THE PLANNING ACT 2008

THE INFRASTRUCTURE PLANNING (EXAMINATION PROCEDURE) RULES 2010

East Anglia TWO Offshore Wind Farm

Appendix A23 to the Natural England Deadline 11 Submission

Natural England's Response to London Array OWF Year 3 Ornithological Monitoring Report

For:

The construction and operation of East Anglia TWO Offshore Wind Farm, a 900MW wind farm which could consist of up to 75 turbines, generators and associated infrastructure, located 37km from Lowestoft and 32km from Southwold.

Planning Inspectorate Reference: EN010078

7th June 2021

Natural England's Response to London Array OWF Year 3 Ornithological Monitoring Report

This document is applicable to both the East Anglia ONE North (EA1N) and East Anglia TWO (EA2) applications, and therefore is endorsed with the yellow and blue icon used to identify materially identical documentation in accordance with the Examining Authority's (ExA) procedural decisions on document management of 23rd December 2019. Whilst for completeness of the record this document has been submitted to both Examinations, if it is read for one project submission there is no need to read it again for the other project.

Introduction

In response to issue ID 4 of REP10-017 where the Applicant challenges the 11.5km buffer on the grounds of no supporting data, Natural England thought it appropriate to submit our strategic advice into examination. Below is Natural England's response to the London Array Year 3 Ornithological Monitoring Report. This document clearly demonstrates evidence of a larger buffer.

Date: 27 May 2021
Our ref: 347516
Your ref: MMO L/2011/00152/39

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Dear Graham,

MMO L/2011/00152/39 Consultation 8 - Year 3 Ornithological Monitoring Report, with updated Appendices. London Array Offshore Wind Farm.

Thank you for your consultation, the following constitutes Natural England's formal statutory response on the latest revision (version 4) of the final ornithological monitoring report for London Array Offshore Wind Farm - 2021 ('the report'). Our detailed advice is attached in Annex I and can be summarised as follows:

Summary of Natural England's Advice on the Report

Natural England considers that the key point of concern regarding the need for clarity regarding the magnitude and spatial extent of the displacement of red-throated divers around London Array OWF has now been satisfactorily addressed in the report. Other comments on methodological issues which Natural England has made on previous versions of the report and which have not been fully resolved are secondary and can in Natural England's opinion be considered closed.

Natural England advises that the report shows that displacement effects from London Array OWF on red-throated diver within the Outer Thames Estuary SPA (OTE SPA) are affecting 6.1% of the diver population of the SPA, and that these effects extend beyond 10kmfrom the windfarm boundary. This level of displacement significantly exceeds the 3.1 – 3.4% of divers predicted to be displaced in the shadow Appropriate Assessment (AA) carried out by the Department of Trade and Industry (Dti) in 2006 into the impacts of London Array OWF on OTE SPA, and the spatial extent of displacement exceeds by an even greater amount the 1km displacement distance used in that AA. The figure of 6.1% in the report is within the range of 6.01% - 9.66% used in 2013 in the Department of Energy and Climate Change (DECC) Review of Consent AA regarding this project. However, the spatial extent of displacement in the report significantly exceeds the worst-case scenario of 3km assumed in that Review of Consent. In other words, the report demonstrates that the impacts on the OTE

SPA have been significantly greater than previously predicted.

Natural England concludes from the report that conditions for the red-throated diver qualifying feature within parts of the OTE SPA are likely to have significantly deteriorated, and advises that it cannot be ruled out that an adverse effect on integrity (AEOI) on OTE SPA has arisen as a result of London Array OWF.

Next Steps

We strongly recommend that MMO convenes a discussion with Defra and Natural England to determine the appropriate response to the significant deterioration of conditions within the Outer Thames Estuary Special Protection Area due to the disturbance of red-throated divers. This is appropriate in light of the requirement under Article 6.2. of the Habitats Directive to prevent the deterioration of European sites, and the duty placed on competent authorities under regulation 9(3) of the Conservation of Habitats and Species Regulations 2017 to have regard to the requirements of the Directives when exercising their functions.

There are two current pieces of work that may usefully inform these discussions:

- The ongoing BEIS Review of Consents for the marine SPA suite;
- Natural England's condition assessment for the Outer Thames Estuary SPA, which is scheduled for this summer.

Discussions could begin once these two pieces of work become available – Natural England will endeavour to keep MMO updated on their progress.

Please do not hesitate to get in touch if you have any queries or would like to discuss further.

Yours sincerely,

[redacted]

Harri Morrall

Marine Senior Adviser

[redacted]

cc. Rachel Holmes, BEIS; Rhiannon Pipkin, Defra; Greg Tomlinson, The Crown Estate

Annex I: Natural England Detailed Advice on Version 4 of the Final Ornithological Report (FOMR)

1. Previous Advice and Discussions

On 13th January 2020, representatives of Natural England (NE) and of London Array Limited (LAL), MarineSpace and APEM discussed comments made by NE on version 2 (v2) of the Final Ornithological Monitoring Report (FOMR). It was noted that over the preceding three years there had been protracted exchanges of view on various issues of concern to NE eg: that inclusion of baseline survey data collected prior to 2009 could have increased confidence in understanding the changes in bird distribution associated with the construction and operation of London Array windfarm (LAW); that spatial modelling could have been applied to more species/groups than just divers and auks; and that images from earlier surveys should have been revisited to extract additional information – e.g. flight directions. However, in the meeting on 13th January 2020 NE advised LAL, MarineSpace and APEM that with the passage of time, and with the key issues relating to the evidence regarding diver and auk displacement being largely addressed in v2 (and subsequent versions) of the FOMR, any remaining concerns NE may have had over these other matters could be considered closed.

This being the case, NE's main outstanding point of concern in January 2020 regarding v2 of the FOMR was that the headline numbers coming out of the diver and auk displacement analyses needed to be stated clearly in the Executive Summary and Conclusions of the report i.e. that far more divers (and auks) are estimated to have been displaced and over a far larger area than previously assumed. NE stated in its meeting in January 2020 with LAL, MarineSpace and APEM that it would focus future comments on ensuring that this key issue was satisfactorily addressed in subsequent versions of the FOMR.

In February 2020, LAL submitted version 3 (v3) of the FOMR to NE for further comments, those being provided to LAL by NE in May 2020. In those comments NE acknowledged that v3 contained further tables and figures (as requested) and other points of clarification. NE also acknowledged that V3 provided greater clarity regarding the magnitude and spatial extent of the displacement of divers and auks. We noted, however, that in the Discussion there was still a reluctance to conclude that the evidence is consistent with the hypothesis that these effects are **caused** by LAW. NE advised LAL that in our opinion the very clear gradient in the effect with distance from LAW for divers and auks is entirely consistent with (although of course does not prove) the hypothesis that LAW is a main driver of this distributional shift. NE requested that this point should be made in the Discussion and highlighted a few other editorial points to be addressed.

2. Natural England's Comments on Version 4 Changes

Having now reviewed version 4 (v4) of the FOMR (dated January 2021) NE can confirm that all the substantive comments made in relation to v3 have been addressed in the production of v4. The key point raised in relation to v3 (as set out above) has been addressed by edits to section 7.5. The key message regarding the numerical magnitude and spatial extent of the displacement of divers and auks associated with the construction and operation of LAW are now clearly stated in the Executive summary, Discussion and Conclusions of v4.

On that basis NE can confirm that its previous substantive comments in relation to the report, whether provided via MMO or directly to the licence holder, have now been addressed in the latest version of the report. As outlined above, any other points raised by NE on all previous versions which have not been addressed can be considered of secondary importance and considered closed. NE can confirm that it is now satisfied with the latest version (v4) of the FOMR. NE has no further substantive outstanding concerns in relation to the drafting of the

Report, the information set out in it, or its conclusions. A few minor edits that could be considered are listed in Section 3 below. NE does not need to be consulted again on those.

3. Minor editorial points on v4 of FOMR

1. Section 7.5.1 7th paragraph: replace "however the gradient effect in the results is conclusive evidence suggestive of that causal link." with "however the gradient effect in the results provides compelling evidence indicative of that causal link…."

2. Section 7.5.1 last paragraph: edit needed as follows to insert the bold words included here "approximately twice the % of the SPA population has been found to be subject to displacement in comparison to that assumed…."

3. Section 7.5.2 6th paragraph: replace "however the gradient effect in the results is conclusive evidence suggestive of that causal link." with "however the gradient effect in the results provides compelling evidence indicative of that causal link…."

4. Section 8 4th paragraph: edit last sentence to read "Overall, when expressed as a percentage of the estimated size of the OTE SPA population of red-throated divers (that estimate having increased almost threefold since the ES), the numbers of divers displaced was almost double what was predicted in the ES i.e. 6.1% versus 3.4%."

4. Key Findings of the FOMR

The principle finding set out in v4 of the FOMR relates to the spatial scale and magnitude of the displacement of divers (and auks) that is apparent when comparing the density and distribution of these species before, during and after the construction of LAW. Spatial statistical models have been applied to the survey data to generate maps of change over time (divers Figs 28-30; auks Figs 39-41) and summary plots of those changes with increasing distance from LAW in Figures 31-33 (divers) and Figures 42 – 44 (auks). However, the latter have not been subjected to formal statistical analyses to identify the limit to the spatial extent of the statistically significant change in diver or auk distribution. In advice provided to the MMO on 7th May 2019 NE noted in regard to these summary plots that "*The confidence intervals around the absolute densities in each distance band – particularly in the pre-con period - are very large and this suggests that some of the apparently large reductions in density may not be statistically significant. This requires further consideration* .". In the light of that comment sections 7.5.1 of v4 of the FOMR states that "*For the pre- versus post-construction comparison, interpretation from Figure 33 shows that the point at which the CIs first overlap with zero is at 10 km in the case of divers.*" Section 7.5.2 contains the equivalent sentence regarding auks i.e. "*For the pre- versus post-construction comparison, interpretationof Figure 43 shows that the point at which the CIs first overlap with zero is at 4 km in the case of auks*". This, then is the limit of the detail of the statistical analyses on which the spatial extent of the displacement effects for divers and auks is based. It is necessary, therefore, to take the results at face value and NE's advice is given on that basis.

The LAW FOMR (v4) includes an estimate that 1,111 divers have been displaced by LAW alone. This equates to 6.15% of the updated mean peak population of red-throated divers in the Outer Thames Estuary SPA i.e. 18,079 birds. This percentage is almost double the figures of 3.1% - 3.4% which formed the basis of the shadow Appropriate Assessment (AA) in 2006 (Dti 2006). It is though, very similar to the value of 6.0% presented in the report to inform an Appropriate Assessment (RIAA) (LAL 2012) and the AA conducted as part of the Review of Consent in 2013 (DECC 2013) (albeit that is based upon 360 displaced birds out of a population estimate of 5,992). The latest findings indicate that the spatial extent of the observable reduction in diver density between pre and post construction of LAW extends up to at least 10km from its boundary. This far exceeds the maximum distances assumed in either

the Environmental Statement and shadow AA (Dti 2006) i.e. 1km or in the review of consent (DECC 2013) i.e. 3km.

It is worth noting that the distance from LAW over which this displacement effect is now manifest far exceeds what was expected ten years ago when the post -consent monitoring plan was put in place. Consequently, the size and shape of survey zones 1 and 2 to which predictions regarding changes in numbers are limited, mean that not all of the sea area over which the displacement of divers may be occurring has been surveyed. Thus, we advise the figure of 6.1% may underestimate the true magnitude of the % of the SPA population of red-throated divers being displaced.

We note that figures submitted by Scottish Power Renewables (SPR) into the Examination of the East Anglia One North and East Anglia TWO offshore windfarms (SPR 2021) allow an estimate to be made of the potential total extent of the area over which displacement of divers around LAW may be taking place within the OTE SPA. On the basis of figures provided in SPR (2021) for the area of London Array and each of the concentric buffers around it out to the limit of the displacement effect as reported in the FOMR, displacement of divers may be estimated to be occurring to some extent over approximately 843 km^2 around LAW. This equates to 21.5% of the entire OTE SPA (3,924 km^2).

5. Natural England's Advice on the FOMR

In the light of NE's previous advice on this issue, and the new Conservation Objectives and Supporting Advice on Conservation Objectives for this SPA (see OTE SPA Cons Obj and Annex 2), **NE concludes that the magnitude of this effect is such that an adverse effect on site integrity cannot be ruled out beyond reasonable scientific doubt**.

Annex 2 to the schedule of the Marine License states that " *The need for additional ornithological monitoring, on-going during the lifetime of the wind farm's operation will be determined, in consultation with Natural England and the Licensing Authority and reviewed at agreed periods. This will have regard to the magnitude of any change in bird populations observed during the initial three years operational monitoring period applicable to each phase of permitted development (as per licence condition 3.3.1)."*

NE advises the MMO that in its opinion, evidence that there is estimated to be 1,111 fewer divers within 11.5km of the boundary of LAW following its construction than before constitutes a significant magnitude of change in the bird populations observed in and around LAW. NE acknowledges that Annex 2 to the schedule of the Marine License limits its scope to the "*need for additional ornithological monitoring on-going during the lifetime of the wind farm's operation*". However, the results from the surveys commissioned by NE in early 2018 (Irwin et al 2019) (see Annex 2 below) already provide evidence that the duration of the displacement effect has extended beyond the initial three years operational monitoring period of the development. NE therefore advises the MMO that in its opinion additional monitoring will provide limited additional insight and no solution to the apparently ongoing issue of red-throated diver displacement around LAW.

NE advises that the need to consider this issue is of importance in the light of current applications for consent for various other offshore windfarms in the vicinity of the Outer Thames Estuary SPA. Due to the proximity of these planned developments to the SPA they are predicted to lead to further displacement of red-throated divers within the SPA. In so doing they would contribute to an in-combination effect with LAW, and other existing windfarms within the SPA, the magnitude of which leads NE to advise that an adverse effect on the integrity of the SPA cannot be ruled out beyond reasonable scientific doubt.

In NE's opinion further discussion with MMO and Defra (as the Government department with lead responsibility for MPA policy and designation) is therefore now required regarding the implications for the SPA arising from the evidence presented in the FOMR. These discussions are needed in the context of the requirement under Article 6.2 of the Habitats Directive to prevent deterioration of European sites, and in light of the responsibilities of competent authorities under regulation 9(3) of the Conservation of Habitats and Species Regulations 2017.

Annex 2: Supporting information

Here Natural England provide some supporting information which the MMO may find useful in understanding our advice on the implications of the findings regarding red-throated diver displacement in the latest version (v4) of the FOMR. This is NE's advice on the Conservation Objectives for this SPA and the results of some recent monitoring of the SPA commissioned by NE.

1. Conservation Objectives

The Outer Thames Estuary SPA is one of several Natura 2000 sites for which NE has recently published a new Conservation Advice package. This sets out the Conservation Objectives for the site. These are as follows (emphasis added in bold font):

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 aims of the Wild Birds Directive, by maintaining or restoring****:*

- *the extent and distribution of the habitats of the qualifying features*
- *the structure and function of the habitats of the qualifying features*
- *the supporting processes on which the habitats of the qualifying features rely*
- *the populations of each of the qualifying features*
- ***the distribution of qualifying features within the site***

The evidence provided in the FOMR indicates that the distribution of the red-throated diver qualifying feature within the site is not being restored or maintained and has in fact been significantly altered.

The Supplementary Advice on Conservation Objectives (SACO) present attributes which are ecological characteristics or requirements of the classified species within a site. **The listed attributes are those which best describe the site's ecological integrity and which if safeguarded will enable achievement of the Conservation Objectives**. The Conservation Objective relating to the distribution of qualifying features (individual species or assemblages) may apply to most or all of the attributes listed in the SACOs and should be considered against them.

In the case of red-throated divers the SACO contains the following attribute:

Attribute: Disturbance caused by human activity

with an associated target (emphasis added here in bold font):

Target: ***Reduce*** *the frequency, duration and / or intensity of disturbance affecting roosting, foraging, feeding, moulting and/or loafing birds so that they are not significantly disturbed*

The supporting comments on this attribute contain the following (*italicised*) text (emphasis added here in bold font):

"There is significant marine industry within the Outer Thames Estuary, including one of the busiest shipping lanes in the world, multiple offshore wind farms and a large aggregate industry….. ***Disturbance to red-throated diver needs to be managed and limited as far***

as possible to avoid impacting this species. On-going monitoring is required to fully understand and determine the impact of marine industries on this sensitive species.

There is indicative evidence of displacement by offshore wind farms within the Outer Thames Estuary (HiDef Aerial Surveying Limited, 2018) (McGovern et al., 2016). ***Given the expected displacement due to existing (and planned) offshore wind development, further displacement should be avoided. Analysis of the monitoring data currently being collected may allow a re-evaluation of this position***."

The SACO also contains the following attribute for red-throated diver:

Attribute Supporting habitat: extent and distribution of supporting habitat for the non-breeding season

with an associated target (emphasis added here in bold font):

Target: Maintain the extent, distribution and ***availability*** *of suitable habitat (either within or outside the site boundary) which supports the feature for all necessary stages of the non-breeding/wintering period (moulting, roosting, loafing, feeding) at the following levels: Subtidal sand (220,295.55); Subtidal coarse sediment (73,606.64); Subtidal mixed sediments (62,100.63 ha); Subtidal mud (12,549.14 ha); Circalittoral rock (335.2 ha); and Water co lumn*

The supporting comments on this attribute contain the following (*italicised*) text (emphasis added here in bold font):

"Marine development and construction can result in habitat loss for this sensitive species. Red-throated diver have been shown to be especially sensitive to offshore wind farms (McGovern et al., 2016), and their construction may result in the displacement of red-throated diver from an area of their range (Dierschke et al., 2017). Other activities such as aggregates dredging, fishing and commercial shipping may be adding to the cumulative displacement of red-throated diver from parts of the site (Natural England (NE) and Joint Nature Conservation Committee (JNCC), 2013). ***This results in habitat loss for this species, or the use of sub-optimal foragingareas. The extent of suitable supporting habitat shouldbe maintained****.*

There is indicative evidence of displacement by offshore wind farms within the Outer Thames Estuary (APEM, 2013) (HiDef Aerial Surveying Limited, 2018) (McGovern et al., 2016). ***Given the expected displacement due to existing (and planned) offshore wind development, further displacement should be avoided.*** *Analysis of the monitoring data currently being collected may allow a re-evaluation of this position*."

Analysis of the monitoring data presented in the FOMR (v4) confirms that a number of divers equivalent to at least 6.15% of the SPA population of red-throated divers has been subject to displacement by LAW alone. This coupled with the evidence of the much larger zone of influence around LAW within which average diver densities are reduced (estimated to be in excess of 10km in distance around LAW and so potentially affecting an area equivalent to over 20% of the OTE SPA) confirms the magnitude of the phenomenon. Thus, NE's assessment of the significance of this in respect of the Conservation Objectives of the SPA, is that it is not possible to conclude that the integrity of the site is being maintained.

2. <u>Evidence for ongoing displacement of red-throated divers</u>

In early 2018 HiDef Aerial Surveying Ltd undertook two digital aerial surveys of the Outer Thames Estuary SPA on behalf of NE. The main purpose of these surveys was to provide additional evidence on which to update the target for the population abundance attribute for the red throated diver population of the SPA. However, incidentally the surveys reveal ed

strong displacement of red-throated divers from areas within offshore windfarms and from areas of shipping activity. This has led to higher densities of birds at points furthest from anthropogenic activity. This can be seen visually in the number of diver detections and the modelled diver density surface shown in Figure 8 of Irwin et al (2019) and in the pronounced difference in diver density between areas inside windfarm footprints within the SPA and areas outside those footprints as shown in Figure 6 of Irwin et al (2019). These figures are reproduced below:

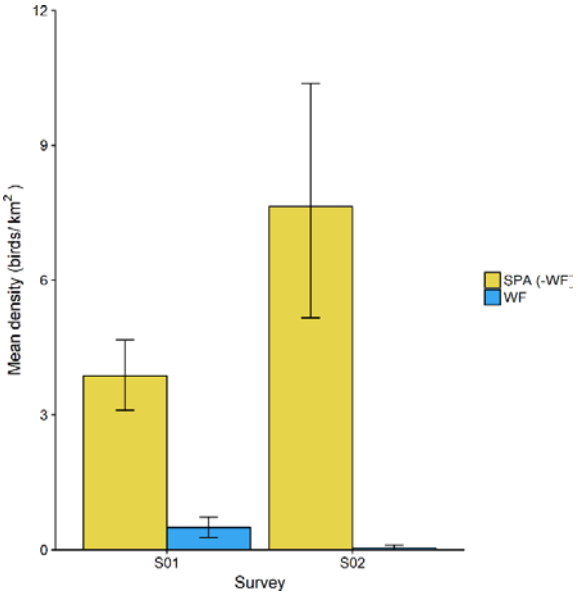

Figure 6 Red-throated diver mean density (birds/km²) within the SPA, excluding the areas within the footprints of wind farms (SPA (-WF)), and within those windfarm footprints (WF) for Survey 1 and Survey 2.

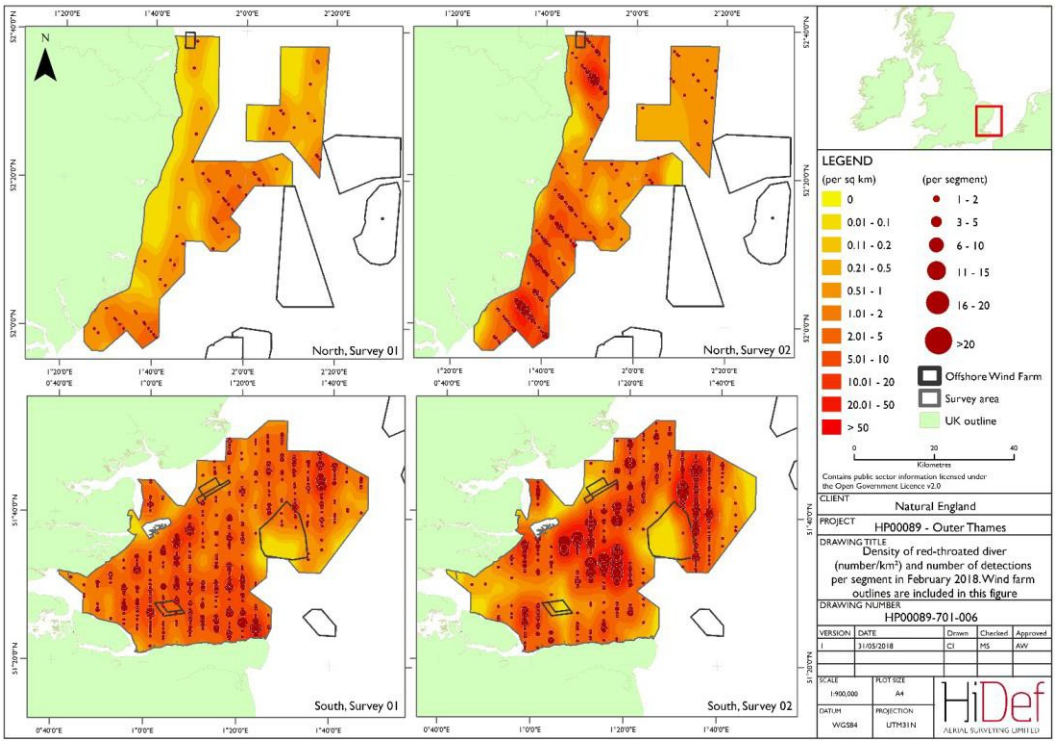

Figure 8 Density of red-throated diver (number/km²) and number of detections per segment in February 2018. Windfarm outlines are included in this figure.

These surveys indicate that displacement of red-throated divers from LAW and its immediate surroundings continued to be detectable in early 2018 – two years after the conclusion of the post-construction monitoring programme at LAW, and four and a half years after LAW was fully commissioned.

References

Dti (2006). *Appropriate Assessment with regard to London Array Wind Farm*. 32pp.

LAL (2012). *London Array Offshore Wind Farm Phase 2. Report to Inform Appropriate Assessment. October 2012*. 79 pp.

DECC (2013). *RECORD OF THE APPROPRIATE ASSESSMENT UNDERTAKEN FOR PROJECTS CONSENTED UNDER a) SECTION 36 OF THE ELECTRICITY ACT 1989; and b) SECTION 66 OF THE MARINE AND COASTAL ACCESS ACT 2009. Project: REVIEW OF THE OUTER THAMES ESTUARY SPA. 15 March 2013.* 34pp**.**

IRWIN, C., SCOTT, M., S., HUMPHRIES, G. & WEBB, A. (2019). *HiDef report to Natural England - Digital video aerial surveys of red-throated diver in the Outer Thames Estuary Special Protection Area 2018*. Natural England Commissioned Reports, Number 260.

SPR (2021). *East Anglia ONE North and East Anglia TWO Offshore Windfarms. Displacement of red-throated divers in the Outer Thames Estuary SPA – Deadline 8 Update*. 91pp.