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(By Email only)

MMO Reference: DCO/2019/00008
Planning Inspectorate Reference: EN010115
Identification Number: 20049306

24 January 2025

Dear Sir or Madam,

Planning Act 2008, Five Estuaries Offshore Wind Farm Ltd, Proposed Five Estuaries Offshore Wind Farm Order

Additional Submission

On 23 April 2024, the Marine Management Organisation (the "MMO") received notice under section 56 of the Planning Act 2008 (the "PA 2008") that the Planning Inspectorate ("PINS") had accepted an application made by Five Estuaries Offshore Wind Farm Ltd (the "Applicant") for determination of a development consent order for the construction, maintenance and operation of the proposed Five Estuaries Offshore Wind Farm (the "DCO Application") (MMO ref: DCO/2019/00008; PINS ref: EN010115).

The Applicant seeks authorisation for the construction, operation and maintenance of DCO Application, comprising of up to 79 wind turbine generators together with associated onshore and offshore infrastructure and all associated development ("the "Project").

As a marine licence has been deemed within the draft DCO, the MMO is the delivery body responsible for post-consent monitoring, variation, enforcement, and revocation of provisions relating to the marine environment. As such, the MMO has an interest in ensuring that provisions drafted in a deemed marine licence enable the MMO to fulfil these obligations.

This document comprises the MMO comments in respect of the DCO Application submitted, as an additional submission to Deadline 5.

This written representation is submitted without prejudice to any future representation the MMO may make about the DCO Application throughout the examination process. This representation is also submitted without prejudice to any decision the MMO may make on any associated application for consent, permission, approval or any other type of authorisation submitted to the MMO either for the works in the marine area or for any other authorisation relevant to the proposed development.

Yours sincerely,

[redacted]

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1. MMO Comments on Deadline 1 and 4 Submissions

1.1. General Comments

1.1.1. The MMO noted in our Deadline 5 Response (REP5-100) that the Applicant submitted the following documents in Deadline 1 and 4 to address some of our concerns raised in our Relevant Representation (RR-070):

a. REP1-049 – 10.4 Applicant's response to Relevant Representations (Clean)
b. REP4-010– 6.5.6.4 Herring Seasonal Restriction Note - Revision C (Clean)
c. REP4-011– 6.5.6.4 Herring Seasonal Restriction Note - Revision C (Tracked)
d. REP4-017 – 9.8 Dredge Disposal Site Characterisation Report - Revision B (Clean)
e. REP4-017 – 9.8 Dredge Disposal Site Characterisation Report - Revision B (Tracked)
f. REP4-019 – 9.12 Outline Cable Specification and Installation Plan - Revision B (Clean)
g. REP4-020 – 9.12 Outline Cable Specification and Installation Plan - Revision B (Tracked)
h. REP4-021 – 9.13 Margate and Long Sands Special Area of Conservation Benthic Mitigation Plan - Revision C (Clean)
i. REP4-022 – 9.13 Margate and Long Sands Special Area of Conservation Benthic Mitigation Plan - Revision C (Tracked)
j. REP4-023 – 9.14.1 Outline Marine Mammal Mitigation Protocol - Piling - Revision C (Clean)
k. REP4-024 – 9.14.1 Outline Marine Mammal Mitigation Protocol - Piling - Revision C (Tracked)
l. REP4-032 – 10.15 Revised International Herring Larval Survey Heat Map Figures - Revision B (Clean)
m. REP4-033 – 10.15 Revised International Herring Larval Survey Heat Map Figures - Revision B (Tracked)
n. REP4-034 – 10.20.1 Technical Note - Methodology for Determining MDS (Offshore) - Revision B (Clean)
o. REP4-035 – 10.20.1 Technical Note - Methodology for Determining MDS (Offshore) - Revision B (Tracked)
p. REP4-040 – 10.29 Applicant's Comments on Deadline 3 Submissions
q. REP4-041 – 10.30 Outline Sediment Disposal Management Plan

1.1.2. The MMO has reviewed the above documents with our technical advisers and have split our comments into the following topics:

- Fish Ecology
- Underwater Noise
- Dredge and Disposal
- Benthic Ecology
- Shellfish Ecology
- Coastal Processes

1.2. Fish Ecology

1.2.1. In providing this response the MMO has reviewed the following documents:

- REP4-010– 6.5.6.4 Herring Seasonal Restriction Note - Revision C (Clean)
- REP4-011– 6.5.6.4 Herring Seasonal Restriction Note - Revision C (Tracked)
- REP4-032 – 10.15 Revised International Herring Larval Survey Heat Map Figures - Revision B (Clean)
- REP4-033 – 10.15 Revised International Herring Larval Survey Heat Map Figures - Revision B (Tracked)

1.2.2. The MMO notes the Applicant has now removed the 5 dB incremental noise contours from the maps in Figures 5 and 6 (REP4-032) and instead, has presented only the 135 dB sound exposure level single strike (SELss) noise contour to demonstrate the range of effect over which behavioural responses in herring may occur (as per Hawkins et al., 2014). The MMO thanks the Applicant for making this change in presentation. Figures 5 and 6 are now easier to interpret and the range of effect for piling in each of the arrays can be seen more clearly. The range of effect on herring for the pin-piling, and monopiling scenarios is shown to extend over approximately three quarters of the historic spawning ground and covers a large proportion of areas where larval abundances of between 1,500 – 9,500 metres squared (m^2) have been recorded.

1.2.3. In the revised Herring Seasonal Restriction Note (REP4-011) the Applicant has taken note of our request to undertake interrogation of International Herring Larval Survey (IHLS) data by the individual survey periods (1-15 January and 16-31 January), based on the current understanding that spawning of Downs herring generally occurs earlier in the spawning season in the south in the English Channel, and later in the season further north in the Southern North Sea (SNS), as the herring migrate northwards (see Annex 1 for International Council for the Exploration of the Sea (ICES) bubble plot maps which demonstrate how abundance on herring larvae varies in throughout the three survey periods 16-31 December, 1-15 January and 16-31 January in the English Channel and SNS Downs spawning grounds). Using IHLS data from these survey periods, the Applicant has carried out revised back-calculation exercises using different parameters to determine the start and end of the 'peak' of herring spawning activity.

1.2.4. The MMO notes the Applicant has identified that the earliest start date for IHLS survey period 1-15 January is 3 January, and the latest end date for the survey period 16-31 January is 24 January. These dates represent the points from which the back-calculation of the start and end in the 'peak' of spawning activity should be made.

<u>Larval (catch) lengths in IHLS data</u>

1.2.5. The MMO notes the Applicant has reviewed the IHLS larval length (catch length) data and plotted the mean herring larval lengths per sampling station from the IHLS data over a 10-year period (2012-2024) for each of the three survey periods (16-31 December, 1-15 January and 16-31 January) in Figures 2-1, 2-2 and Figure 2-3, respectively. Using this data, the Applicant has determined that a larval catch length of 11 millimetres (mm) is appropriate for use in the back-calculation. This length is

appropriate and is in agreement with ICES who classify newly hatched Downs stock larvae as those <11 mm in length.

Hatch length - larval length at hatching

1.2.6. The MMO notes the Applicant has selected hatch lengths of 5mm and 6mm (based on Heath, 1993), 7.5mm (Blaxter and Hempel, 1963) and 11mm (as larvae within the Downs stock are known to hatch up to 11 mm in length) for use in the back-calculation. The Applicant has noted that only 0.2% of the recorded larvae from 2012/2013 to 2023/2024 in the January surveys, and 0% of the recorded larvae from 2012/2013 to 2016/2017 in the January surveys measured 5mm. However, the Applicant has recognised that newly hatched larvae would not be routinely collected in the IHLS surveys due to the limitations of the sampling method, and hence have used suitable peer-reviewed literature as a reliable source for hatch lengths. As per our REP1-064 and REP3-029, a hatch length of 5 mm is the most appropriate and conservative hatch length for use in the back-calculation, as it is based on data collected on wild caught Downs larvae in the field (Heath, 1993), whereas Blaxter and Hempel (1963) fertilised and incubated the herring eggs under laboratory conditions. A hatch length of 11mm is valid for the purpose of establishing the most conservative end date for the peak of spawning.

Egg development period

1.2.7. As recommended, the Applicant has used the egg development periods (Table 1 in REP3-029) from Russell (1976) to determine the number of days over which Downs herring eggs develop before hatching, depending on sea bottom temperatures. The Applicant has used IHLS data for the temperature at the maximum sampling depth for the years 2012/2013-2023/2024 to determine the average temperature at the maximum sampling depth to calculate an average seafloor temperature for egg development duration of 8.3°C. The mean temperature at the maximum sampling depth per sampling station for the years 2012 – 2024 is presented in Figure 2-4 and the temperatures at the maximum sampling depth per sampling station for the individual survey years (2012-2013 to 2023-2024) is shown in Figures 6-2 to 6-10 of REP4-010. The average seafloor temperature of 8.3°C equates to an egg-development period of 14-18 days according to Russell (1976). Adopting a precautionary stance, we still request that an 18-day egg development period is used for the purpose of the back-calculation.

Yolk-sac absorption period

1.2.8. The Applicant has considered a number of peer-reviewed sources for information on yolk-sac absorption periods in newly hatched herring larvae including Russell (1976) Kiorboe et al. (1985) and Geffen (2002). The MMO highlights that the study by Kiorboe et al. used herring eggs from populations from the Firth of Clyde in the Irish Sea and Limfjord, Denmark, neither of which are Downs herring and do not spawn between November and January. The Aalborgsild herring (Limfjord area) are understood to be a spring spawning stock, however, when the Agger Tange was breached, connecting the North Sea with the fjord, the North Sea herring became the dominant race, though it is now unclear whether herring caught in Limfjord are still

from the Aalborgsild stock. The study by Geffen (2002) also used herring from the Firth of Clyde which spawn in September - October.

1.2.9. The MMO does not support the Applicant's proposal that the most appropriate yolk-sac absorption period to use in the back calculations is seven days, because it is informed by results from Kiorboe et al., (1985) and Geffen (2002), neither of which are appropriate for Downs herring in the Southern North Sea. We maintain that it is most appropriate to follow the yolk-sac absorption periods by Russell (1976) who considered data from a number of studies to inform his review and presented a yolk-sac absorption period to account for variability. Hence, based on an average seafloor temperature of 8.3°C, the yolk absorption period will be between 7 and 20 days. Noting that the lowest temperature for yolk-development given by Russel (1976) is 10.3°C, the MMO requests that the yolk-sac absorption period is set at 20 days to account for the lower average seafloor temperature of 8.3°C recorded in the IHLS data.

Growth rate

1.2.10. The MMO notes the Applicant has used an equation from Oeberst et al. (2009) to calculate a growth rate period for Downs herring larvae of 0.34 mm d-1. Whilst the MMO acknowledges that authors of this paper identified that the equation had strong agreement with values in literature at the lower temperatures, they also noted that the regression lines for the equation diverge at higher values suggesting that extrapolating from values in the literature would tend to give an artificially low estimate of growth rates. Furthermore, Oeberst et al. (2009) studied daily growth of Baltic, spring spawning herring larvae, where water temperatures vary from 5°C to 20°C. Whereas Heath's (1993) estimated growth rates came from field investigations for herring from a number of locations including the North Sea, Norwegian Sea, Baltic Sea, Firth of Clyde and West of Scotland. In fact, for Downs herring, Heath (1993) gives a growth rate of 0.165 mm d-1 based on a temperature of 8°C. As is illustrated by the Applicant in Table 2-3 of REP4-010, Heath summarised that the mean growth rate for North Sea herring larvae is between 0.2 mm d-1 and 0.3 mm d-1, hence, the MMO considers that our requested growth rate of 0.25 mm d-1 is appropriate and not overly precautionary.

Back-calculation results

1.2.11. The MMO notes the Applicant has presented their back-calculation scenarios in Tables 2-4 and 2-5 of REP4-010, which considers the various parameters for hatch and catch lengths, egg-development and yolk-sac absorption periods, and growth rates. Based on the parameters the MMO has requested above, scenario 'I' is suitable for the back-calculation for determining the start of the 'peak' of herring spawning activity, and scenario 'P' is suitable for the back-calculation for determining the end of the 'peak' of herring spawning activity. Using scenarios 'I' and 'P' takes a precautionary approach and provides the largest spawning 'window', whilst still being able to reduce the overall period of the seasonal piling restriction. The MMO previously highlighted the reasons why a precautionary approach should be taken when performing a back-calculation, in points 1.2.6-1.2.9 in REP3-029.

1.2.12. The dates for the start and end of the 'peak' of spawning back on the various back-calculation scenarios have been presented in Table 2-6 and 2-7 in REP4-010. Following the parameters the MMO has requested above for scenario 'I' the start date for the peak of spawning is calculated as 2 November. Following the parameters we have recommended above for scenario 'P' the end date for the peak of spawning is calculated as 17 December.

1.2.13. Please note that the MMO does not support the Applicant's conclusion that the 'peak' of spawning occurs from 25 November until 3 January. This is because it is based on parameters which we do not support and are not considered adequately conservative.

1.2.14. A 'buffer' period should be applied at the start (2 November) of the 'peak' spawning period to allow adult fish to migrate to the spawning ground without risk of injury. The MMO requests that there is a minimum period of 24 hours before piling commences. Thus, we propose that the piling restriction begins on 1 November.

1.2.15. A 'buffer' period should also be applied at the end (17 December) of the 'peak' spawning period to allow developing larvae which lack mobility to drift away from the spawning grounds in their early developmental stages without injury. We request that this period is no less than seven days. Thus, we propose that the piling restriction ends on 24 December.

1.2.16. The MMO's request for a refined seasonal piling restriction from 1 November to 24 December inclusive, reduces the overall period by 38 days (the Downs herring spawning season is from 1 November to 31 January). It is also worth noting that a similar exercise was carried out to refine the seasonal piling restriction using IHLS data for the original Galloper offshore wind farm development.

1.2.17. A piling restriction between 1 November and 31 December was recommended for Galloper and conditioned on the marine licence, which suggests that our requested restriction for Five Estuaries Offshore Wind Farm of 1 November to 24 December inclusive, is not only proportionate to that of Galloper, but that the IHLS data reviewed during the application stage in 2011 indicated a similar spawning period.

1.2.18. The MMO also notes there are some typing errors under Section 2.8.4 for the hatch lengths for scenarios K and L, M and N, and O and P. The larval hatch lengths should be written as 6 mm, 7.5 mm and 11 mm respectively for these scenario groups, instead of 5 mm.

1.3. Underwater Noise

1.3.1. In providing this response the MMO has reviewed the following documents:

a. REP1-049 – 10.4 Applicant's response to Relevant Representations (Clean)
b. REP4-023 – 9.14.1 Outline Marine Mammal Mitigation Protocol - Piling - Revision C (Clean)
c. REP4-024 – 9.14.1 Outline Marine Mammal Mitigation Protocol - Piling - Revision C (Tracked)
d. REP4-040 – 10.29 Applicant's Comments on Deadline 3 Submissions

1.3.2. While the MMO understands that the Applicant stands by their predictions of underwater noise as presented (point MMO36 in REP4-040), our primary concern remains unaddressed. The MMO requires actual evidence to justify the source levels assumed in the modelling. Simply standing by the predictions without providing supporting data is insufficient for a transparent and thorough assessment.

1.3.3. In response to point MMO22 in Rep4-040, the MMO has no further comments to make at this time. The MMO does however maintain our original position. We do not disagree with the Applicant that the assessment represents the realistic worst-case scenario, and this is appropriate. However, the MMO notes the various claims throughout the Environmental Statement that the noise modelling and predictions are "highly precautionary" are unjustified, especially when the current version of INSPIRE should produce more realistic predictions. There are also uncertainties (such as animal fleeing assumptions, propagation loss and predicted source levels) that may counteract some of the precautionary or conservative assumptions built into the noise modelling.

1.3.4. With regards to point MMO24 in REP4-040, the MMO provides clarity that the request for including the weighted noise contours showing 5 dB increments of the single strike sound exposure level (alongside the unweighted 5 dB noise contours) would aid in the verification of the modelled predictions is for marine mammals.

1.3.5. With regards to points MMO28-MMO34 in REP4-040, the MMO has no further comments to make. The MMO raised the comments for awareness and to highlight recent findings in the peer-reviewed literature.

1.3.6. The MMO has no major comments to raise at this time regarding REP4-023. The MMO notes the Marine Mammal Mitigation Protocol (MMMP) is relatively high level at this stage. The main change/update to the MMMP is Section 4.7 which states that in addition to the mitigation approach set out in Section 4.1, contingency measures may be specified that could be used in the unlikely event that the monitored noise levels exceed those assessed in the Environmental Statement after the approved mitigation has been applied. The MMO notes the approach to contingency measures will be set out in the Final Piling MMMP, which the MMO will maintain a watching brief for. The MMO welcomes that Table 3.1 has been amended and it now states the correct predicted cumulative sound exposure level (SELcum) Permanent Threshold Shift (PTS) impact range for harbour porpoise (S-SW modelling location).

1.3.7. The MMO notes that Annex 6.2.1: Landfall Impact Piling Modelling lacks information on the environment where piling will occur. Figure 1-1 for example, shows the landfall area as well as the representative modelling location used for this study. The MMO requests this figure to also show the bathymetry of the domain. There is no indication of the water depths at the piling source. The report simply states: *"as the furthest from land and therefore deepest location, this represents the location likely to lead to the largest potential impact ranges"*.

1.4. Dredge and Disposal

1.4.1. In providing this response the MMO has reviewed the following documents:

a. REP1-049 – 10.4 Applicant's response to Relevant Representations (Clean)
b. REP4-017 – 9.8 Dredge Disposal Site Characterisation Report - Revision B (Clean)
c. REP4-017 – 9.8 Dredge Disposal Site Characterisation Report - Revision B
d. REP4-019 – 9.12 Outline Cable Specification and Installation Plan - Revision B (Clean)
e. REP4-020 – 9.12 Outline Cable Specification and Installation Plan - Revision B (Tracked)
f. REP4-034 – 10.20.1 Technical Note - Methodology for Determining MDS (Offshore) - Revision B (Clean)
g. REP4-035 – 10.20.1 Technical Note - Methodology for Determining MDS (Offshore) - Revision B (Tracked)
h. REP4-040 – 10.29 Applicant's Comments on Deadline 3 Submissions
i. REP4-041 – 10.30 Outline Sediment Disposal Management Plan

1.4.2. The MMO welcomes that the Applicant will endeavour to provide the raw data in the required format. The MMO has provided the link to the MMO excel template for the raw data to be submitted in in REP3-029. The MMO is maintaining a watching brief for the raw data from the Applicant.

1.4.3. The MMO notes that the Applicant clarified the use of a 6% threshold to determine whether a sample should be included for contaminant analysis in point MMO44 of REP4-040. However, it does re-open the question as to what threshold was used to determine which samples should be tested for contaminants. The MMO requests clarification on this.

1.5. Benthic Ecology

1.5.1. In providing this response the MMO has reviewed the following documents:

a. REP1-049 – 10.4 Applicant's response to Relevant Representations (Clean)
b. REP4-019 – 9.12 Outline Cable Specification and Installation Plan - Revision B (Clean)
c. REP4-020 – 9.12 Outline Cable Specification and Installation Plan - Revision B (Tracked)
d. REP4-021 – 9.13 Margate and Long Sands Special Area of Conservation Benthic Mitigation Plan - Revision C (Clean)
e. REP4-022 – 9.13 Margate and Long Sands Special Area of Conservation Benthic Mitigation Plan - Revision C (Tracked)
f. REP4-040 – 10.29 Applicant's Comments on Deadline 3 Submissions

1.5.2. The MMO notes the Applicant has clarified that the target burial depth will be defined post-consent, and more detail will be included in the Cable Specification and

Installation Plan. This document will inform the minimum acceptable cable depth, and the proposed remedial actions should this not be achieved e.g., potential for re-burial attempts or installation of cable protection. Furthermore, the data available and work carried out to date indicate that the ground conditions within the export cable corridor and the Margate and Long Sands Special Area of Conservation are conducive to effective cable burial (REP4-021 and REP4-022).

1.5.3. The MMO wants to highlight that recent research has indicated that there may be an increase in microplastic emissions from offshore wind farms (e.g., flaking of antifouling paint and erosion of turbine blade leading-edge protection materials) which could subsequently impact upon benthic receptors (Tagg et al., 2024; Piarulli et al., 2024). The MMO's advice to other similar developments regarding this impact was to ensure adequate sampling of the pre-construction condition of sediment bound microplastic load and we maintain our position and ask the Applicant to seek opportunities for collaboration between researchers and industry to ensure that the opportunity to investigate this potential impact to benthic ecology is not missed at the Five Estuaries Offshore Wind Farm.

1.6. Shellfish Ecology

1.6.1. In providing this response the MMO has reviewed the following documents:

a. REP1-049 – 10.4 Applicant's response to Relevant Representations (Clean)
b. REP4-040 – 10.29 Applicant's Comments on Deadline 3 Submissions

1.6.2. The MMO's advice in REP3-029 raised that that it would be best practice to consider monitoring the fishing activity of the potting fleet during the operational phase. This would allow a comparison against the baseline (pre-construction) to ensure that the impacts on the potting fishery are in line with the expected impacts (minor adverse).

1.6.3. Furthermore, the MMO notes the Applicant mentions that significant impacts on fishing fleets during the operational phase of the Project are not anticipated. A monitoring during operational phase would reduce the uncertainty around the anticipated impacts on the potting fishing fleet.

1.6.4. The MMO notes the Applicant has commented that "*fishing, inclusive of potting methods, will be able to resume during the operational phase across both the offshore Export Cable Corridor and Array Areas. This is supported by evidence that more widely in the North Sea, resumption of potting across operational subsea cables and within operational offshore wind farm arrays has occurred."* And concludes that *"in relation to commercial fisheries, monitoring is not considered to be required."*

1.6.5. The MMO highlights that the evidence the Applicant refers to, for the resumption of potting across operational subsea cables and within operational offshore wind farm arrays across the North Sea, has not been presented in the documents. The MMO requests the evidence is presented and included in the Environmental Statement as best practice and for transparency. If the Applicant provides the evidence that potting activity can resume to levels prior to the construction of the offshore wind farm, then the MMO can look to agree no monitoring is required.

1.7. Coastal Processes

1.7.1. In providing this response the MMO has reviewed the following documents:

a. REP1-049 – 10.4 Applicant's response to Relevant Representations (Clean)
b. REP4-040 – 10.29 Applicant's Comments on Deadline 3 Submissions
c. REP4-041 – 10.30 Outline Sediment Disposal Management Plan

1.7.2. The MMO notes the applicant has identified “no disposal zones” which could have impacted the “Deep water shipping routes” along the disposal area. The MMO expects more use of existing or historic disposal sites especially where considerable effort has gone into restoring the habitats in these areas e.g. Roughs Tower Disposal site being used for clay deposits and thus potentially enhancing lobster habitat.

1.7.3. The MMO would expect to see an assessment of the fate of the relatively large volume of sediment. Whilst the MMO concurs with the statement that “keeping sediments local is the aim”, and as sediment transport rates and directions are well known in this area – see the Southern North Sea Sediment Transport study (sns2.org) and the on going ORE Catapult seabed mobility project, what is the longer term fate of these sediments? The MMO requests that a paper-based exercise be undertaken to identify the short term and long term fate of the relatively large volume of materials (33.7 million cubic metres (m^3)).

1.7.4. In Table 2.1 of REP4-041, the MMO requests that the Applicant explains the figure of 31.588 million m^3, as the MMO calculates this to be approximately 33.7 million m^3.

2. Offshore In-Principle Monitoring Plan (IPMP)

2.1. General Comments

2.1.1. The MMO notes an updated IPMP was submitted at Deadline 5. The MMO is currently reviewing this.

Yours sincerely,

[redacted]

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Annex 1

Herring larval abundances in the Southern North Sea during each of the three IHLS surveys (ICES 2014 and 2016)

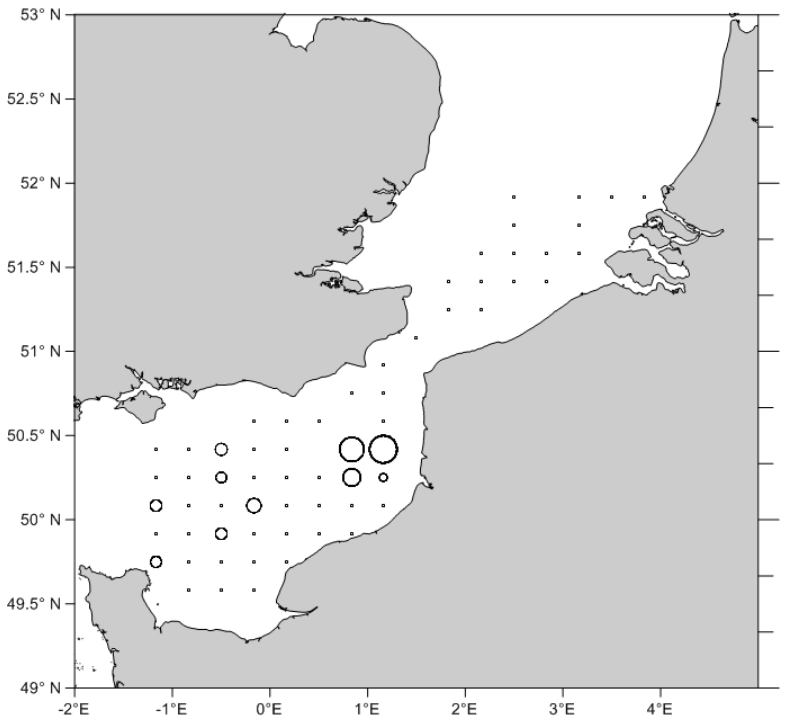

Figure 1 – North Sea herring - Abundance of larvae < 11 mm (n/m²) in the Southern North Sea (16-31 December 2013, maximum= 10 n/m²). Figure 2.3.2.2 in ICES report.

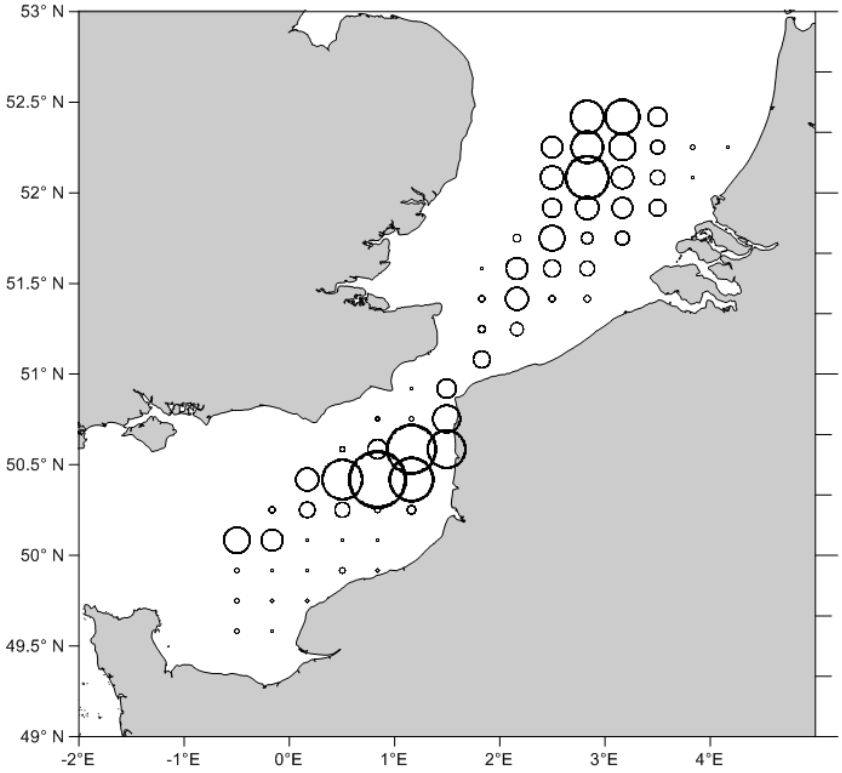

Figure 2 – North Sea herring – Abundance of larvae < 11 mm (n/m²) in the Southern North Sea (01-15 January 2014, maximum = 2 800 n/m²). Figure 2.3.2.3 in ICES report.

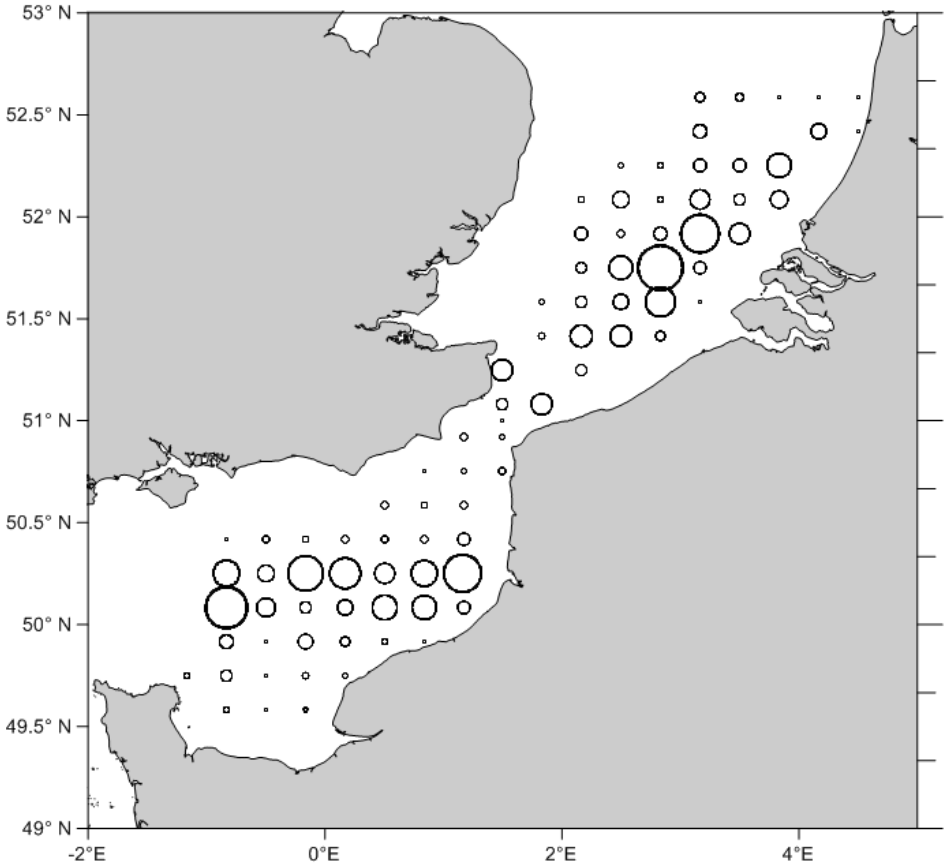

Figure 3 – North Sea herring – Abundance of larvae < 11 mm (n/m²) in the Southern North Sea (16-31 January 2014, maximum = 1 200 n/m²). Figure 2.3.2.4 in ICES report.

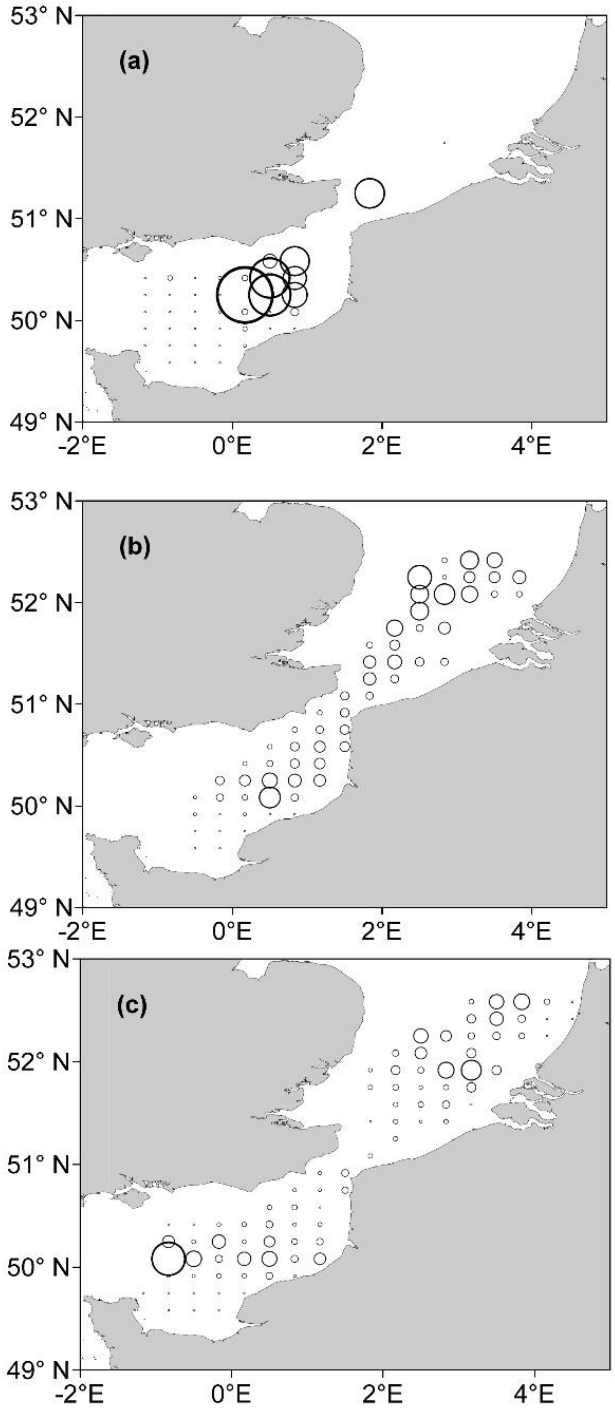

Figure 4 a-c – North Sea herring – Abundance of larvae < 11 mm (n/m^2) in the southern North Sea as obtained from the International Herring Larvae Survey in the second half of December 2015 (a) and in the first (b) and the second half (c) of January 2016 (maximum circle size = 1 600 n/m^2). Figure 2.3.2.2 a-c in ICES report.