device is hull mounted and the beam width is <5°) (JNCC, 2025). This advice was provided on the basis that the high frequencies fall outside the hearing range of marine mammals and attenuate rapidly and, whilst there is a secondary lower frequency signal, the beam width of parametric SBPs is very narrow, directing the source towards the seabed and therefore the risk of injury to marine mammals is likely to be negligible. Whilst the guidance is in relation to injury the same justification can be applied to behavioural effects since the area of effect is highly directional and very narrow. Therefore, the Applicant considers that the disturbance observations (and potential recovery times) presented by Veneruso *et al.,* 2024, cannot be directly compared to the modelling conducted for SBPs at Morgan, nor the likely SBP equipment that will be used for geophysical surveys at Morgan Generation Assets. As such, the Applicant considers that this survey is ill-placed to underpin the justification for the Natural England request for extensive monitoring of SBP for the Morgan Generation Assets and that, further to the evidence presented above, there are unlikely to be any effects (injury or behaviour) and therefore monitoring is not required.

1.2.1.8 In summary, the Applicant therefore maintains the position that Natural England's request for extensive monitoring to "fill the knowledge gap on the impact of SBP surveys" is disproportionate to the risk posed by SBP surveys for the Morgan Generation Assets, on the basis of the following:

- As highlighted in the Applicant's response to the ExAQ2 (MM 2.10) (REP5-015), the impact assessment for injury and disturbance from elevated underwater sound generated from site investigation survey sources (see section 4.9.6 of Volume 2, Chapter 4: Marine mammals (S_D6_19 Volume 2, Chapter 4: Marine Mammals)) concluded that there was no potential for significant effects as a result

of site investigation survey sources (including Sub-Bottom Profilers (SBP)), and therefore the inclusion of monitoring (of behavioural responses to SBPs) in the IPMP is disproportionate to the risk

  - Furthermore, given that revised modelling of SBP likely to be used at Morgan Generation Assets shows that ranges are more likely to be in the order of ~4 km rather than the assessed 17.3 km, the assessment presented in section 4.9.6 of Volume 2, Chapter 4: Marine mammals (S_D6_19 Volume 2, Chapter 4: Marine Mammals) is considered to be overly precautionary
  - Given that Natural England raised concerns with 'large disturbance ranges' in their update to Natural England's Risk and Issues log at Deadline 4 (REP4-043), the Applicant would hope that the refined noise modelling should alleviate concerns in this regard.

- The Veneruso *et al.* (2024) study which was raised in Natural England's Risk and Issues log at Deadline 4 (REP4-043) is not directly comparable to the assessment presented in Volume 2, Chapter 4: Marine mammals (S_D6_19 Volume 2, Chapter 4: Marine Mammals), nor to the SBP equipment which will be used for SBP surveys at Morgan Generation Assets, and is therefore ill-placed to underpin the justification for the Natural England request for extensive monitoring of SBP at the Morgan Generation Assets
- As highlighted in the Applicant's response to the ExAQ2 (MM 2.10) (REP5-015), the site-investigation surveys at the Morgan Generation Assets are not a licensable activity
- As stated in the Applicant's response to Natural England's submission at Deadline 5 (S_D6_03) the practicalities of conducting rigorous monitoring of the impact of SBPs are not simple, and the ability to collect a sufficiently large amount of data to make robust statistical inferences on the direct impact of SBP is low, particularly given that SBP will be operating in parallel with other geophysical survey equipment and therefore establishing links directly to SBP would pose significant challenges. Furthermore, undertaking extensive monitoring from a strategic, collaborative perspective would present the same practical and scientific challenges.

1.2.1.9 Furthermore, the Applicant understands that the MMO agrees with its position that there is no need for monitoring of SBP surveys and will be responding on this point at Deadline 6. The Applicant highlights that these site-investigation surveys are not a licensable activity and there is no precedent for undertaking monitoring for surveys of this manner for any other site investigation surveys (in relation to any type of offshore project across marine industries e.g. aggregates, cables, oil and gas etc.). Therefore, the need for monitoring of SBP surveys is not justified.