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Outer Dowsing Offshore Wind Farm

Appendix C3 to the Natural England Deadline 3 Submission

**Impacts on Supporting Habitats and Processes for Annex 1 *Sabellaria spinulosa* reef
within Inner Dowsing Race Bank and North Ridge (IDRBNR) Special Area of
Conservation (SAC)**

For:

The construction and operation of Outer Dowsing Offshore Wind Farm located
approximately 54 km from the Lincolnshire Coast in the Southern North Sea.

Planning Inspectorate Reference EN010130

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Appendix C3: Impacts on Supporting Habitats and Processes for Annex I *Sabellaria spinulosa* reef within Inner Dowsing Race Bank and North Ridge (IDRBNR) Special Area of Conservation (SAC)

Natural England's conservation advice package for IDRBNR SAC can be found within '[Designated Sites View](#)' on [GOV.UK](#). The conservation advice on site features/sub features can be found here, with further advice within the 'Supplementary Advice on Conservation Objectives (SACO)' on the attributes which are ecological characteristics or requirements of the designated species and habitats within a site. The listed attributes are considered to be those which best describe the site's ecological integrity and which if safeguarded will enable achievement of the Conservation Objectives and in turn the legally binding Marine Protected Area (MPA) target under the Environment Act 2023 as well as other UK Government commitments.

IDRBNR SAC conservation objectives apply to the site and the habitats for which the site has been designated namely Annex I Sandbanks which are slightly covered by seawater all the time and Annex I Reef (the "Qualifying features").

The objectives are to ensure that, subject to natural change, the integrity of the site is maintained or restored as appropriate, and that the site contributes to achieving the Favourable Conservation Status of its qualifying features, by maintaining or restoring:

- **the extent and distribution of qualifying natural habitats and habitats of the qualifying species**
- **the structure and function (including typical species) of qualifying natural habitats**
- **the structure and function of the habitats of the qualifying species**
- **the supporting processes on which qualifying natural habitats and the habitats of qualifying species rely**
- the populations of each of the qualifying species
- the distribution of qualifying species within the site

** Natural England has emphasised the particular objectives which relate to Annex I *Sabellaria spinulosa* reef and in particular the Conservation Objective to maintain the supporting processes on which qualifying natural habitats and the habitats of qualifying species rely.*

As well as providing information on the attributes relevant to Annex I Reef, within the conservation advice package, there is also information specifically on Subtidal biogenic reefs: *Sabellaria spp.* This can be located through clicking on the 'Reefs' drop-down list.

This information on attributes provides site context to inform designated site management measures and provide context to decision-makers on sustainable development proposals within IDRBNR SAC. Within the SACO, it is clear that not only are **Subtidal biogenic reefs** including *Sabellaria spp.* to be conserved within the designated site, but due to the ephemeral nature of *Sabellaria spinulosa* reef, '**Supporting processes**' including areas with conditions suitable for reef formation are also a key attribute included for this feature. **Under the Supporting Processes attributes there is a 'Restore' target for the environmental conditions in those locations that are known, or which become known, to be important for *Sabellaria spinulosa* reef formation.**

The physical and biological processes which, on present understanding, are needed to allow reef formation within IDRBNR SAC are in line with those set out in '*A Potential Evidence-based Approach to Defining Supporting Habitats for Sabellaria Spinulosa Reef*' [Deadline 3 Appendix C2] As highlighted in the IDRBNR SAC SACO these include favourable ground conditions, temperature, a supply of larvae, supply of sediment, supply of food, and the water movements conveying these to the reef (Further details are also included within attributes for physio-chemical properties and water movement). These attributes serve to highlight the importance of wider processes for both the distribution of reef within the site, and its ability to form.

While a combination of these processes is required for Annex I *Sabellaria spinulosa* reef establishment within the SAC, favourable ground conditions are essential to reef development. Natural England notes within the SACO that pressures from a range of human activities, including sustainable development are already limiting the availability of suitable ground conditions.

Example 1: Fisheries using bottom towed gear are active in some parts of this site. This has the potential to disrupt the establishment of new reefs, and to reduce the longevity of existing reefs. Therefore, the first step is to introduce site management measures to restore areas of known reef. Specifically, '*The Inner Dowsing, Race Bank and North Ridge Special Area of Conservation (Specified Areas) Prohibited Fishing Gears Byelaw 2022*' (Marine Management Organisation, 2022) prohibits the use of both bottom towed fishing gear and static gear within areas of Annex I Reef in the site, beyond 6nm. However, it should be noted that byelaws are not yet in place within 6nm for areas of known reef and/or new areas of identified reef (Eggleton et al., 2016) and *timelines for their implementation remain undetermined.*

Example 2: Lincs, Lynn and Inner Dowsing Offshore Windfarms (OWFs) were constructed prior to site designation, and whilst we do not believe that there was a loss of Annex I reef at that time, we consider that there was likely to have been a loss of suitable sediment for *Sabellaria spinulosa* reef establishment. This is not a direct quantitative impact on Annex I

feature extent, but the addition of hard substrate as part of the construction may have altered the environmental conditions in locations that are known, or which become known to be important for *Sabellaria spinulosa* reef formation.

The Supporting Processes attribute also clarifies that *Sabellaria spinulosa* which colonises on introduced materials, for example hard infrastructure used for cable protection, is not considered natural reef as the reef is not found on the natural soft sediments of the site and therefore does not contribute to reaching favourable condition of the feature and/or site. Statutory Nature Conservation Bodies (SNCB's) generic advice in relation to colonisation of *Sabellaria spinulosa* reef on artificial substrate being considered as Annex I reef and contributing to the favourable condition status for reef has been provided in Natural England's Relevant/Written Representation for Outer Dowsing offshore windfarm [\[RR-045\]](#). (Please see Appendix C Annex 5 page 103 of the pdf.)

Favourable Condition Status

Any reduction in the extent of *S. spinulosa* reef, or loss of suitable conditions for reef formation within IDRBNR SAC risks compromising the achievement of FCS for this feature (Johnston and Mousley, 2021). Whilst FCS relates to features within the national sites network, there is a published IDRBNR SAC condition assessment for biogenic reef which is included within Annex 2 of this document. Whilst a review of the condition assessment is required, Natural England highlights that the impacts on the site features identified in the present condition assessment remain.

Conclusion

We advise that additional non-trivial reductions to the extent of this site feature and losses of supporting processes/suitable habitat would further hinder the restore targets and therefore the ability to meet the conservation objectives for the site and the legally binding MPA target. Further, we advise that future applications should make every effort to support existing site management measures designed to meet restore conservation objectives for supporting habitat attributes. The target has been set using expert judgement based on knowledge of the sensitivity of the features to activities that are occurring or have previously occurred within the site.

It is Natural England's view that once impacts from cable installation have ceased there is a potential for Annex I *Sabellaria spinulosa* to establish over the cable (as we do for the cessation of fishing activities). However, we do not believe that there is this potential where ground conditions have or will be fundamentally changed by the lasting placement of hard infrastructure on the seabed. Therefore, unless the placement of cable protection can avoid

areas of suitable ground conditions, we advise that lasting habitat change/loss cannot be excluded. Accordingly, Applicants should, as well as presenting information on the presence and extent of *S. spinulosa*, seek to provide and appraise evidence regarding the suitability of habitats for Annex I reef development along the cable routes, where the route falls within the SAC¹. Where such evidence has not been provided, a precautionary approach for protecting suitable sediment habitat for reef establishment within the SAC should be taken.

¹ Please see Deadline 3 Appendix C2 for further advice on how to define suitable habitats

Annex 1: Site-Specific Details to Help Inform Suitable Habitat for Annex I Reef within IDRBNR SAC:

As highlighted in ‘‘A Potential Evidence-based Approach to Defining Supporting Habitats for *Sabellaria Spinulosa* Reef’ [Deadline 3 Appendix C2]’ *Sabellaria spinulosa* require high suspended sediment loads and current velocities in the range of 0.5 ms⁻¹ for optimal growth. Where higher velocity currents exist, these can begin to negatively impact upon reef-construction activities and the worm's ability to feed (Gibb et al., 2014). Tidal currents are locally strong and become complex in the approaches to The Wash (Kenyon and Cooper, 2005). The water depths are relatively shallow in large parts of the site (less than 30m below chart datum), meaning that near-bottom velocities are only slightly lower than those at the surface (Tappin et al., 2011). Strong tidal currents and wave action lead to high levels of suspended sediment (Brutto, 2009). Sotheran et al. (Sotheran et al., 2005) found some of the best examples of *Sabellaria spinulosa* reef that they encountered within the site were in areas of sandy gravel and gravel, where there was a good supply of mobile sand.

There is a central channel leading from the Silver Pit, south into the inner Wash. Suspended sediments are carried southwards along this channel, as well as east across Docking Shoal. This suspended sediment transport provides building material and a food source for *Sabellaria spinulosa* reefs, which have been recorded along this central channel at Silver Pit South and Lynn Knock, as well as on Docking Shoal (Brutto, 2009), (Roberts et al., 2016), (Foster-Smith, 2003), (Eggleton et al., 2016).

The dominant substrata of Inner Dowsing bank and many of the deeper trough and channel areas within the site are subtidal mixed sediments (Barrio Froján et al., 2013), (Tappin et al., 2011). These provide a suitable attachment substrate for *S. spinulosa* to aggregate and form a reef.

Annex 2 – IDRBNR SAC Condition Assessment

Attribute details

Inner Dowsing, Race Bank and North Ridge SAC - H1170 Reefs - Subtidal biogenic reefs: *Sabellaria spp.* - Supporting processes: areas with conditions suitable for reef formation.

Target:	Restore the environmental conditions in those locations that are known, or which become known, to be important for <i>Sabellaria</i> reef formation.		
Attribute category:	Secondary	Site discretionary:	No
Assessment date:	29/07/2019		
Baseline exists:	True	Monitoring against baseline occurred:	False
Baseline dataset reference:	(Barrio Froján et al., 2013) (HR Wallingford et al., 2002) (Ke et al., 1996); (Tappin et al., 2011); evidence of infrastructure on the seabed. These surveys can be used together to form an incomplete baseline of the attribute.		
Reference for post baseline monitoring:	n/a		
Additional data used in assessment:	Knowledge of activities occurring in the site which are damaging to the reef		
Target met?:	False	Confidence:	Low
Rationale for judgement:	Lincs, Lynn and Inner Dowsing offshore windfarms are in an area that would be likely to support <i>Sabellaria spinulosa</i> reef (Centrica Energy, 2009). Each turbine is surrounded by mattresses. This hard substrate in a sediment habitat reduces the area available which is suitable for reef formation. This is an impact for at least the lifetime of the windfarm, with recovery not expected to begin until full decommissioning occurs, and recovery is allowed to happen, therefore the target has failed. Fisheries using bottom towed fishing gear are active in the site (Department for Environment Food & Rural Affairs (Defra), 2016). <i>S. spinulosa</i> reef is considered highly sensitive to a number of pressures exerted by bottom towed fishing gear (Marine Management Organisation (MMO), 2014) for example; abrasion at the surface of <i>S. spinulosa</i> reefs is likely to damage		

	<p>the tubes and result in sub-lethal and lethal damage to the worms, structural damage to the seabed sub-surface is likely to damage and break-up tube aggregations leading to the loss of reef within the footprint of direct impact (Gibb et al., 2014). This may also lead to disturbance of the upper layers of the seabed, changes in suspended solids; direct removal of or damage too target and non-target species, and the alteration of habitat structure (Gubbay and Knapman, 1999), (Sewell and Hiscock, 2005), (Bergmann and Moore, 2001) (Catchpole et al., 2008), (Alverson et al., 1994), (Kaiser et al., 2001). Fishing effort with bottom towed gear is likely to be greatest on Lynn Knock reefs, based on information from Fisherman. There are currently Marine Management Organisation Byelaws in place within this site (Marine Management Organisation (MMO), 2014), however these byelaws do not cover all of the Sabellaria core reef within these areas of Lynn Knock. There is an MMO byelaw banning the use of bottom towed gear on Docking Shoal reef so this reef will not be subject to this pressure. Other management measures have been proposed, if these are implemented the assessment will be updated. As the byelaws do not protect all of the reef from bottom towed gear the target has failed. This assessment has been made using expert judgement based on knowledge of the sensitivity of the feature to activities that are occurring / have occurred on the site.</p>
<p>Rationale for confidence:</p>	<p>The target has been set based only on proxy information and expert judgement</p>