

**RWE Renewables UK Dogger Bank
South (West) Limited**

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South (East) Limited**

**Dogger Bank South Offshore
Wind Farms**

**The Applicants' Fish and Shellfish Response to the
MMO**

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Glossary

Term	Definition
Fish and Shellfish Ecology Study Area	The Fish and Shellfish Ecology Study Area for the Projects is defined as ICES Rectangles 36E9; 36F0; 37E9; 37F0; 37F1; 37F2; 38F0; 38F1; and 38F2. It covers a total of 26,858km ² , and includes the Offshore Development Area with a minimum buffer distance of 7km.
Impact	Used to describe a change resulting from an activity via the Projects, i.e. increased suspended sediments / increased noise.
Offshore Export Cable Corridor	This is the area which will contain the offshore export cables between the Offshore Converter Platforms and Transition Joint Bays at the landfall.
Sediment	Particulate matter derived from rock, minerals or bioclastic matter.
The Applicants	The Applicants for the Projects are RWE Renewables UK Dogger Bank South (East) Limited and RWE Renewables UK Dogger Bank South (West) Limited. The Applicants are themselves jointly owned by the RWE Group of companies (51% stake) and Masdar (49% stake).
The Projects	DBS East and DBS West (collectively referred to as the Dogger Bank South Offshore Wind Farms).

Acronyms

Acronym	Definition
DBS	Dogger Bank South
ECC	Export Cable Corridor
EGL ₂	Eastern Green Link 2
IHLS	International Herring Larval Survey
KP	Kilometre Point
MMO	Marine Management Organisation
OWF	Offshore Wind Farm

1 Introduction

1. Within **The Applicants' Responses to Deadline 2 Documents** [REP3-028] (see I.D. REP2-061:24) the Applicants requested they *'would like the Marine Management Organisation (MMO) to clarify whether the >600 larvae per m² category consists of anything other than high abundance that would warrant a change to the figure's legend, and if so, what the updated categories should be; bearing in mind the intention of the display of IHLS abundance data in this report as an indicator of spawning activity.'* This question was also sent via email on the 20th February 2025.
2. The Applicants received an email response from the MMO on 4th April 2025 which the MMO have confirmed is also being provided at Deadline 4 within their submission into the Dogger Bank South (DBS) examination. In order to rapidly progress the issue, the Applicants have already provided a response below and are seeking a meeting with the MMO and Cefas to discuss the topic further.

2 Applicants' Response

3. **MMO response:** *It is difficult to respond to the Applicants question below without also considering the context of the full comment in Section 2.2.10 of the Deadline 2 (REP2-061)*
4. *Section 2.2.10 relates to key data which is missing from the Applicant's proposed approach to have the recommended temporal restriction for cable works along the DBS export cable route dismissed, using elements of an approach used for the same purpose for Eastern Greenlink 2[1] (EGL2) subsea cable. Both the EGL2 cable and the DBS export cable are proposed to run through the Flamborough Head herring spawning ground. The excerpt relates to a concern the MMO had regarding the data underpinning Figure 2.7 (included below - **Plate 2-1**) of the Deadline 1 heatmapping report. The first concern was that the Applicant has aggregated 15 years of IHLS data into a single plot which does not fully represent the spatial and temporal fluctuations in herring spawning intensity across the spawning ground over the time period. It is possible for areas of herring spawning grounds where spawning activity was previously low to be recolonised and so it is important to see these data presented as separate maps for each individual year of IHLS data so that the relative importance of the spawning habitat which underlies the ECC can be clearly examined and assessed.*

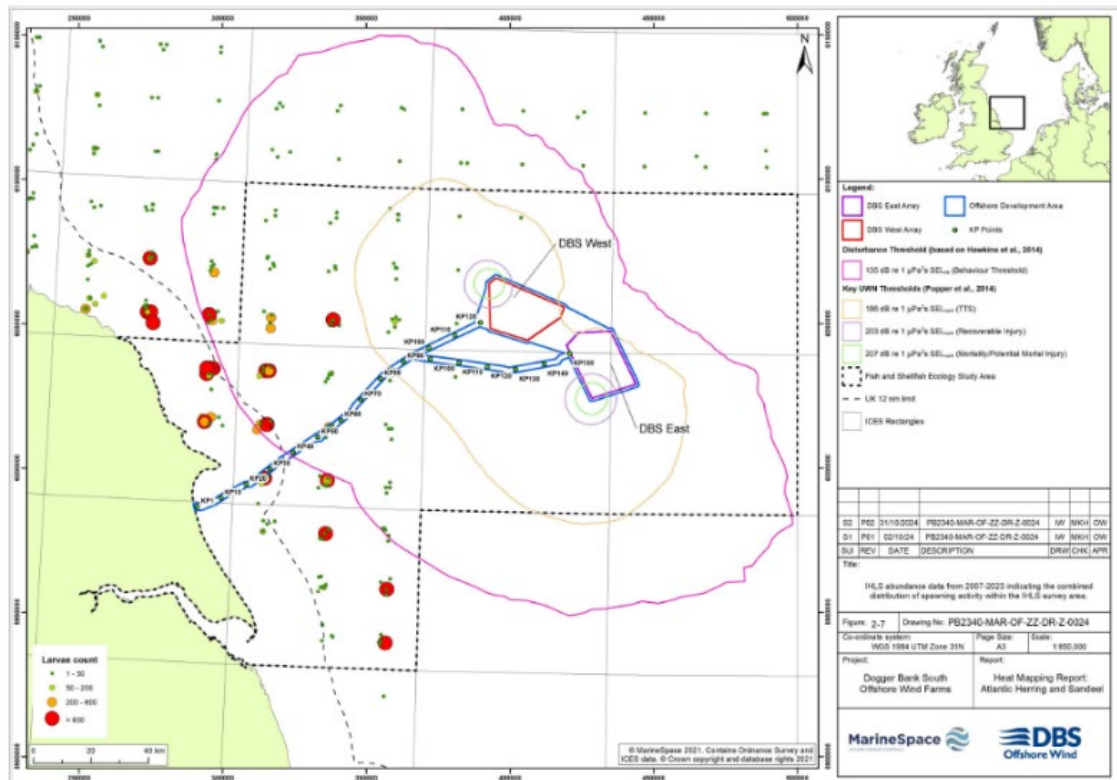


Plate 2-1 Figure 2-7 of Heat Mapping Report: Atlantic Herring and Sandeel [AS-105] included in the MMO's response.

5. **Applicants' Response:** The information requested by the MMO in section 2.2.10 has been provided by the Applicants in Appendix A of **The Applicants' Responses to Deadline 2 Documents** [REP3-028].
6. **MMO response:** *With regard to the Applicant's request for clarification on "whether the >600 larvae per m² category consists of anything other than high abundance", it is not entirely clear what they are asking. In brief, no, the MMO would not expect there to be a category higher than 'high abundance' (assuming the four categories in the Applicant's original plot represent very low, low, medium and high larval abundance, see original Figure 2.7 included below), however this is not what the MMO was asking for in previous advice. The MMO apologise if this was unclear. As outlined in the advice, a high abundance category of >600 larvae/m² is not appropriate when presenting larval data for a 15-year period, for the purpose the Applicant is using it for, as it is not uncommon for areas within the main spawning grounds to record thousands, or tens of thousands, of larvae per m² and so a point on the map indicating '>600 larvae/m²' could be representing a density of 601, or 6000 larvae/m², there's no way to differentiate between these values, or from which year of data these values come from. From example an area of spawning ground may have a larval abundance of 6000 larvae/m² at the beginning of the timeseries, but see larval abundances decrease overtime, however this is not reflected on the current presentation.*

7. **Applicants' response:** The reason why the Applicants asked the MMO to clarify the value of splitting out >600 larvae per m² was to ascertain how much precaution was required within the assessment. >600 larvae per m² is considered to be the highest abundance category, therefore if an International Herring Larvae Study (IHLS) station records 601 larvae per m² in one year and 6,000 larvae per m² in another year, the location of that IHLS station still represents the highest abundance category as a worst case scenario. This worst case scenario is over-representative of maximum abundance values >600 larvae per m², not under representative as indicated by the MMO / Cefas. It is known that Atlantic herring do not always spawn in exactly the same location every year, therefore a reduction in abundance data should not be automatically considered a reduction in spawning habitat quality.
8. For the interests of assessing potential impacts upon potential spawning habitats, the worst case scenario must be assumed (i.e. as a hypothetical example, if an IHLS station records 6,000 larvae per m² in one year, 0 larvae the next year, there is still a possibility that the same station could record 6,000 larvae per m² in the third year). The >600 larvae per m² category is in alignment with the Kyle-Henney *et al.* (2024)¹ methodology.
9. As a sidenote, abundance data should only be used to indicate the productivity of a wider area given the uncertainty in the IHLS station location actually representing suitable spawning habitat (see Kyle-Henney *et al.*, 2024), not at the specific IHLS station location or project scale. This has been discussed with Cefas on numerous occasions, including within the EGL2 project.
10. High abundances of larvae (200-600 larvae per m²) have been recorded between KP50 - KP60, however this location is ground-truthed (i.e. interpolated data confirmed to be true or false via direct sediment sampling) as being unsuitable sediment type for spawning. In this location, it is likely that larvae have drifted from potential habitat outside of the Offshore Export Cable Corridor (as described in the **Heat Mapping Report: Atlantic Herring and Sandeel** [AS-105]).
11. The **Heat Mapping Report: Atlantic Herring and Sandeel** [AS-105] clearly shows that the Projects' Offshore Export Cable Corridor has a lower larval abundance compared to areas to the north or south, with the exception of one IHLS station that recorded >600 larvae per m² (942 larvae per m²) between KP20-KP30 in 2011 only.

¹ Kyle-Henney, M., Reach, I., Barr, N., Warner, I., Lowe, S., and Lloyd Jones, D. (2024). Identifying and Mapping Atlantic Herring Potential Spawning Habitat: An Updated Method Statement. Available at:



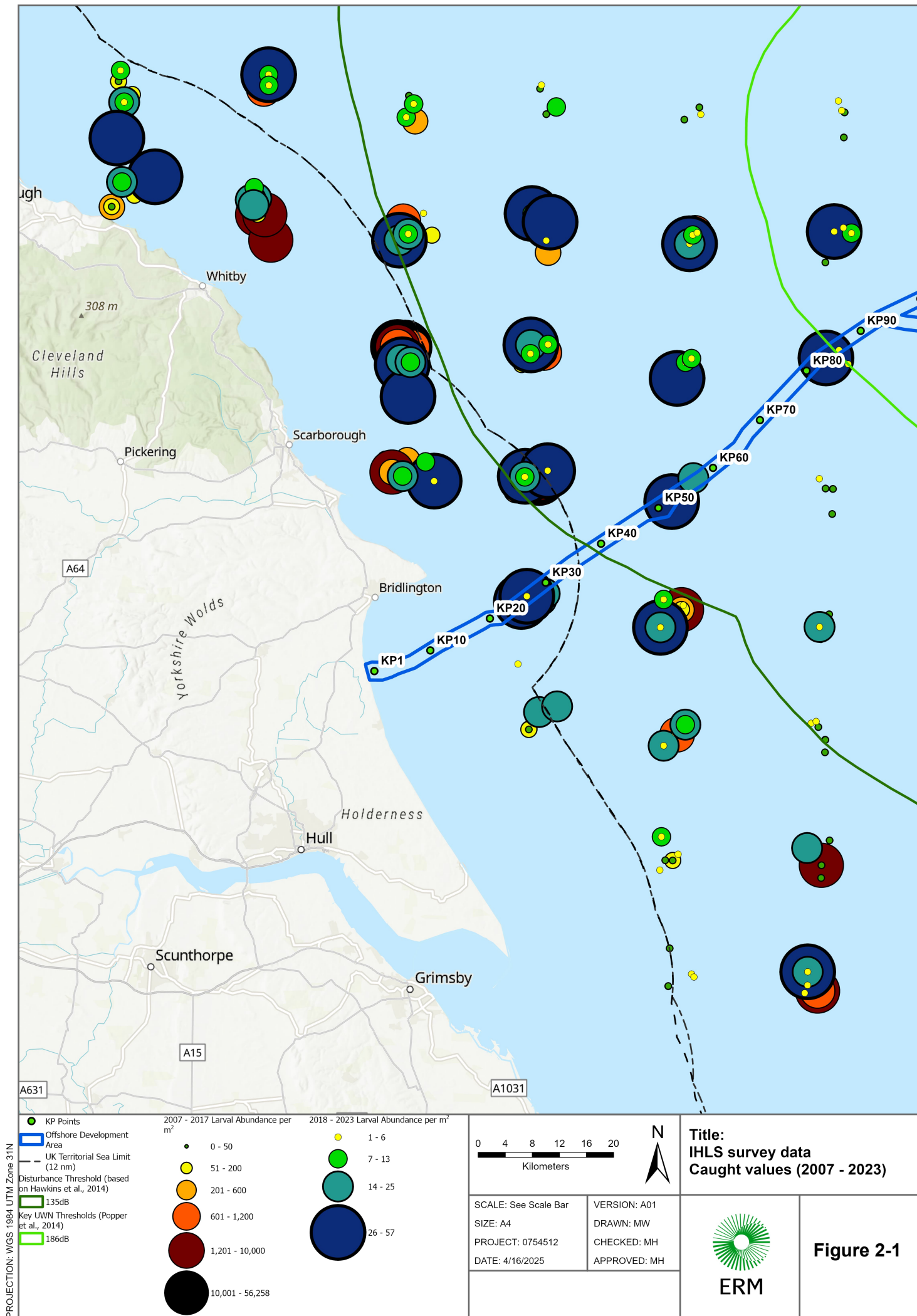
12. Annual variations of abundance per m² from 2007-2023² are presented in the figures (see **Figure 2-1** to **Figure 2-14**), however it is noted that recent surveys (2017-2023) have varying effort and do not sample larval abundances >57 larvae per m². A different scale has been used for these figures to show variation between locations. For this reason, all conclusions regarding the productivity of the area are based on the 2007-2016 data as a precaution, as a better representation of historic spawning activity.
13. To satisfy the MMO / Cefas' request, three additional high abundance categories have been defined alongside those defined in Kyle-Henney *et al.* (2024): 601-1,200; 1,201-10,000; and 10,001-56,258. The additional categories show that the IHLS stations to the north and south of the Offshore Export Cable Corridor regularly support high abundances of >1,200 larvae per m².
14. No stations along the Offshore Export Cable Corridor fall within the additional categories (i.e. >1,200 larvae per m²), with the maximum value sampled in 2011 being 942 larvae per m². This station does not support consistently high larval abundances, unlike stations to the north and south of the Offshore Export Cable Corridor. Therefore, the conclusions of the Heat Mapping Report remain valid
15. **MMO response:** *In order to fully examine and understand the spatial and temporal variation in herring spawning activity across the spawning ground, relative to the location of the export cable route, it is necessary to see each year of data presented individually with a consistent scale showing contours of larval abundance in m/2 with a figure legend representing the concentration of larvae within each band. The MMO have included an example of a similar map (Plate 2-2) produced by the Applicant of the Rampion Extension (Rampion 2) OWF project as an example of what we are looking to see. The Applicant should note that each year of data is presented as a separate plot, and that the figure legend corresponds to the varying bands of 'heat' with a range of larval abundances. The scale in these example figures from Rampion shows range bands of herring larval abundances which are consistent between figures. The Applicant is already in possession of 15 years of IHLS data as this has been used to provide Figure 2.7 in the original Deadline 1 heatmapping report. In providing each year of IHLS data as standalone annual 'heat' maps, the Applicant will demonstrate where there are areas of consistently high or low spawning activity relative to the location of the export cable route. This will support any possible refinement of the recommend restriction on cable works, alongside the other key missing evidence requested section*

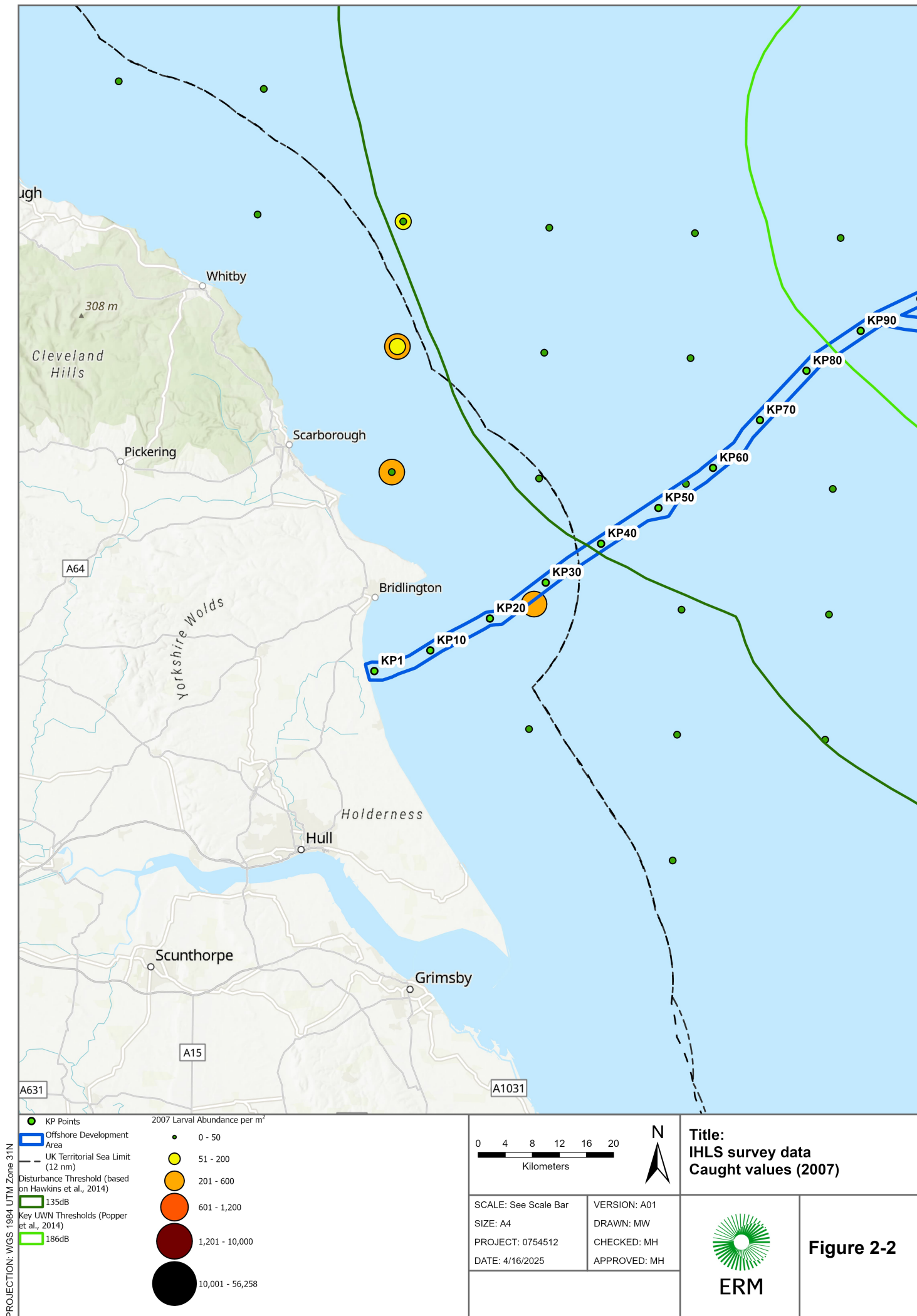
² No IHLS data is available for the years 2017, 2018, 2020 and 2021.

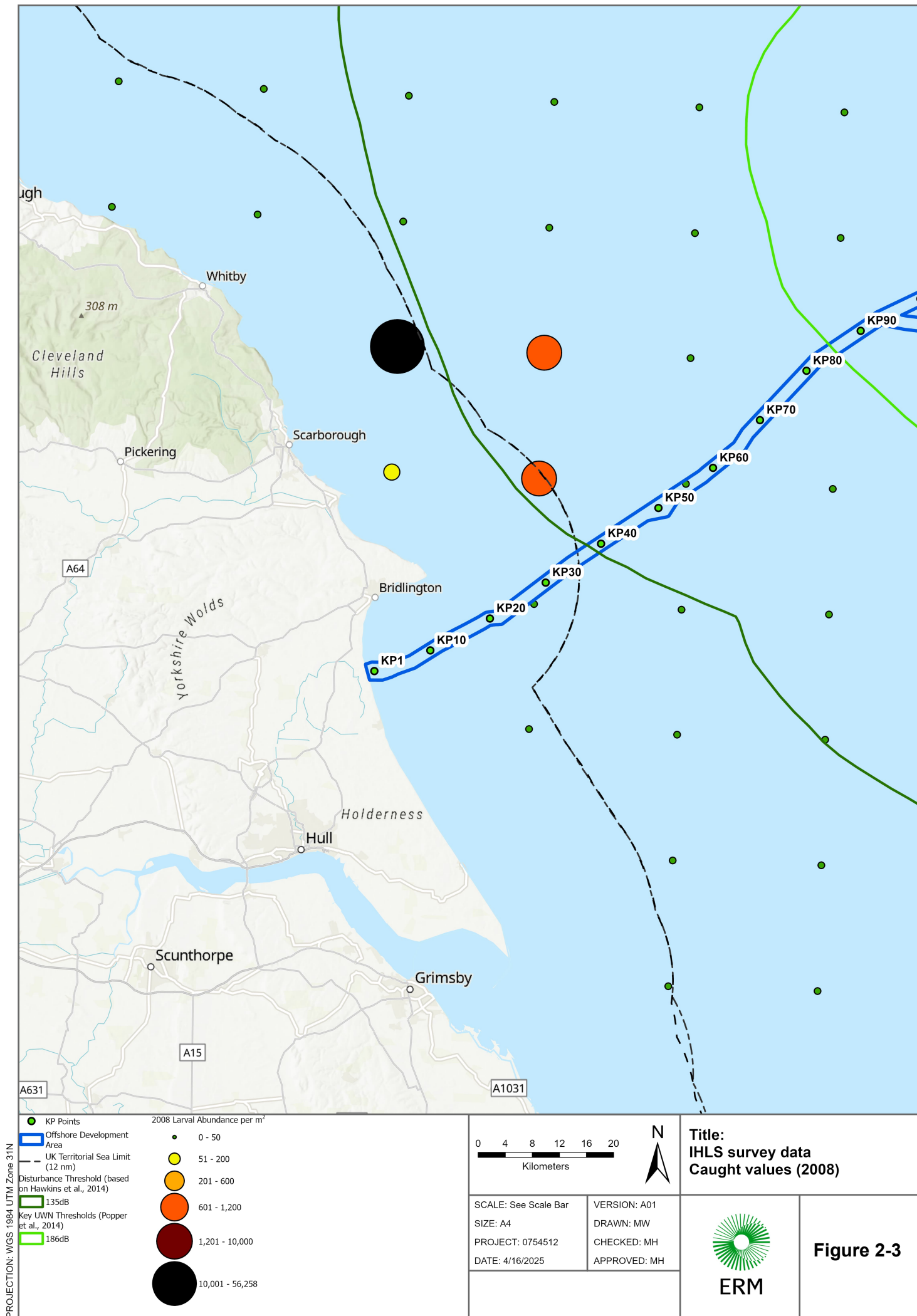


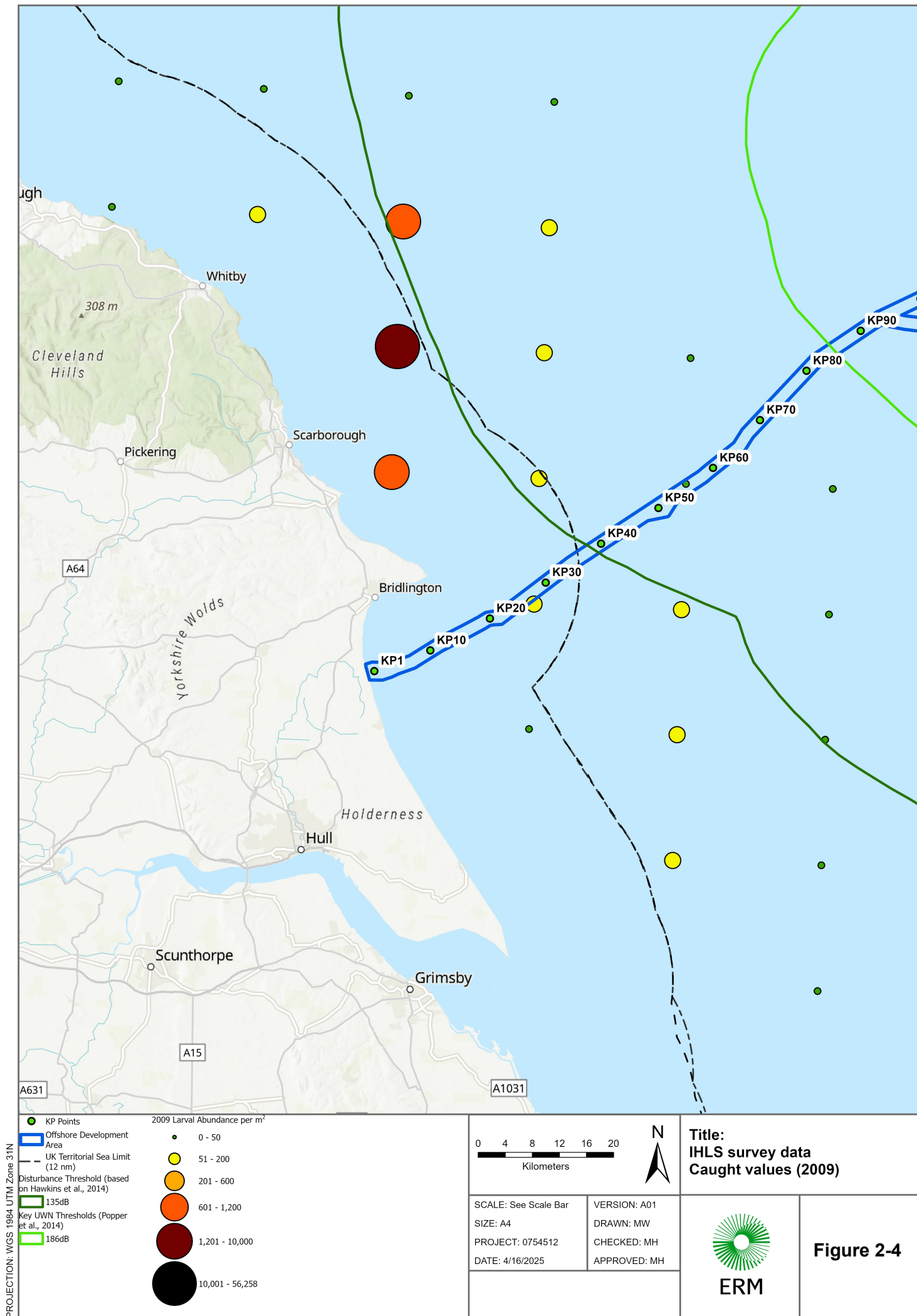
16. **Applicants' Response:** The example data for the Rampion 2 offshore wind farm is the same abundance data as that projected in the existing figures provided by the Applicants (and those presented above), however the Rampion 2 example has interpolated the IHLS point data. It should be reinforced that the Rampion 2 examples do not represent the Kyle-Henney *et al.* (2024) heat mapping methodology. It is noted that the Kyle-Henney *et al.* (2024) guidance was not published at the time of drawing of the Rampion 2 examples provided by the MMO.
17. The Applicants have followed the MMO / Cefas-approved methodology (Kyle-Henney *et al.*, 2024) in presenting the data using the 0-50, 51-200, 201-600, and >600 categories as a supplement to the potential spawning habitat heat map.
18. Given the limited spatial extent of the Export Cable Corridor in comparison to the wider spawning grounds, the distribution of unsuitable habitat types, and the distance between IHLS stations being ~10km, IHLS point data has not been converted into polygons as this would inaccurately represent spawning activity at a project-scale for the Offshore Export Cable Corridor.

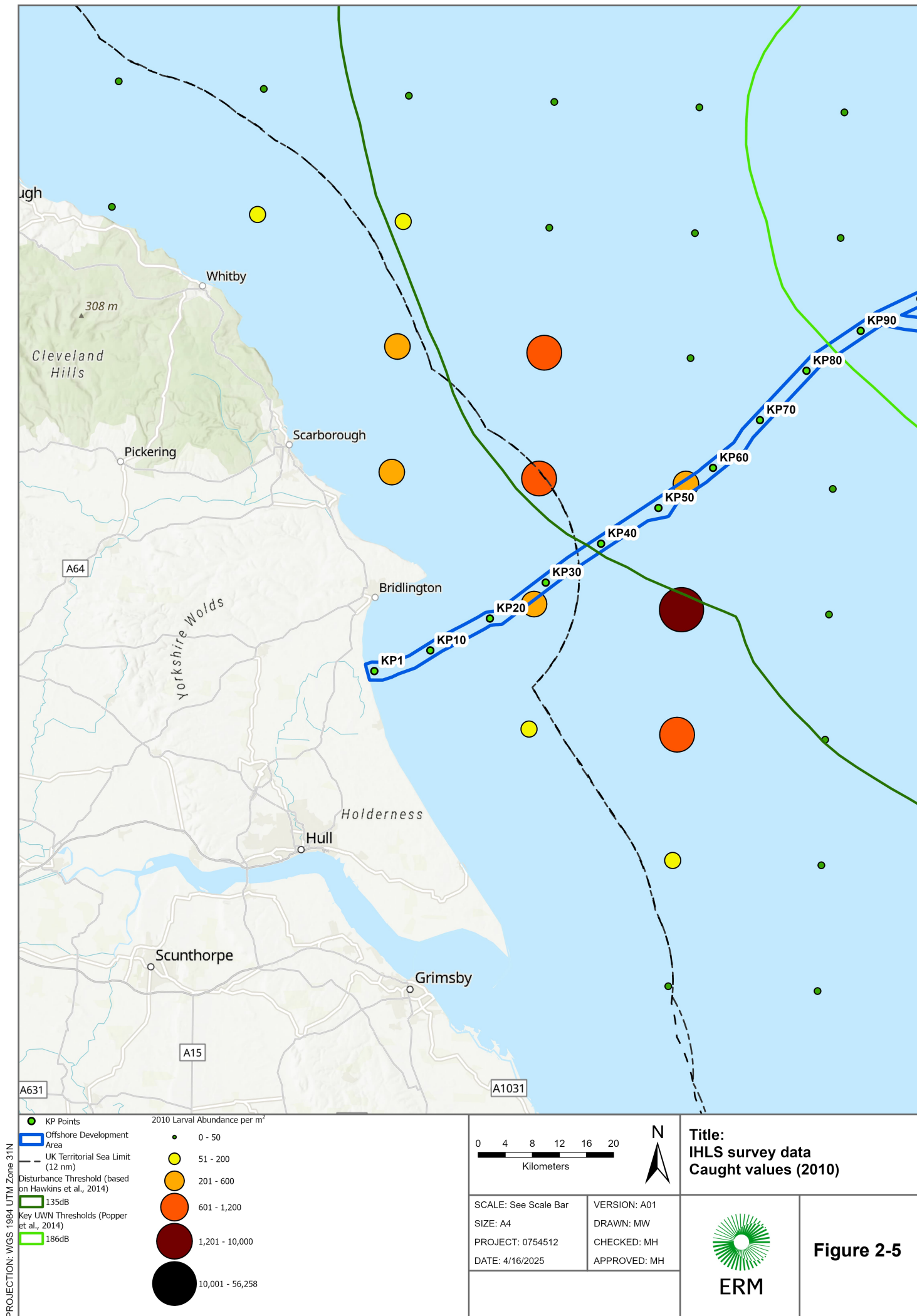
Figures 2-1 to 2-14

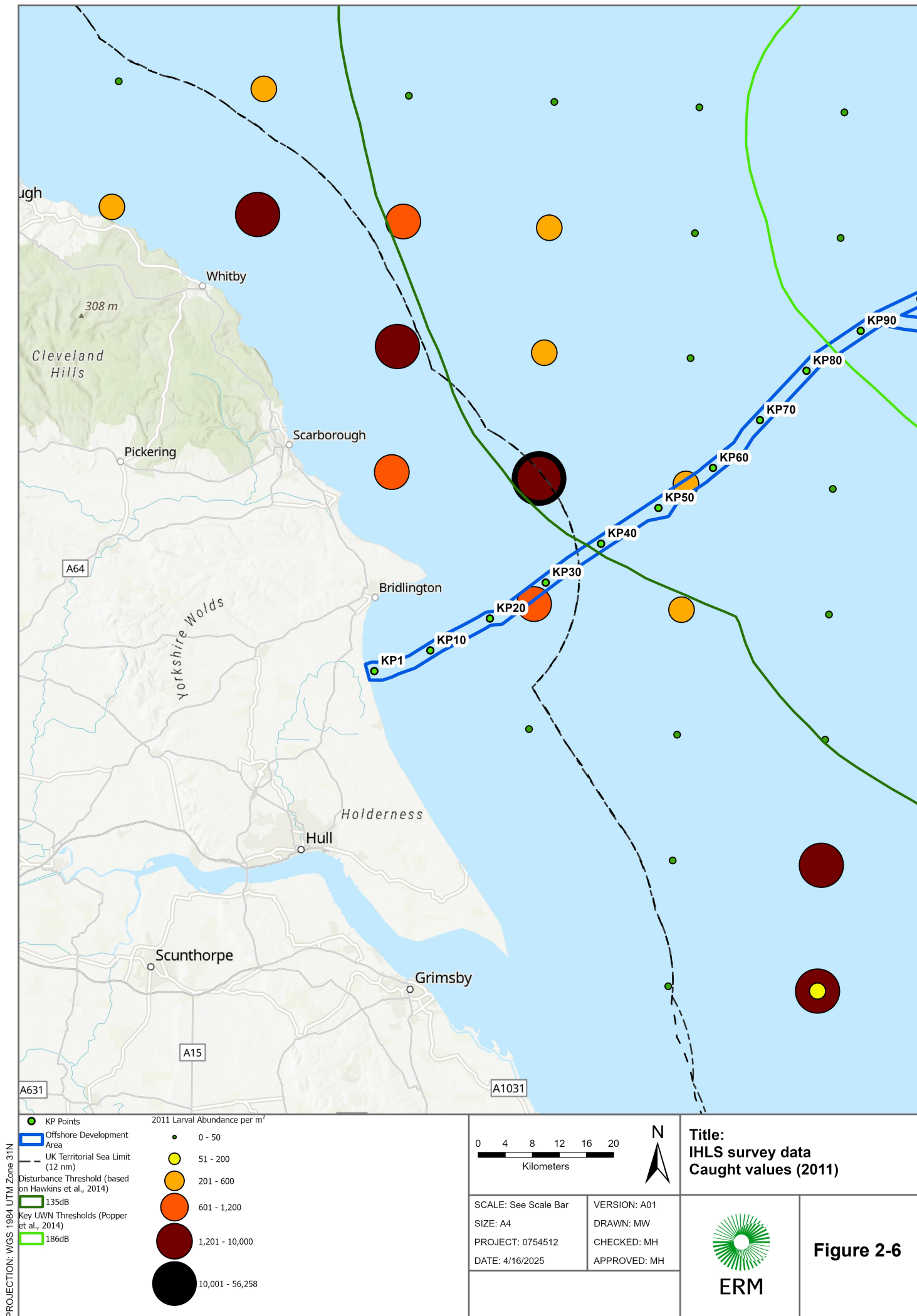


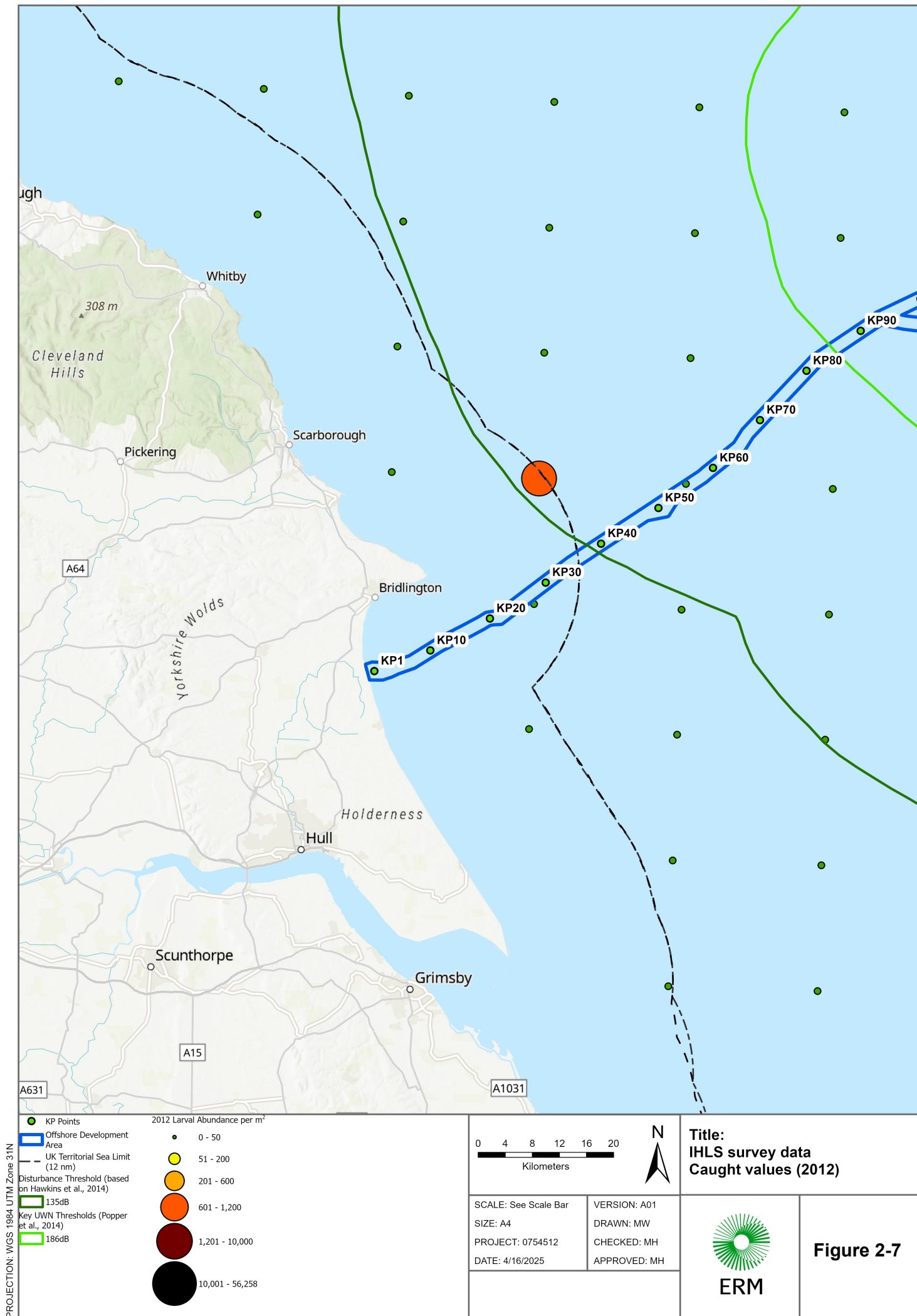


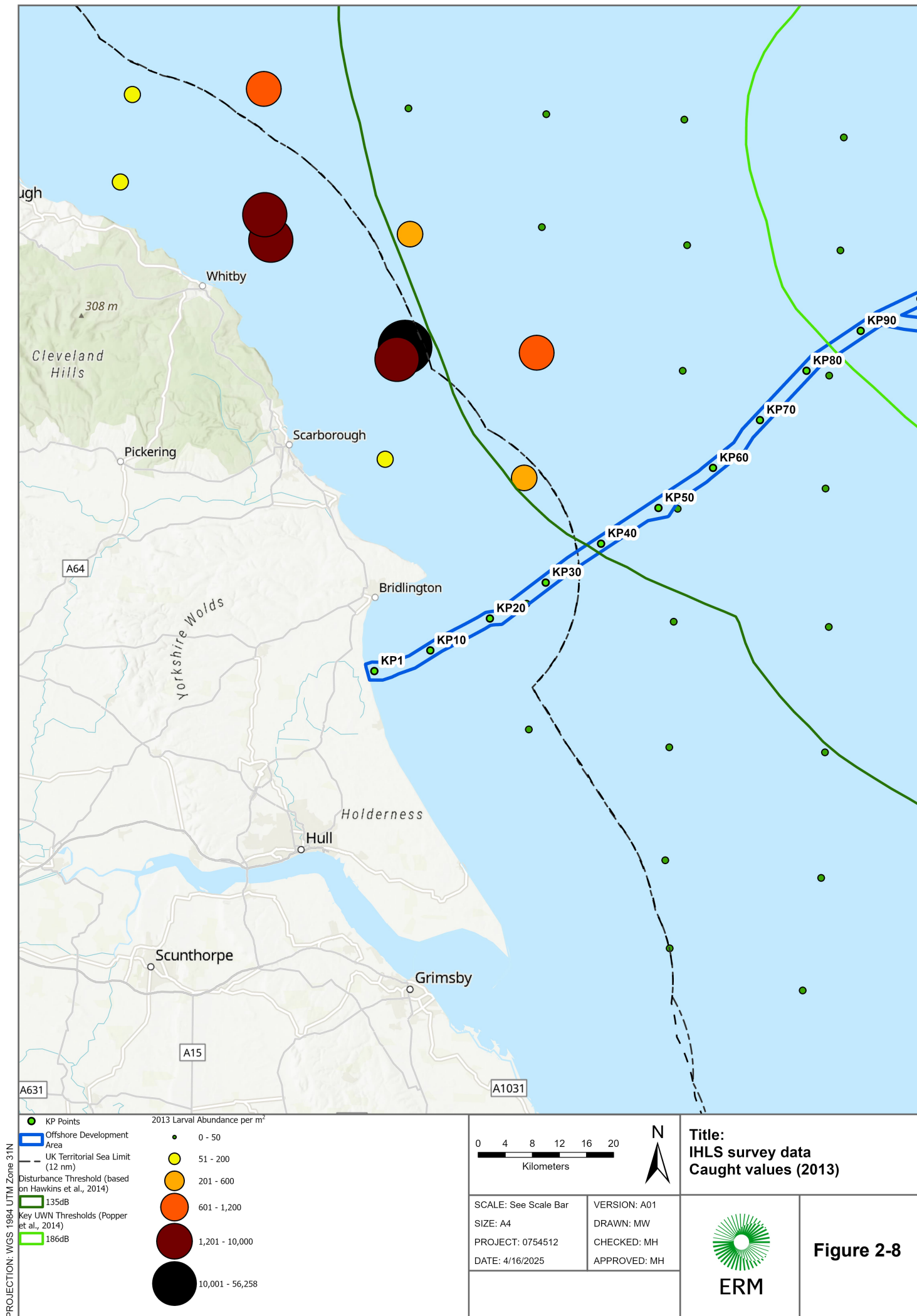




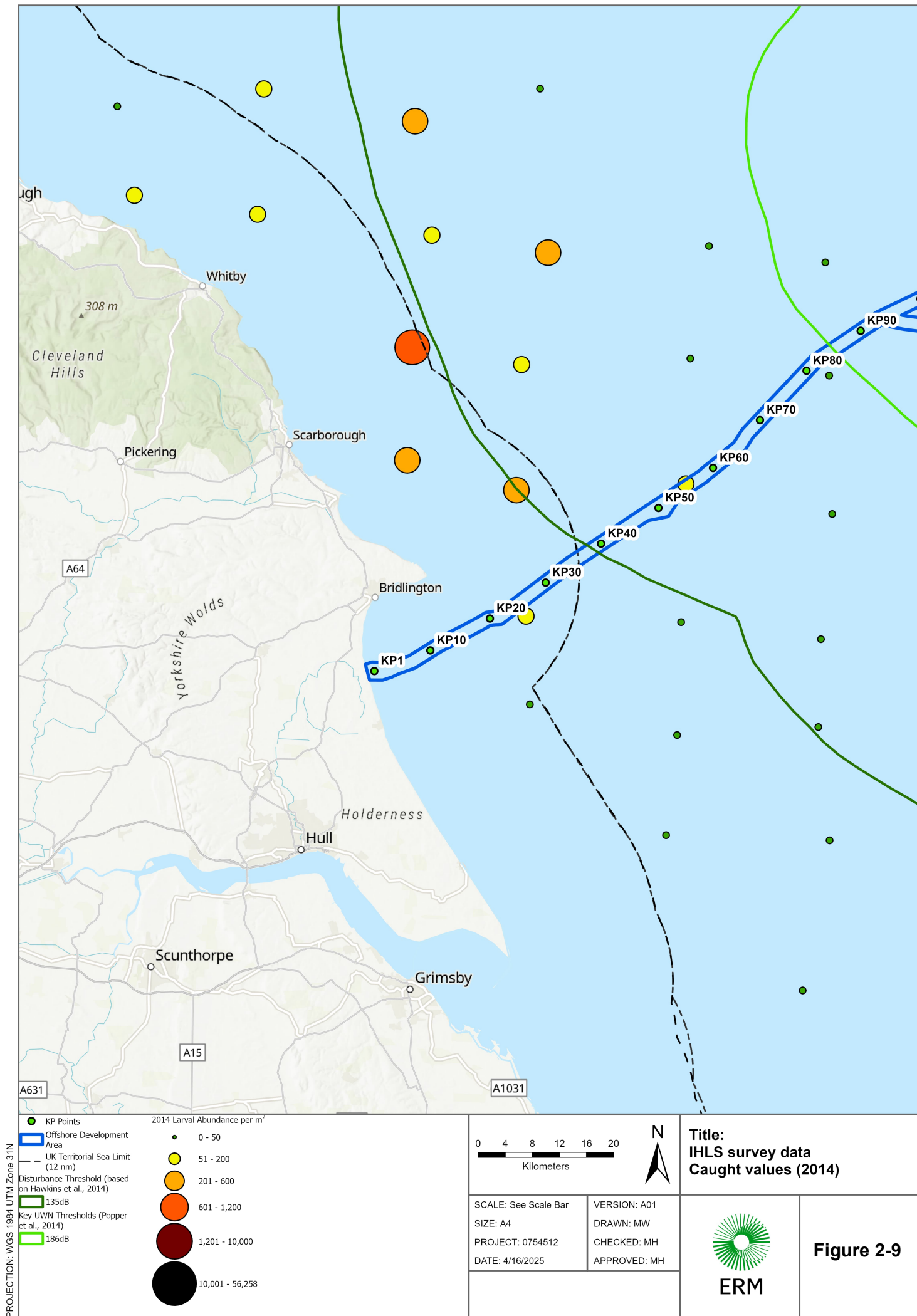




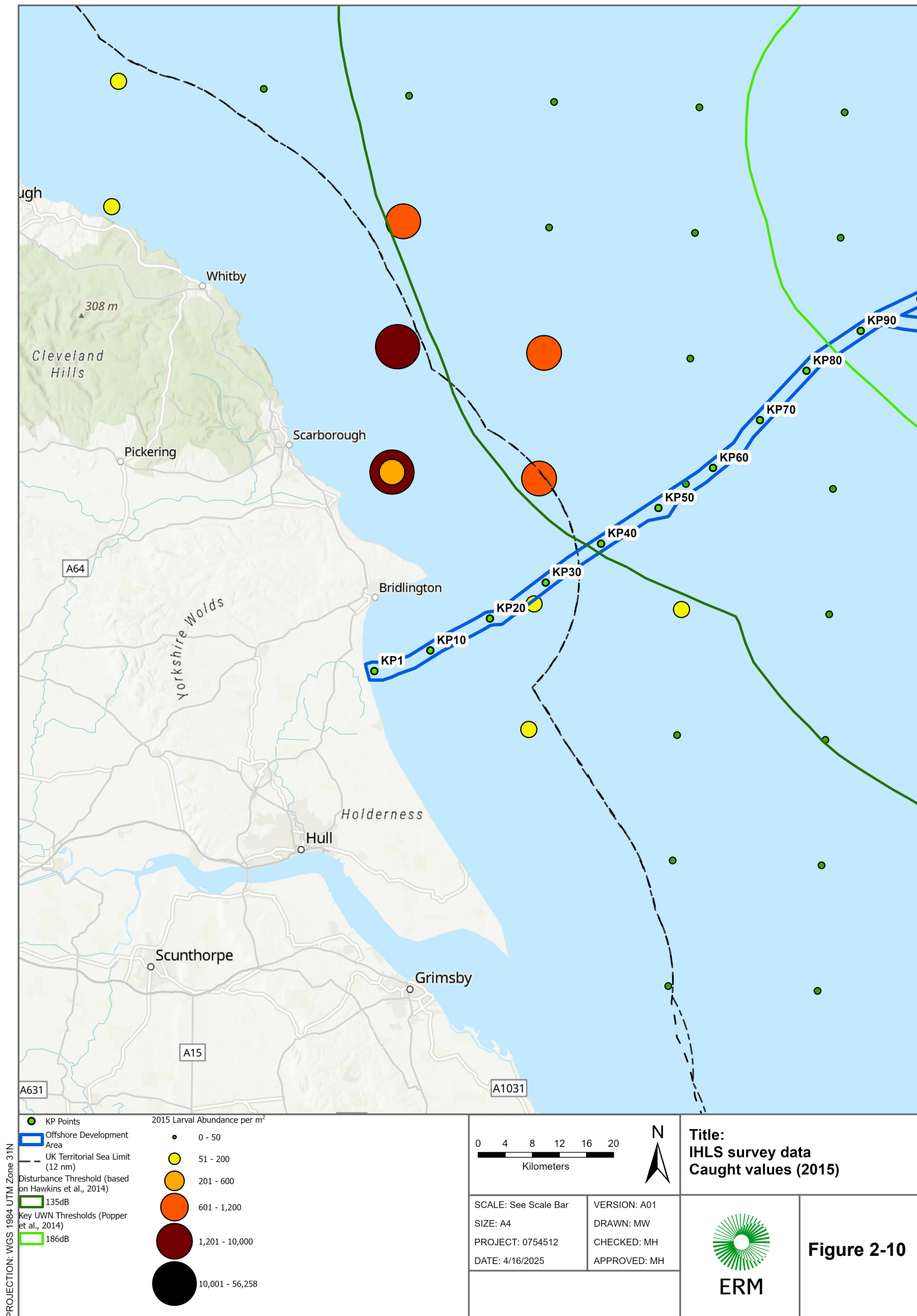




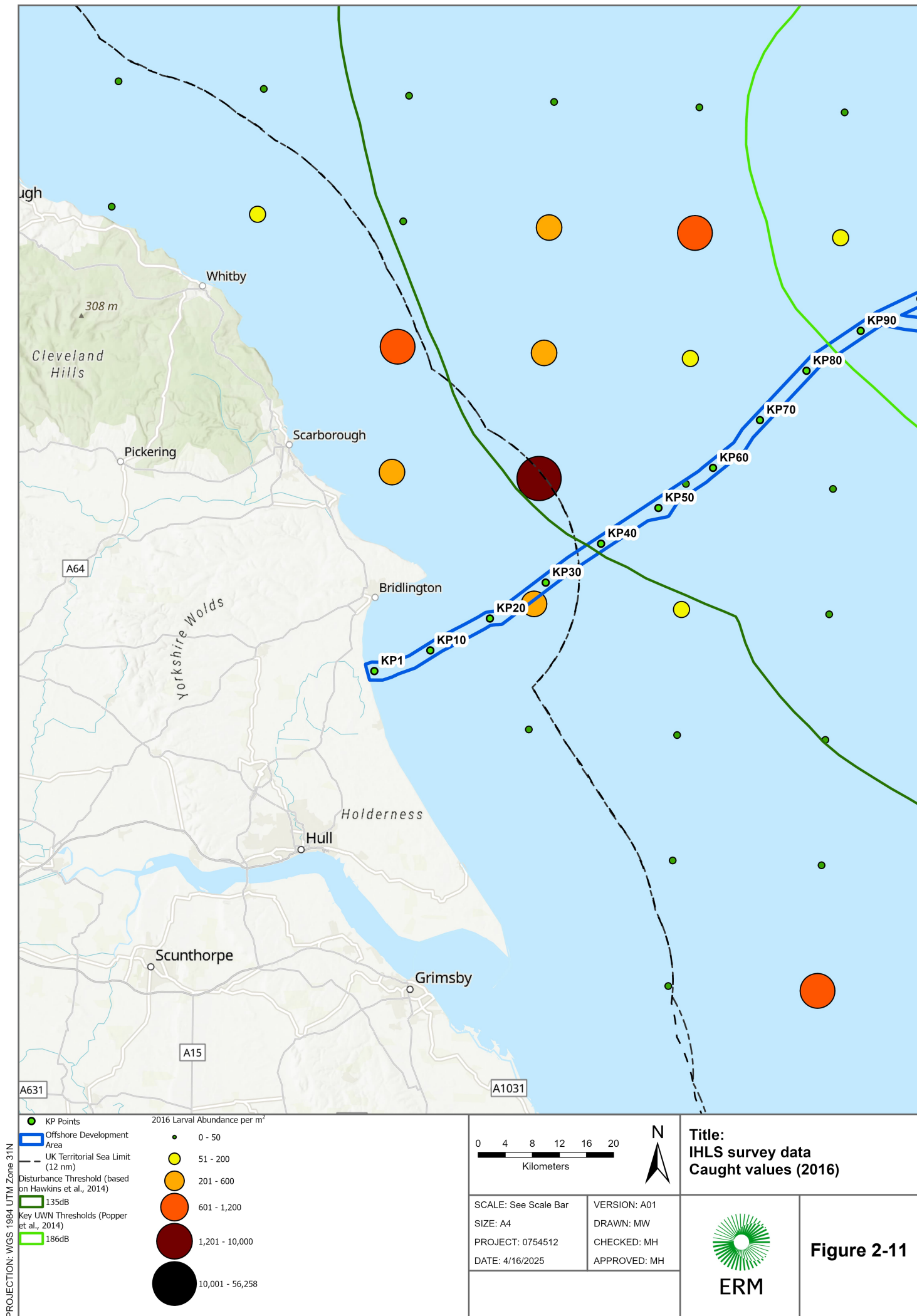
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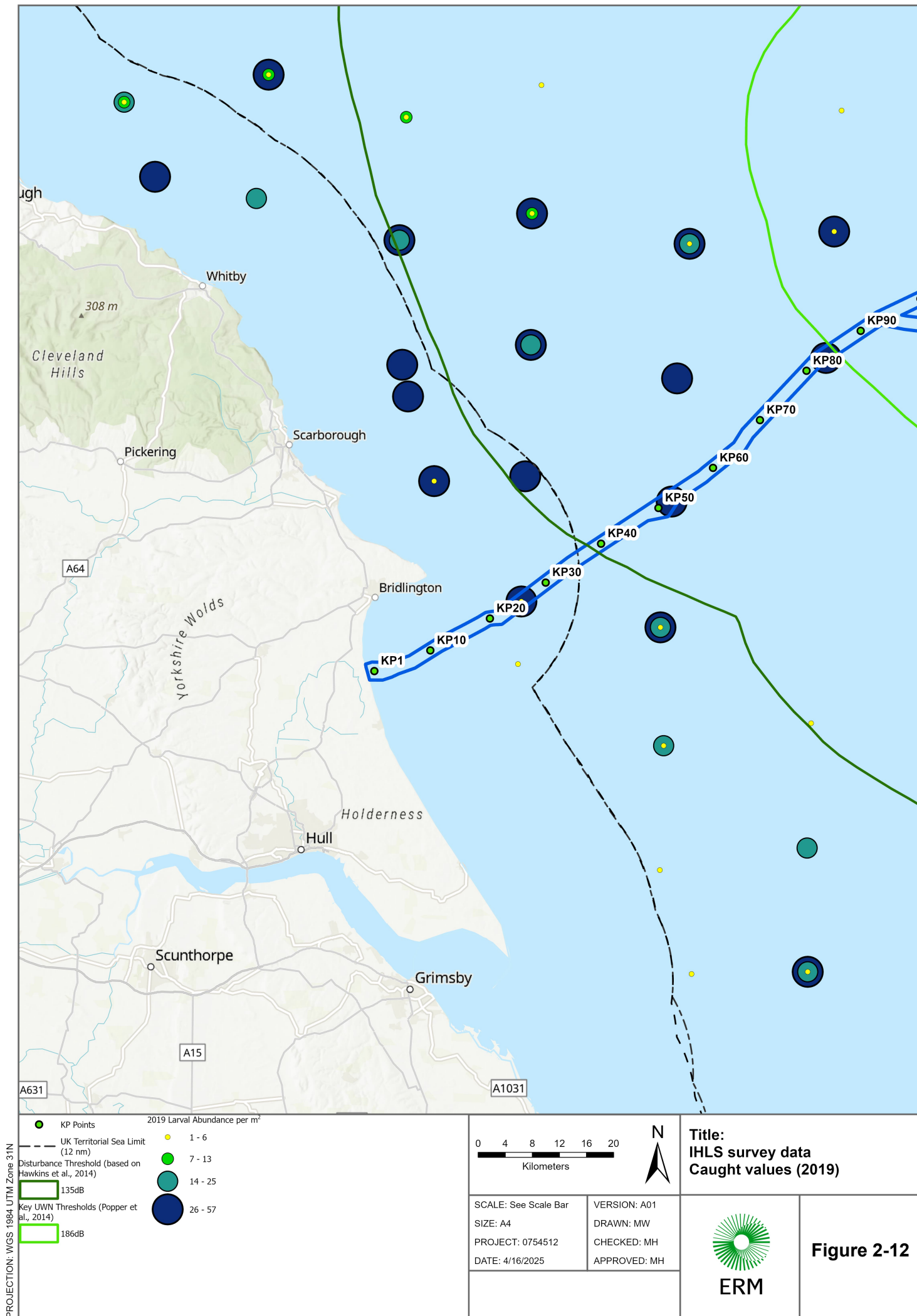
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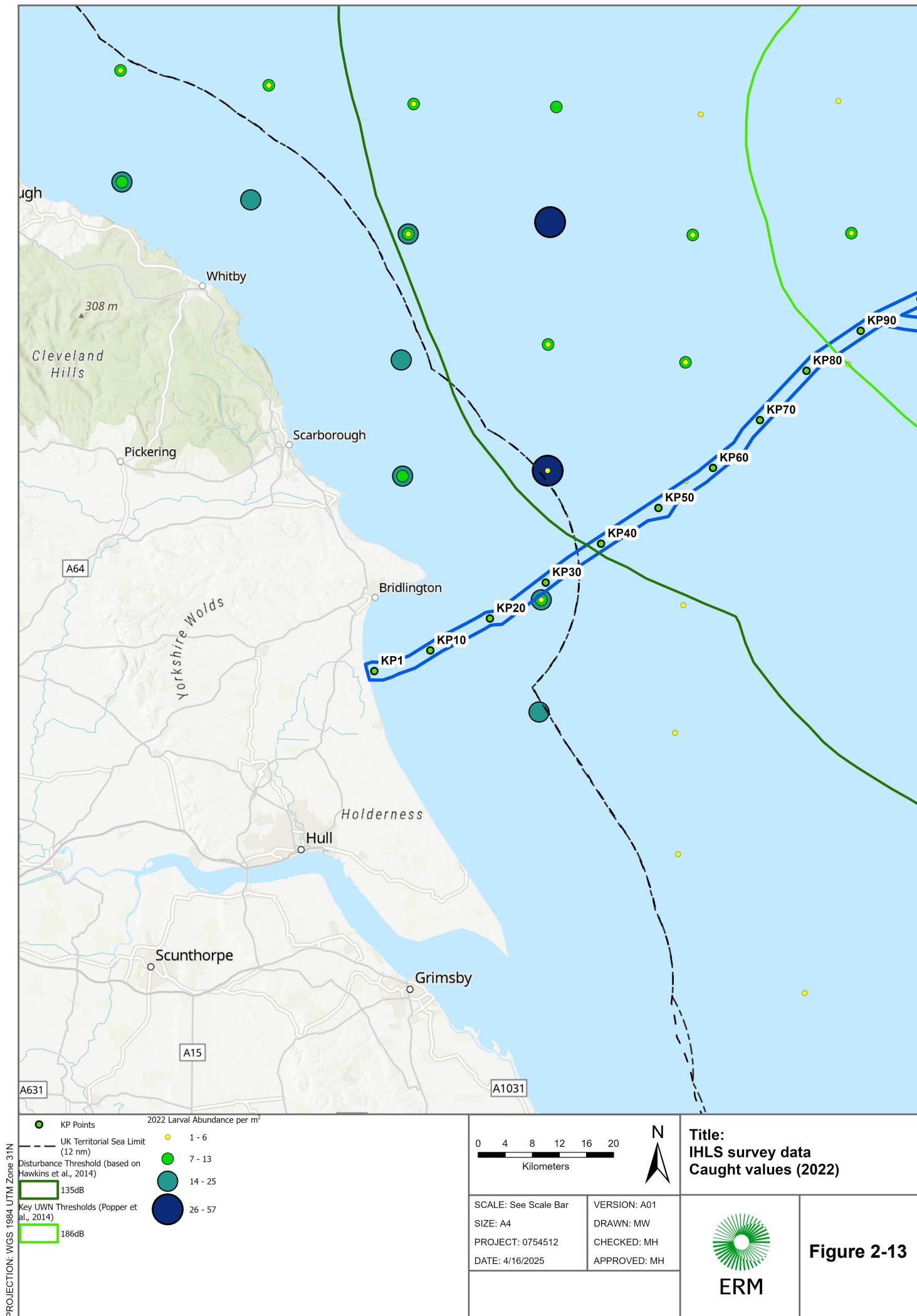
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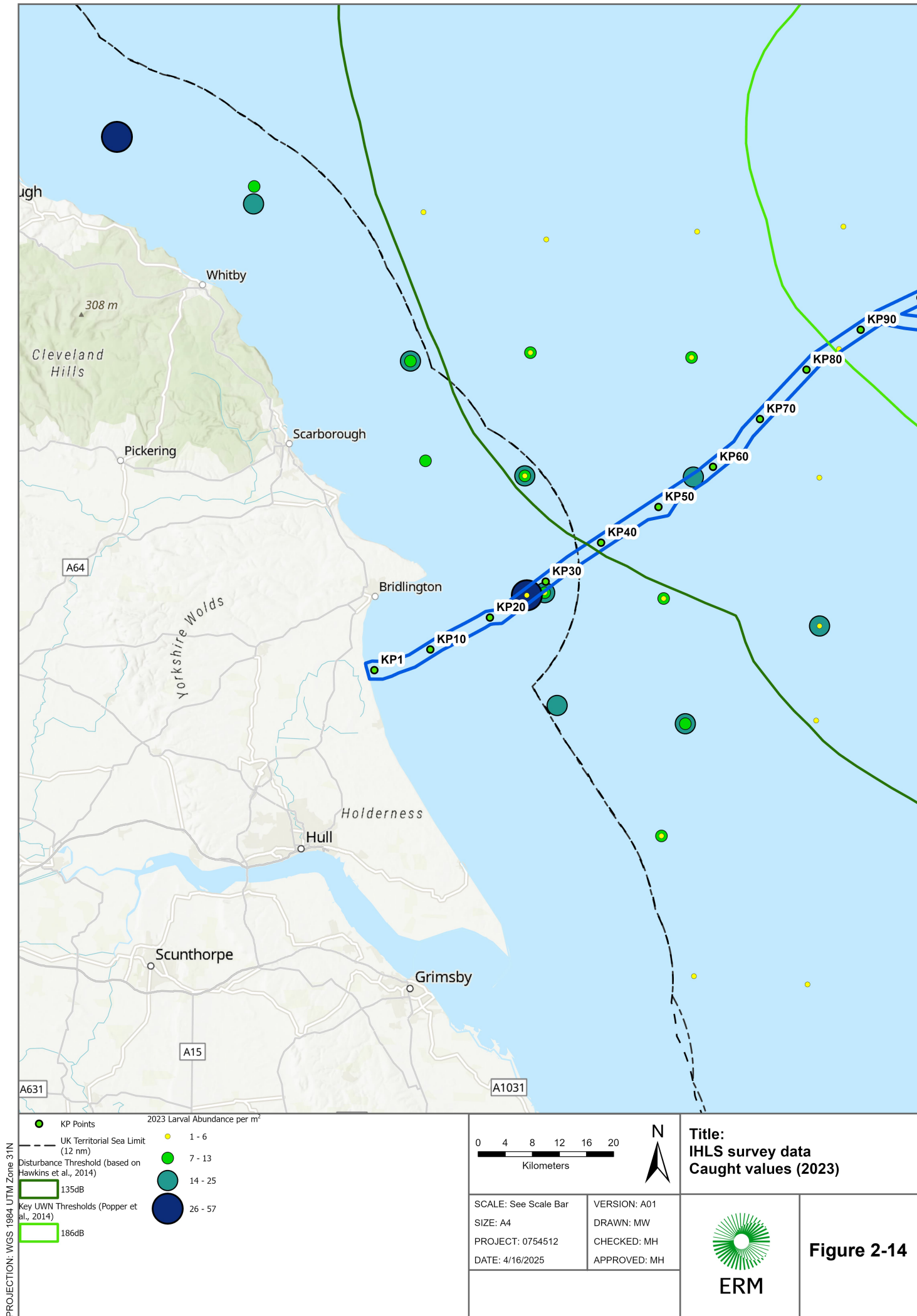
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