

# Norfolk Boreas Offshore Wind Farm

# Appendix 14.2

## Commercial Fisheries Consultation Responses

## Environmental Statement

## Volume 3

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*Photo: Ormonde Offshore Wind Farm*

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## Table of Contents

<b>1</b>	<b>Commercial Fisheries Consultation Responses.....</b>	<b>1</b>
<b>2</b>	<b>References .....</b>	<b>24</b>

### Tables

Table 1.1 Consultation Responses - Norfolk Boreas Scoping, PEIR and Offshore Limits Change Consultation Responses	2
Table 1.2 Consultation Responses - Norfolk Vanguard Scoping Opinion and PEIR	20

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## 1 Commercial Fisheries Consultation Responses

1. Consultation is a key part of the Development Consent Order (DCO) application process. To date, formal consultation regarding commercial fisheries has been conducted through the Norfolk Boreas Scoping Report (Royal HaskoningDHV, 2017a), Preliminary Environmental Information Report (PEIR) (Royal HaskoningDHV, 2018) and the Offshore Order Limits change report. The responses received are summarised in Table 1.1, including details of how these have been taken account of within Chapter 14 Commercial Fisheries.
2. In addition to consultation specific to Norfolk Boreas, consultation has also been carried out in respect of commercial fisheries for the neighbouring Norfolk Vanguard project. Responses received as part of the consultation process carried out for Norfolk Vanguard which are relevant to Norfolk Boreas are outlined in in Table 1.2. These have also been taken into account in the production of Chapter 14 Commercial Fisheries.

**Table 1.1 Consultation Responses - Norfolk Boreas Scoping, PEIR and Offshore Limits Change Consultation Responses**

Consultee	Date /Document	Comment	Response / where addressed in Chapter 14 Commercial Fisheries
Norfolk County Council	Norfolk Boreas PEIR Response November 2018	<p>While commercial fishing is an offshore issue it is considered appropriate to comment on the impacts the above proposal may have on this sector as Norfolk is home to many commercial fishing activities from its numerous ports and landing areas (i.e. potential economic issue).</p> <p>The PEIR considers the impact of the proposed windfarm and ancillary infrastructure (offshore cable route; substations; convertor stations and accommodation blocks) on the commercial fishing sector. The type of fishing carried out in the Array area comprises:</p> <ul style="list-style-type: none"> <li>· Local UK Static gear Fishing potting by UK vessels (i.e. for brown crab, lobster and Whelk);</li> <li>· Dutch Vessels undertaking trawling</li> </ul> <p>The PEIR indicates that fishing will be permitted within the Norfolk Boreas project area following construction and therefore much of the current activity will be able to recommence during operation of the wind farm. The PEIR does, however, accept that there could potentially be a significant impact during the construction phase on those UK vessels using static gear. As such Vattenfall have indicated that where necessary appropriate mitigation could be arranged. It is felt that where there is likely to be a demonstrable impact on commercial fishing affecting communities in Norfolk that Vattenfall should provide appropriate mitigation and compensation to those fishing communities affected.</p>	Noted.
Marine Management Organisation (MMO)	Norfolk Boreas PEIR Response	<p>The MMO acknowledges that Chapter 14 states that the impact on the local inshore fleet, primarily using static gear, would be minor adverse. It should be noted that many of the vessels in question are small, with limited capability to relocate to other fishing grounds especially during peak season. There is the potential for the impact on individual fisherman to be significant. The MMO expects that impacts on smaller fishing vessels will be fully assessed in the EIA.</p>	<p>The sensitivity of the local inshore fleet to loss of fishing grounds has been noted in the assessment (section 14.7.4.2.3). Whilst the overall impact significance of loss of grounds/restricted access during construction has been identified to be minor for the fleet, the assessment recognises that there may be occasions when certain vessels may need to relocate their gear. In these instances</p>

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			it has been proposed that evidence based mitigation, as specified in FLOWW Guidelines, is applied.
Marine Managmeent Organisation (MMO)	Norfolk Boreas PEIR Response	The PEIR does not take into account the longer term operational and maintenance impact on fishing grounds. For example if cables are exposed this could make fishing grounds inaccessible. The MMO expects the long term impacts will be assessed in the EIA.	The assessment of loss of grounds during the operational phase (section 14.7.5.2) takes account of the potential for sections of the cables to become exposed during the operational phase, making discrete areas temporarily inaccessible to fishing.
Marine Managmeent Organisation (MMO)	Norfolk Boreas PEIR Response	The MMO notes that the most recent UK data described in Appendix 14.1, Annex 2 were from 2016. Since this time there has been an increase in demand by the inshore fleet for white fish, particularly bass. The MMO questions whether there are more up to date data available to inform the EIA to reflect this, and requests this data is used to inform the EIA.	The commercial fisheries assessment takes account of the latest dataset that has been made available by the MMO. At the time of writing this includes data up to the year 2016.
Marine Managmeent Organisation (MMO)	Norfolk Boreas PEIR Response	Appendix 14.1, Figure 6.11, Dutch VMS value and effort by beam trawl (average 2012 to 2016), indicates that the cable route passes through the area of high value and effort for Dutch vessels. The impact on these vessels is assessed as minor in the PEIR Chapter 14. The MMO seeks to understand the rationale for this assessment. The MMO considers that restricted access to principle fishing grounds during construction, in addition to the potential deployment of rock protection in the cable corridor should be considered a more significant impact even if only for a relatively small number of vessels.	The assessment presented in section 14.7.4.2.1 with regards to the impact of loss of grounds during construction on the Dutch beam trawl fleet recognises the high levels of activity that the offshore project area sustains (in areas beyond the 12 nm limit). However, in determining impact magnitude the extent of the area affected needs to be put into context. The level of fishing activity that the offshore project area sustains is considered but also the relative importance of this area in the context of the overall extent of the grounds that the fleet is able to exploit and the levels of fishing that these grounds sustain. In the case of beam trawling, the large extent of grounds that the fleet can exploit should be noted. As shown in Figure 14.4 and Figure 14.5, Dutch beam trawlers exploit fising grounds over a very large area of the Southern North Sea (ICES Division IVc) and activity occurs across this large area consistently at relatively high levels. In addition, fishing activity is also undertaken by these vessels in wide areas of



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			<p>the Central North Sea (ICES Division IVb) albeit at relatively lower levels. Considering this, together the temporary nature of the construction phase, impact magnitude is assessed as low. This combined with the low sensitivity of the fleet to loss of grounds, results in an impact of minor significance.</p>
<p>Marine Managment Organisation (MMO)</p>	<p>Norfolk Boreas PEIR Response</p>	<p>The MMO welcomes further detail on how the “trawl-ability” of the seabed after the construction of the windfarm is going to be assessed and how this is to be communicated to the fishing industry.</p>	<p>An Outline Scour Protection and Cable Protection Plan is submitted with the Norfolk Boreas DCO Application (Document 8.16). A cable burial risk assessment will be undertaken post consent, in consultation with stakeholders.</p> <p>In the event that cables become unburied during the operational phase this would be communicated to the fishing industry through appropriate channels. This is noted in the Outline Fisheries Liaison and Co-existence Plan (FLCP) (Document 8.19) and has been reflected in the draft DCO under Schedule 9 and 10, Part 4, condition 9 (11) and Schedule 11 -12, Part 4 condition 4 (11) as follows:</p> <p><i>(11) In case of damage to, or destruction or decay of the authorised scheme seaward of MHWS or any part thereof the undertaker must as soon as reasonably practicable and no later than 24 hours following the undertaker becoming aware of any such damage, destruction or decay, notify MMO, MCA, Trinity House, and the UK Hydrographic Office. In case of exposure of cables on or above the seabed, the undertaker must within five days following the receipt by the undertaker of the final survey report from the periodic burial survey, notify mariners by issuing a notice to mariners and by informing Kingfisher Information Service of the location and extent of exposure.</i></p>



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Eastern IFCA	Norfolk Boreas PEIR Response December 2018	As stated in Eastern IFCA's response to the Norfolk Vanguard Environmental Statement, we request that Vatenfall take note that Eastern IFCA are seeking to introduce fishing closures (via a byelaw) to protect sensitive features within the inshore section (within six nautical miles of the shore) of the SCI. These closures are yet to be finalised, but any works in this area will need to proactively take into consideration up-to-date closures and the latest available information on the location of sensitive species and habitats. Eastern IFCA will ensure that any changes to existing fishery closures are duly publicised.	Noted
Eastern IFCA	Norfolk Boreas PEIR Response December 2018	Within the Eastern IFCA district, the Norfolk Boreas export cable corridor and surrounding areas that could be impacted by the proposed development lie within important fishing grounds, primarily targeted for whelks, crabs and lobster. These fisheries represent a substantial contribution to the local coastal economy, in terms of first sale value, shellfish factories and attracting tourism. Although the level of fishing effort occurring inshore is much smaller than that applied by larger (predominantly Dutch) offshore fishing vessels, displacement (for example during construction or maintenance works, or because of cable exposure) can have disproportionately large effects on inshore fisheries, which are characterised by small vessels operating within a short range from launch sites.	The potential impact of loss or restricted access to traditional fishing grounds and associated displacement has been considered for assessment within this chapter for all relevant commercial fisheries receptors, including the local fleet (section 14.7 and section 14.8).
Eastern IFCA	Norfolk Boreas PEIR Response December	Eastern IFCA note the embedded mitigation outlined in the PEIR for this development, including Norfolk Boreas Ltd.'s commitment to burying offshore cables where possible to reduce requirement for surface cable protection, the distribution of notice to mariners,	Noted. Consultation with fisheries stakeholders is on-going and will continue post-consent. An outline of Norfolk Boreas Limited approach to fisheries liaison is included within the Outline

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	2018	kingfisher notifications and other navigational warnings to the fishing community, and the appointment of a fisheries liaison officer. Eastern IFCA support the use of these mitigation measures to minimise disruption to fishery stakeholders. We would ask that these measures are used alongside regular communication with the relevant fisheries managers – this will be Eastern IFCA out to six nautical miles and the Marine Management Organisation as well as Defra beyond the Eastern IFCA boundary. This regular communication will ensure that mitigation takes into account the most up-to-date fisheries management measures and issues.	FLCP (Document 8.19).
Eastern IFCA	Norfolk Boreas Offshore Wind Farm Offshore Order Limits Change Report February 2019	<p>Eastern IFCA has reviewed the documents and do not wish to provide additional specific feedback on the amendment to the offshore order limits as the new area is outside of the Eastern IFCA district.</p> <p>The Eastern IFCA would like to reiterate that many of the comments made in our response to the PEIR will now apply to the new area within the order limits.</p>	Noted
VisNed	Norfolk Boreas PEIR Response December 2018	<p>Several vessels (e.g. fly shoot fishery) fish in the area where the turbines will be built. This area is important, as can be seen on several maps in the Preliminary Environmental Information Report (EIR). The loss of a fishing ground is minor adverse for this specific win farm, but all the farms together have a severe influence on the fishing industry. Displacement is a consequence of the reduction of space.</p> <p>The fly shoot vessels that fish in the Boreas area now, are obliged to go to an area where other ships are fishing. It is an omission, in the opinion of VisNed, that there are no figures of the expulsion effects when vessels that fly shoot (or beam trawl) need to go to other areas.</p>	The assessment presented in the chapter considers the impact of loss of grounds on seine netting (fly shoot fishery) and associated displacement, both as a result of the project alone and cumulatively with other projects and activities (section 14.7 and section 14.8). With regards to wind farm projects, the cumulative assessment assumes that there is little potential for activity by seine netters to resume in operational wind farm sites.

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		<p>The consequence of this lack of information is that it is now unclear what the consequences of the wind farms are for this specific fishing industry.</p> <p>Furthermore, an economic approach by dividing zones, does not give a fair look at the impact that the wind mills will have on the fishing industry. The value of an area can differ per period and expulsion effects will also have an effect.</p>	
VisNed	Norfolk Boreas PEIR Response December 2018	<p>It is sometimes possible for parts of the demersal fleet to fish in windfarms, but we recommend to have a inter turbine spacing of at least 2,000 meter be viewed as a minimum spacing for fishing to be undertaken, rather than the 700 meter to 800 meter which is the distance in several wind farms.</p>	<p>From feedback received by VisNed/NFFO during consultation undertaken for Norfolk Vanguard (conference call 31/01/2019) and as noted in the Statement of Common Ground between Norfolk Vanguard Ltd and VisNed/NFFO, it is understood that VisNed/NFFO preference in relation to the minimum spacing required to facilitate fishing to resume within operational wind farms would be at least 1km in the case of beam trawlers and at least 2km in the case of seine netters.</p> <p>It should be noted that since the production of the PEIR the project design has been reviewed and the 9MW option is no longer being considered. This results in a reduction in the maximum number of turbines (from 200 to 180) and in an increase in the minimum spacing between turbines (from 680m to 720m). Under the scenario where Tetrabased foundations are used (worst case scenario), the minimum width of the corridor left clear of infrastructure between foundations would be 650m.</p> <p>There is currently no legislation in the UK preventing fishing from occurring within operational wind farms. The level of fishing activity which may resume within the operational Boreas site will therefore largely depend on the perception of individual skippers with regards to operating fishing gear within the site.</p>

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VisNed	Norfolk Boreas PEIR Response December 2018	We understand the challenges with laying inter-array cables. Nonetheless, we want to keep you in mind that a good burial of the cables is very important. Not only for the short term, but under all circumstances the cables must be buried at the appropriate minimum depth. It is impossible for fishing gear to damage the cables, if they are buried properly.	Norfolk Boreas Ltd are committed to bury cables where possible. Where burial is not possible cables will be protected.  In the event that cables become unburied during the operational phase this would be communicated to the fishing industry through appropriate channels. As previously mentioned, this is noted in the Outline Fisheries Liaison and Co-existence Plan (FLCP) (Document 8.19) and has been reflected in the draft DCO under Schedule 9 and 10, Part 4, condition 9 (11) and Schedule 11 -12, Part 4 condition 4 (11).
VisNed	Norfolk Boreas PEIR Response December 2018	VisNed argues that the entire Boreas area should not immediately be closed to fishing when building wind farms. Let the closure of an specific part coincide with the location of the work, so that the rest of the area remains open for fishing as long as possible.	The assessment presented in Chapter 14 with regards to the construction phase takes a conservative approach based on the theoretical worst case assumes that fishing would be excluded from the entirety of the offshore project area during construction. The total area from which fishing may be excluded at a given time would however change depending on the level of works being carried out and the level of infrastructure installed or partially installed at a given time.  Norfolk Boreas Limited is committed to promote co-existence with the fishing industry and will implement suitable procedures to minimise disturbance to normal fishing operations. Further detail with regards to Norfolk Boreas Limited fisheries liaison and co-existence strategy is provided in the Outline FLCP (Document 8.19).
VisNed	Norfolk Boreas PEIR Response December 2018	As usual with these projects, we are available to negotiate a statement of common and un- common ground, including the mitigation of negative effects. As before, in this respect we closely work together with the National Federation of Fishermen's Organisations (NFFO), whom we send a copy of this letter.	Noted.
National	Norfolk	The categories applying to sensitivity and magnitude criteria in the	The assessment on commercial fisheries follows an impact

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Federatoin of Fishermen's Organisations (NFFO)	Boreas PEIR Response December 2018	Commercial Fisheries Assessment (Ch 14) needs to defined in a more quantitative way. This is particularly the case for the definitions used under sensitivity which lack specificity over what constitutes limited, moderate and extensive operational range and dependence upon the number of fishing grounds.	<p>significance matrix approach taking account of receptor sensitivity and impact magnitude. This is in line with standard environmental impact assessment methodologies (as outlined in ES Chapter 6 EIA Methodology).</p> <p>The identification of sensitivity is based on parameters such as the operational range, versatility (i.e. ability to deploy various gears/target various species) and availability of grounds. The evaluation of sensitivity levels using the parameters above is informed by data gathered during consultation with fisheries stakeholders (i.e. vessel specifications, gear used, extent of grounds) as well as fisheries data (landings, Vessel Monitoring System (VMS) data, etc.).</p> <p>In defining impact magnitude consideration is given to the area affected by the potential impact and the duration of the impact. The level of fishing activity that the area of the project sustains is considered in the context of its relative importance in respect of the overall extent of grounds that the fleet is able to exploit and the levels of fishing that these grounds sustain.</p>
National Federatoin of Fishermen's Organisations (NFFO)	Norfolk Boreas PEIR Response December 2018	Aggregating the assessment by nation and gear groupings means that it is not possible to assess impact at the level of individual businesses. The ability of individual businesses or sub-groupings of vessels to be able to relocate to alternative grounds is therefore not defined by the full extent of fishing grounds for an entire sector of each nation's fleet.	As outlined in sections 14.7.4.2 and 14.7.5.2, the assessment of loss or restricted access to traditional fishing grounds is discussed on a fleet by fleet basis. Due to data limitations it is beyond the scope of this assessment to assess the impacts on individual vessels. It is however recognised that the level and distribution of fishing activity and dependence on fishing grounds within the offshore project area will vary between individual vessels within the same fleets.
National Federatoin of	Norfolk Boreas PEIR	The assessment would benefit from having greater transparency over what extent different fishing activities are expected to be able to	In general terms the assessment of loss of grounds during operation in respect of vessels which operate towed gear

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Fishermen's Organisations (NFFO)	Response December 2018	operate within the array area.	considers that the level of activity that will resume within the operational site would depend on the perception of individuals skippers with regards to operating gear within wind farm sites. As a worst case, it assumes that skippers will elect not to fish within the Norfolk Boreas site.  In the case of seine netting, the assessment considers that under the worst case scenario (minimum width of the corridor left clear of infrastructure between foundations of 650m), there is little potential for activity to be able to resume within the site and therefore assumes that seine netting will not be undertaken within the site during operation.
National Federatoin of Fishermen's Organisations (NFFO)	Norfolk Boreas PEIR Response December 2018	We agree that the use of the standard impact assessment matrix is not appropriate for assessing safety risk (Ch14, p42 para 155). However, there appears to be no probabilistic assessment similar to that completed for other navigation related impact risks (Ch 15). How have "frequency of occurrence" and "severity of consequence" criteria been applied and what data has been used? The worst case scenario is not sufficiently defined to provide a transparent assessment of the risk to fishing activities and therefore determine the appropriateness of mitigation measures. Nor does the assessment establish what the safe fishable distance from a turbine is in the worst case scenario in order to avoid gear interaction with the project infrastructure. This is also fundamental to assessing Impact 2 and 9: Access to fishing grounds and Impact 3: Safety issues for fishing vessels.  Therefore at present there is insufficient evidence that the risk to fishing vessels under the worst case scenario has been appropriately assessed.  Consequently, it is not clear how the conclusion that under the	For assessment of safety issues the standard sensitivity/magnitude matrix approach is not considered appropriate. In this instance, the assessment instead evaluates potential risks.  The assessment identifies potential risks and proposes a number of measures to minimise them so that they remain within acceptable limits.  These measures are aimed at ensuring that skippers which intend to fish within the operational site are provided with adequate information to allow them to make an informed judgement of the risks associated with fishing in areas relevant to the project.  As outlined in sections 14.7.4.6 and 14.7.5.6, safety zones will be in place around all surface structures up until the point of commissioning and where cables are exposed, localised advisory safety zones over vulnerable cables would be implemented.

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		<p>present proposal how safety issues for fishing vessels have been determined to be within acceptable limits.</p>	<p>In addition, the required levels of information distribution would be undertaken through the channels of the Kingfisher Information Service, NTMs, as well as direct liaison with fishermen and their representatives. The primary purpose of this would be to ensure the required level of awareness of potential risks and the locations and periods of safety zones, amongst fishing vessel owners and crews. In addition, where appropriate, guard vessels and Offshore Fisherielse Liaison Officers (OFLOs) would be employed (see Outline FLCP, Document 8.19).</p> <p>It should be noted that under the current worst case scenario (180 x 10MW turbines) the minimum spacing between turbines is 720m and floating foundations are no longer considered within the project desing envelope.</p> <p>Under the 10MW scenario, the worst case with regards to fishing would be a result of the use of Tetrabase foundations. Considering that the radius of the legs of TetraBase structures on the seabed could be up to 35m, the minimum width of the corridor left clear of infrastructure between foundations would be 650m.</p>
<p>National Federatoin of Fishermen's Organisations (NFFO)</p>	<p>Norfolk Boreas PEIR Response December 2018</p>	<p>Based on the information provide we estimate that the worst case scenario using 200 x 9MW turbines on tension leg platforms with 12 anchor lines (of 20m in length) and mooring up to 30 degrees and 45m floating structures based on a minimum turbine distance of 680m translate to a theoretical fishable clearance of 600m between turbines reduced to 535m once a 50m safety zone is applied to the floating structure (assuming from the structures edge – this provides for a safety zone buffer of 33m beyond the anchor points. The safety zone buffer would decrease to 10m if 50m safety zone is applied from the centre point of the structure).</p> <p>We note that the above calculations do not reflect our view that</p>	<p>It should be noted that under the current worst case scenario (180 x 10MW turbines) the minimum spacing between turbines is 720m. Floating foundations are no longer considered within the project desing envelope.</p> <p>Under the 10MW scenario, the worst case with regards to fishing would be a result with the use of Tetrabase foundations. As previously mentioned, this would result in a corridor left clear of infrastructure between foundations with a minimum width of 650m.</p>



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		these dimensions represent a safe fishing distance. Indeed under these circumstances outlined above we consider it highly unlikely that bottom towed fishing activities could operate safely within the vicinity of the array.	
National Federatoin of Fishermen's Organisations (NFFO)	Norfolk Boreas PEIR Response December 2018	We note that the inclusion of floating wind raises under the worst case parameters raises questions over the most appropriate safety management regime for the project under the worst case scenario.  We note that under these circumstances the relevance of measures to reduce safety risk and promote coexistence will vary depending upon the actual project plan selected within the Rochdale Envelope provisions.	It should be noted that under the current worst case scenario (180 x 10MW turbines) the minimum spacing between turbines is 720m (rather than the 680m considered in the PEIR). Furthermore, floating foundations are no longer considered within the project desing envelope.
National Federatoin of Fishermen's Organisations (NFFO)	Norfolk Boreas PEIR Response December 2018	The CIA (Ch 14, p58, para 248) assumes that fishing will be able to occur in other windfarm projects. Under the worst case scenario for the Norfolk Vanguard Project it will not be possible to operate fishing activities.	The desing envelope for Norfolk Vanguard has been reviewed and no longer considers inclusion of floating foundations. In addition, the 9MW option is no longer considered for Norfolk Vanguard resulting in an increase in the minimum spacing from 680m to 760 for this project. It is therefore considered that some level of fishing activity would be able to resume within Norfolk Vanguard.  As noted with regards to Norfolk Boreas, there is currently no legislation preventing fishing from occurring within operational wind farm sites. The level of activity that may resume within Norfolk Vanguard would depend of the perception of individual skippers with regards to operating their gear within the operational site.
National Federatoin of Fishermen's Organisations (NFFO)	Norfolk Boreas PEIR Response December 2018	In the case of safety issues, we disagree that the same factors and obligations would apply to other projects/ activities that would negate the potential for cumulative effects occurring (Ch14, p54, para 236). This presupposes that those measures removes the safety risk. In our view each project, where there is an interaction with fisheries will incrementally increase risk to a fleet overall, irrespective of	With regards to safety risks in a cumulative context, as outlined in ES Chapter 14, it is considered that the same factors and obligations applied for the project would apply to other projects/activities. Safety risks in a cumulative context would therefore remain as assessed for the project alone (i.e. within acceptable limits).

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		measures applied.	
National Federatoin of Fishermen’s Organisations (NFFO)	Norfolk Boreas PEIR Response December 2018	In addition, It is not possible at present to verify the results of the CIA assessment. This is partly due to a lack of definition of the sensitivity categories in particular but there also needs to representation of analytical outputs. The qualitative nature of the sensitivity and magnitude criteria means that the CIA needs to clearly evidence its analysis in order to draw conclusions on the significance of impacts to fleets so that we are able to consider the validity of the conclusions in more detail. This should include spatial representations of the restrictions against available fishing activity data.	The methodology used for assessment in the CIA is in line with the standard methodology used for assessment of impacts on the project alone.  VMS data has been analysed and illustrated together with the projects/activities and measuers included for assessment to facilitate visualitation of the cumulative impact.
National Federatoin of Fishermen’s Organisations (NFFO)	Norfolk Boreas PEIR Response December 2018	We are concerned that existing plans and projects are not factored into the assessment and are assumed to form part of the baseline. We consider this will disguise impacts already being carried by impacted parts of the fleet. This results in a “shifting baseline syndrome” similar to that which is attributed to environmental change as reference points change from one project application to the next; there is no “review mirror” in the assessment.  In addition, it does not appear that MPAs outside of the UK EEZ have been included in the assessment. It is not clear whether or how proposed fisheries measures associated with the marine protected areas have been factored into the CIA. These will have additional impacts on some of the fleet sectors impacted by the project.	Existing projects are considered part of the existing environment. Including existing projects in the assessment would therefore represent double counting of their effect. With this in mind, existing plans and projects have not been considered for assessment of potential impacts on commercial fisheries.  Consideration has been given in the assessment to proposals for closed areas in MPAs outside the UK EEZ to contribute to cumulative impacts.
National Federatoin of Fishermen’s Organisations (NFFO)	Norfolk Boreas PEIR Response December 2018	With respect to interactions, we consider that there is a potential Impact 2 and 3 (loss of access and displacement to have an effect on safety issues for fishing vessels and it can impact on the safe operation of vessels, particular smaller vessels with limited range (Ch14, table 14.20.)	The majority of activity carried out by smaller vessels (i.e. local inshore fleet) is undertaken within the 12nm limit, and particularly within 6nm. Large vessels active in the Norfolk Boreas site have no access to to areas between 0- 6nm. Therefore, significant conflicts/safety issues between the inshore fleet and larger vessels are not anticipated as a result of the project.

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National Federatoin of Fishermen's Organisations (NFFO)	Norfolk Boreas PEIR Response  December 2018	<p>Notwithstanding the identified limitations in the PEIR we consider that additional measures to mitigate gear snagging risks should include:</p> <ul style="list-style-type: none"> <li>• The cable burial plan should be consulted on with the fishing industry</li> <li>• The results of post burial inspection surveys should be communicated to the regulator/fishing industry.</li> <li>• The cable burial risk assessment should comprise an assessment of cable exposure risk as well as risk to other marine users. It should be reappraised at appropriate intervals during the operational phase of the project</li> <li>• The cable burial risk assessment should be linked to an appropriate cables survey/monitoring regime.</li> <li>• Burial status results from monitoring should be communicated to the fishing industry.</li> <li>• Identified cable exposures should be communicated to the fishing industry via NTM and Kingfisher (we wish to see this secured appropriately via the DCO/DML).</li> <li>• Reporting of dropped objects (secured by DCO/DML)</li> <li>• Exposed cables should be protected by guard vessel until appropriate remedial measures can be completed.</li> <li>• Remedial approaches should be consider reburial in the first instance as a way of avoiding the needed for cable protection. Where cable protection is necessary the approach should be considered so that it minimises the potential for snagging risks. The approach should be consulted on with the fishing industry</li> <li>• Post remediation surveys should be undertaken and communicated to the fishing industry to provide best assurance post works that no residual snagging risks remain.</li> </ul>	<p>A number of measures have been proposed by the Applicant which are of relevance with regards to minimising potential for snagging risks. These are outlined below:</p> <p>The Scour Protection and Cable Protection Plan required under the draft DCO Schedules 9 and 10 (Part 4 Condition 14(1)(e)) of the Generation Assets Deemed Marine Licences (DMLs) and Schedules 11 and 12 (Part 4 Condition 9(1)(e) of the Transmission DMLs, in accordance with the Outline Scour Protection and Cable Protection Plan (document reference 8.16), must be approved by the MMO prior to construction. This document will be updated as the final design of the Project develops and will include justification of the location, type, volume and area of cable protection, based on crossing agreements and pre-construction survey data to ensure only essential cable protection can be installed.</p> <p>Furthermore Condition 14(1)(e) of Schedule 9 and 10 and Condition 9(1)(e) of Schedule 11 and 12 require that prior to commencement of licensed activities "<i>...details of the need, type, sources, quantity and installation methods for scour protection and cable (including fibre optic cable) protection...</i>" must be approved by the MMO. The Condition also requires the plan to be updated and resubmitted for approval if changes to it are proposed following cable laying operations. Therefore, to the extent that there are any changes to the details of the as built cable protection and scour protection, this will be provided</p>

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			<p>in the updated plan.</p> <p>In addition, the Cable Specification, Installation, and Monitoring Plan (to be agreed with the MMO pursuant to Condition 14(1)(g) (Schedules 9 and10) and Condition 9 (1) (g)(Schedules 11 and12) must include:</p> <p><i>(ii) a detailed cable (including fibre optic cable) laying plan for the Order limits, incorporating a burial risk assessment to ascertain suitable burial depths and cable laying techniques, including cable landfall and cable protection measures...;</i></p> <p><i>(iii) proposals for monitoring offshore cables including cable protection during the operational lifetime of the authorised scheme which includes a risk based approach to the management of unburied or shallow buried cable.</i></p> <p>Dropped objects will be reported to the MMO using the Dropped Object Procedures Form outlined in Schedule 10, Part 4, Condition 12 (9), and Schedules 11 and 12, Part 4, Condition 7 (11) and Schedule 13, Part 4, Condition 5 (10).</p> <p>Additional co-existence procedures noted in the Outline FLCP (Document 8.19) relevant in this context include</p> <ul style="list-style-type: none"> <li>• Regular and routine communications with the fishing industry</li> <li>• Early provision of construction and cable laying plans, including location and methods for cable</li> </ul>

Consultee	Date /Document	Comment	Response / where addressed in Chapter 14 Commerical Fisheries
			<p>protection, if required;</p> <ul style="list-style-type: none"> <li>• Consideration for the use of guard vessels;</li> <li>• Development of a fisheries guidance document to reduce interactions with fishing activity and provide response procedures;</li> <li>• Cable monitoring throughout construction and operation;</li> <li>• Provision of procedures for the safe recovery of lost or snagged fishing gear; and</li> <li>• Appropriate communication with the fishing industry in the event that cables become unburied during the operational phase (i.e. through the FLO and appropriate channels such as the Kingfisher Information Service). As previously mentioned this has been reflected under in the draft DCO under Schedule 9 and 10, Part 4, condition 9 (11) and Schedule 11 -12, Part 4 condition 4 (11).</li> </ul>
National Federatoin of Fishermen's Organisations (NFFO)	Norfolk Boreas PEIR Response December 2018	In addition, a Fisheries Liaison and Coexistence Plan (FLCP), secured via the DCO/DML, should include operational management arrangements such as provisions for gear clearance and disruption settlements, navigation corridors and protocols, gear snagging protocols and processes for attributable claims, and retrieval of displaced static gears from safety zones as well as safety risk management arrangements as outlined above relating to cables. This should adhere to FLOWW guidelines and should in our view be provided in outline pre-consent.	The Outline FLCP (Document 8.19) includes provisions with regards to relevant aspects such as gear snagging, loss of gear claims, static gear relocation and notification of cable exposures to the fishing industry. The Outline FLCP submitted takes account of best practice as outlined in FLOWW guidelines.
National Federation of Fishermen's Organisations	Norfolk Boreas PEIR Response December	As reflected in the consultation document we note reference made to our preferences indicated with respect to the Norfolk Vanguard PEIR consultation for post installation trawl surveys to be conducted post decommissioning and no seabed hazards to remain post	Decommissioning will be subject to a separate licensing process, taking account of the latest scientific understanding and available guidance at that time.

Consultee	Date /Document	Comment	Response / where addressed in Chapter 14 Commerical Fisheries
(NFFO)	2018	decommissioning.	
National Federation of Fishermen's Organisations (NFFO)	Norfolk Boreas PEIR Response December 2018	We would also encourage the use of funding arrangements like the West of Morecombe Fisheries Fund as a mechanism to support fishing industry stakeholders affected by the project and provisioning of work opportunities (e.g. guard vessels or surveys for example) available to affected fisheries stakeholders as far as practically possible.	The potential for a community benefit fund is outwith the DCO consenting regime and therefore wider community benefits should not be taken into account when determining the Application. Notwithstanding this, the Applicant has and will continue to engage in relevant wider industry initiatives as appropriate. For example Vattenfall is a member of European Subsea Cables Association (ESCA).
National Federation of Fishermen's Organisations (NFFO)	Norfolk Boreas PEIR Response December 2018	We encourage to support the adoption of the Fish Safe device by fishing vessels operating in the area – see <a href="http://www.fishsafe.eu/en/fishsafe-unit.aspx">http://www.fishsafe.eu/en/fishsafe-unit.aspx</a> . This technology, which combined with other safety elements above, provides automated means of integrating safety information into the navigational systems on fishing vessels that in turn provide a real-time warning of safety hazards in the wheel house. This will greatly promote safe working regime around the vicinity of the project and minimise the likelihood of incidents occurring in an area where there exists high levels of fishing activity.	
Mr. Williamson	Boreas Offshore Wind Farm Offshore Order Limits Change Report March 2019	As a fulltime fishermen working from Sea Palling, Mr. Williamson, is concerned of the potential impact of the Norfolk Boreas export cable on his fishing grounds.	Note that the Offshore Order Limits Change does not affect inshore areas such as those that Mr. Williamson may target. The potential impact of the construction/decommissioning and operational phase of the project on local vessels, including those operating from Sea Palling has been taken account of in Chapter 14. Consultation has been undertaken with Mr. Williamson and other local fishermen to inform the PEIR/ES. Consultation is on-going and will continue post-consent (Table 14.2 and Table 14.3).  The potential impacts of the project on fish and shellfish species, including species of commercial importance are assessed in Chapter 11, Fish and Shellfish Ecology.

Consultee	Date /Document	Comment	Response / where addressed in Chapter 14 Commerical Fisheries
Secretary of State (SoS)	June 2017 Norfolk Boreas Scoping Opinion	The SoS welcomes the proposed consultation with local fisheries organisations and individual fishermen, as well as the appointment of a Fisheries Liaison Officer (FLO) as part of the pre-application process. The continuation of the FLO appointment into the construction and operational phase should be considered.	Noted. As outlined in section 14.7.1, and in line with FLOWW guidelines, the appointment of the Fisheries Liaison Officer (FLO) will continue over the construction and operational phase.
SoS	June 2017 Norfolk Boreas Scoping Opinion	The loss or restricted access to traditional fishing grounds may have subsequent effects on alternative fishing grounds such as those which are fished by smaller vessels. Impacts on alternative fishing grounds should fully be assessed within the ES.	An assessment of the potential loss or restricted access to traditional fishing grounds and potential for subsequent displacement has been carried out for all fleets active in the study area (section 14.7 and 14.8).
SoS	June 2017 Norfolk Boreas Scoping Opinion	The SoS welcomes that the proposed cumulative assessment will take into account other wind farm developments within the former East Anglia Zone. However, consideration should be given to the wider cumulative impacts arising from other wind farms off the Norfolk Coasts which lay outside this zone.	The assessment of cumulative impacts (section 14.8) takes account of other offshore wind farm projects in the former East Anglia Zone and the wider area, including both UK and non-UK projects and takes account of all relevant fleets, including local fleets.
Marine Management Organisation (MMO)		Early engagement with the fishing industry and those involved in nearby aggregate dredging is recommended. In particular, the formation of a commercial fisheries working group would be advantageous. Meetings could be co-ordinated with other wind farm meetings to minimise duplication and promote co-operation.	Noted. Extensive consultation has been carried out to date with the fishing industry, including local, national and international stakeholders (Table 14.2 and Table 14.3). Consultation with the fishing industry is ongoing and will continue post consent.
Norfolk County Council	June 2017 Norfolk Boreas Scoping Opinion	The Scoping Report specifically refers to the need to take into account the potential cumulative impacts of other wind farm developments within the former East Anglia Zone (page 161 para 622). While supporting this principle, it is felt that the EIA should take into account the wider cumulative impacts arising from other operational, consented and proposed wind farms off the Norfolk Coast (i.e. taking into account wind farms consented under earlier consenting rounds / licencing regimes). Commercial fishing contributes to the coastal	The assessment of cumulative impacts (section 14.8) takes account of offshore wind farm projects under construction, consented and proposed in the former East Anglia Zone and the wider area, including both UK and non-UK projects and takes account of all relevant fleets, including local fleets. As outlined in section 14.8, operational projects are considered to be part of the existing environment and therefore have not been included in the cumulative



Consultee	Date /Document	Comment	Response / where addressed in Chapter 14 Commerical Fisheries
		economy in Norfolk and as such the impacts of this proposal alongside those already operational, consented or planned needs to be carefully considered.	assessment.
Norfolk County Council	June 2017 Norfolk Boreas Scoping Opinion	<p>The EIA/PEIR should consider the potential impact of the offshore scheme, including any underwater cable routes and other ancillary development, on Norfolk’s commercial fishing interests. The EIA will need to consider the wider cumulative impacts taking into account existing operational wind farm; those under constructions; those consented and those in planning. The EIA should set out appropriate mitigation, and where necessary indicate what compensation, will be given to those commercial fishing interests in Norfolk adversely impacted by the operation of the wind farm and/or ancillary development.</p> <p>In addition the EIA should provide an indication of the likely impact on the local fishing industry particularly when other proposals are taken into account.</p>	<p>Consideration has been given in this chapter to all relevant offshore infrastructure associated with the project for assessment of potential impacts on commercial fisheries, including offshore cables (Table 14.12).</p> <p>Proposed and consented wind farms in the former East Anglia Zone and the wider area (both UK and non-UK projects) have been included for assessment of cumulative impacts for all fisheries receptors, including local fleets (section 14.8).</p> <p>Operational wind farms are considered part of the existing environment and have therefore not been included in the cumulative assessment.</p> <p>A number of embedded mitigation measures have been incorporated as part of the design of the project. Those of relevance to commercial fisheries are described in section 14.7.1. Where appropriate, additional mitigation measures have been identified. These will be implemented taking an evidence based approach in line with FLOWW guidance (section 14.7.4.2.3).</p>

**Table 1.2 Consultation Responses - Norfolk Vanguard Scoping Opinion and PEIR**

Consultee	Date /Document	Comment	Response / where addressed in Chapter 14 Commercial Fisheries
Secretary of State/Planning Inspectorate	November 2016 Norfolk Vanguard Scoping Opinion	The ES should identify whether safety zones will be sought around the offshore infrastructure and, if so, the potential effects of these should be considered within the assessment. If the precise extents are unknown, a realistic worst case scenario should be assessed and the Secretary of State would require the DCO to be limited as such.	Consideration has been given to the implementation of safety zones for definition of the worst case scenario (Table 14.12) and for assessment of potential impacts on commercial fisheries (section 14.7). Detailed information with regards to safety zones is provided in the Safety Zones Statement (Document 7.2).
Marine Management Organisation	November 2016 Norfolk Vanguard Scoping Opinion	The following information source may provide useful information to help support the ES. The Eastern Sea Fisheries Joint Committee Fisheries (ESFJC) Mapping Project Charts, compiled in 2010 may provide some useful fishing boundary information for inshore fishing activities. The data is available from <a href="http://www.easternifca.gov.uk/about/fisheries/fisheries-mapping-project">www.easternifca.gov.uk/about/fisheries/fisheries-mapping-project</a>	Information derived from the ESFJC Fisheries Mapping project has been used to inform this chapter (Figure 14.23).
Eastern IFCA	October 2017 Norfolk Vanguard Consultation on PEIR	The East Marine Plans support sustainably-developed offshore wind energy generation projects. There are many of such projects in the southern North Sea, including Dudgeon, Sheringham Shoal, Scroby Sands, Race Bank, Triton Knoll, Lynn & Inner Dowsing, Lincs, and East Anglia offshore windfarms as well as other projects and plans. While Eastern IFCA appreciates that the cumulative impacts of Norfolk Vanguard with Norfolk Boreas and East Anglia THREE offshore wind farms have been comprehensively assessed within this PEIR, Eastern IFCA would encourage further assessment on an ongoing basis of the cumulative impacts of all Southern North Sea wind farm activity, as well as other activities including aggregate extraction activities. The impacts of these projects on the marine environment and fisheries should be assessed in-combination, highlighting any potential cumulative effects associated with the licence application and guiding decision-making and plan implementation in a stepwise approach.	The assessment of cumulative impacts (section 14.8) takes account of offshore wind farms under construction as well as consented and proposed projects in the former East Anglia Zone and the wider area, including both UK and non-UK projects. Operational offshore wind farm projects are considered to form part of the existing environment and therefore have not been included in the cumulative assessment.  In addition to offshore wind farms, other projects/activities have been given consideration for assessment of cumulative impacts, including aggregate dredging areas and potential closures to towed gear fisheries within marine protected areas (MPAs) (section 14.8).
Eastern IFCA	October	Where conclusions have been drawn within the PEIR that the project	The cumulative impacts of the project in conjunction with other projects and activities are assessed in section 14.8.

Consultee	Date /Document	Comment	Response / where addressed in Chapter 14 Commerical Fisheries
	2017 Norfolk Vanguard Consultation on PEIR	could have cumulative impacts with other plans/projects, these should be mitigated for wherever possible. This includes mitigation of the cumulative impacts on offshore ornithology, marine mammals and commercial fisheries.	The cumulative assessment carried out did not identify significant cumulative impacts on fisheries receptors. Specific mitigation in respect of cumulative impacts, additional to those proposed in the assessment of the project alone has therefore not been proposed. Cumulative impacts on seabirds are discussed in Chapter 13 Offshore Ornithology.  Cumulative impacts on marine mammals are discussed in Chapter 12 Marine Mammals.
Marine Management Organisation	October 2017 Norfolk Vanguard Consultation on PEIR	The MMO would welcome more information on how the trawl-ability of the seabed after the construction of the windfarm is going to be assessed and how this is to be communicated to the fishing industry.	An Outline Scour Protection and Cable Protection Plan is provided with the Boreas DCO Application (Document 8.16). A cable burial risk assessment will be undertaken post consent, in consultation with stakeholders.  In the event that cables become unburied during the operational phase it is anticipated that this would be communicated through the use of appropriate channels.
Marine Management Organisation	October 2017 Norfolk Vanguard Consultation on PEIR	If during construction, any unused cables are to be cut and clumped at the point of intersection with the windfarm cables, this will have to be licensed to ensure that the location of the clumped cables is known and communicated as a potential navigational risk to other sea users.	As outlined in section 14.7.1 appropriate communication channels will be established to ensure that fishermen are aware of works being undertaken and of the presence of any items which may accentuate risk.
Marine Management Organisation	October 2017 Norfolk Vanguard Consultation on PEIR	The MMO notes that Vattenfall has stated cable protection to be kept to a minimum which is to be welcomed. However, contingency for unexpected exposures/unburied cables should be built into the assessments.	An Outline Scour Protection and Cable Protection is provided with the Norfolk Boreas DCO Application (Document 8.16). A cable burial risk assessment will be undertaken post consent, in consultation with stakeholders.  As described in section 14.7.1, once cables are installed into the seabed, post-lay and burial inspection surveys will be undertaken. In addition to burial status, these will identify the presence of construction related seabed obstacles and,

Consultee	Date /Document	Comment	Response / where addressed in Chapter 14 Commerical Fisheries
			<p>where appropriate and practicable, rectification works would be undertaken.</p> <p>In addition, potential risks associated with unexpected exposures/unburied cables will be communicated to fishermen through appropriate channels.</p>
Marine Management Organisation	October 2017 Norfolk Vanguard Consultation on PEIR	Effort by the under 12m fleet is often underestimated as they aren't required to carry VMS and may be missed by overflight surveys. With this in mind, the consultation with local fishers and representatives of the fishing industry is vital to ensure the activity of fishers is captured. Such consultation results should be included in the EIA to support the assessment.	Extensive consultation has been carried out with the fishing industry to help inform this assessment, including consultation with local fleets (Table 14.2 and Table 14.3). Consultation with local fishermen and representatives will be ongoing throughout the lifetime of the project and in accordance with the Fisheries Liaison and Co-Existence Plan which will be produced post consent.
National Federation of Fishermen's Organisations	October 2017 Norfolk Vanguard Consultation on PEIR	Protect emergent hazards such as exposed cables through appropriate means (e.g. guard vessel deployment) prior to remediation works being completed.	<p>Noted.</p> <p>Consideration of the used of guard vessels has been noted in Outline FLCP.</p>
National Federation of Fishermen's Organisations	October 2017 Norfolk Vanguard Consultation on PEIR	<p>Preparation of a fisheries liaison and coexistence plan prepared in consultation with fisheries stakeholders that may detail provisions identified above as well as other operational management arrangements such as provisions for gear clearance and disruption settlements, navigation corridors and protocols, gear snagging protocols and processes for attributable claims, and retrieval of displaced static gears from safety zones.</p> <p>The NFFO suggests this is prepared at an early stage so that certainty and assurance can be provided to fishing communities and workable approaches to resolving issues can be established. It is expected, however, that it will form a working document that is periodically updated to reflect changing circumstances or the emergence of issues</p>	An Outline FLCP has been submitted with the application (Document 8.19). This will be further developed post-consent. The FLCP will be an evolving document, which would be updated as required.

Consultee	Date /Document	Comment	Response / where addressed in Chapter 14 Commerical Fisheries
		that have not been previously accounted for.	
Natural England	October 2017 Norfolk Vanguard Consultation on PEIR	Natural England do not necessarily agree that only impacts assessed as significant resulting from the construction and operation will have the potential to contribute to cumulative effects. A range of smaller impacts over a long period of time could eventually become a significant impact	All the potential impacts on commercial fisheries assessed for the project alone have been taken account of in the cumulative assessment (section 14.8).
Natural England	October 2018 Norfolk Vanguard Consultation on PEIR	Agree with the proposal to bury the cables – not only does it reduce the risk to fishermen but also reduces the effects of EMF upon sensitive fish species. However, additional cable (rock) protection should only be a last resort where burial is not possible. It would pose a risk to trawling fishing vessels and also could have negative environmental effects – especially in soft sediment dominated area.	As previously mentioned, Norfolk Boreas Limited is committed to bury the cables where feasible, therefore reducing the need for cable protection. Potential safety issues for fishing vessels associated with cable protection have been taken account of in this chapter and are assessed in section 14.7.5.6. Potential impacts associated with EMFs on sensitive fish species are considered within Chapter 11 Fish and Shellfish Ecology.

## 2 References

Royal HaskoningDHV (2018) Norfolk Boreas Offshore Wind Farm Preliminary Environmental Information Report.

Royal HaskoningDHV (2017a). Norfolk Boreas Offshore Wind Farm Environmental Impact Assessment Scoping Report.

Royal HaskoningDHV (2017b). Norfolk Vanguard Offshore Wind Farm Preliminary Environmental Information Report.

Royal HaskoningDHV (2016). Norfolk Vanguard Environmental Offshore Wind Farm Impact Assessment Scoping Report.