

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

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

# **Dogger Bank South Offshore Wind Farms**

**Environmental Statement**

**Volume 7**

**Chapter 10 – Fish and Shellfish Ecology**

**Figure 10-1 to Figure 10-10 (Revision 2)**

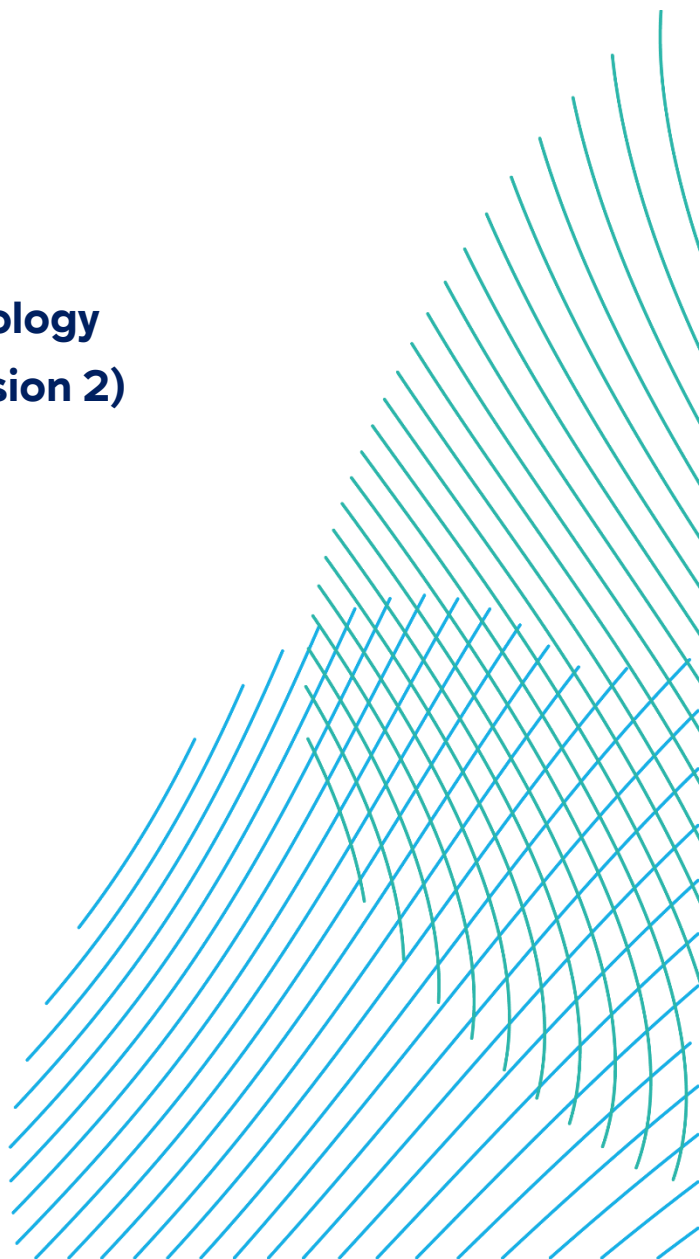
**June 2025**

**Application Reference: 7.10.1**

**APFP Regulation: 5(2)(a)**

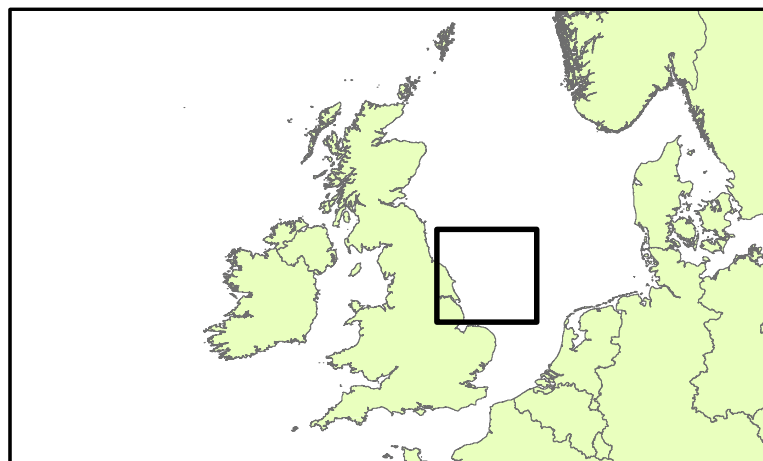
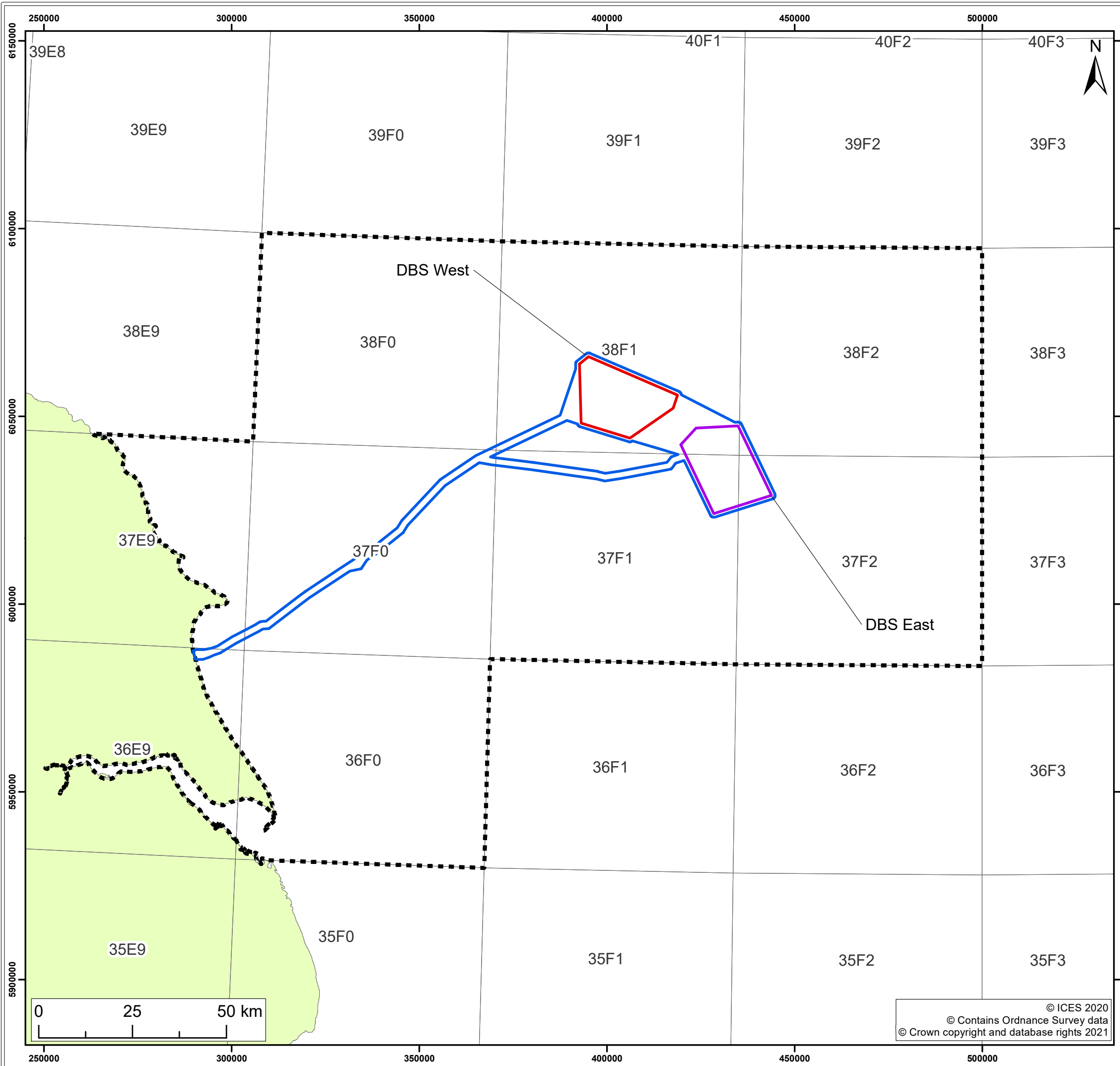
**Revision: 02**

**Unrestricted**



|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                  |                                |                            |                   |                    |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|--------------------------------|----------------------------|-------------------|--------------------|
| Company:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <b>RWE Renewables UK Dogger Bank South (West) Limited and RWE Renewables UK Dogger Bank South (East) Limited</b> | Asset:                         | <b>Development</b>         |                   |                    |
| Project:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <b>Dogger Bank South Offshore Wind Farms</b>                                                                     | Sub Project/Package:           | <b>Consents</b>            |                   |                    |
| Document Title or Description:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Environmental Statement – Chapter 10 – Figure 10-1 to Figure 10-10 (Revision 2)                                  |                                |                            |                   |                    |
| Document Number:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 004300151-02                                                                                                     | Contractor Reference Number:   | PC2340-RHD-OF-ZZ-RP-Z-0093 |                   |                    |
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| <b>Rev No.</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <b>Date</b>                                                                                                      | <b>Status/Reason for Issue</b> | <b>Author</b>              | <b>Checked by</b> | <b>Approved by</b> |
| 01                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | June 2024                                                                                                        | Final for DCO Application      | MarineSpace                | RWE               | RWE                |
| 02                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | June 2025                                                                                                        | Submission at Deadline 7       | MarineSpace                | RWE               | RWE                |

| Revision Change Log |         |                                                                                                                                                                                                                                                                                                                               |
|---------------------|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Rev No.             | Figure  | Description                                                                                                                                                                                                                                                                                                                   |
| 01                  | N/A     | Submitted for DCO Application                                                                                                                                                                                                                                                                                                 |
| 02                  | Various | This document has been updated at the request of the Examining Authority within the Rule 17 [PD-018] to accurately reflect the proposed development and contains all the updated information within the figures as a result of <b>Project Change Request 1 - Offshore &amp; Intertidal Works (document reference 10.49)</b> . |



Legend:

- DBS East Array Area
- DBS West Array Area
- Offshore Development Area
- Fish and Shellfish Ecology Study Area
- ICES Rectangles

|     |     |          |                            |     |     |     |
|-----|-----|----------|----------------------------|-----|-----|-----|
| S4  | PO4 | 08/01/24 | PB2340-MAR-OF-ZZ-DR-Z-0001 | AN  | IW  | TM  |
| S3  | P03 | 22/03/23 | PB2340-MAR-OF-ZZ-DR-Z-0001 | NB  | IW  | TM  |
| S2  | P02 | 20/04/22 | PB2340-MAR-OF-ZZ-DR-Z-0001 | BO  | IW  | TM  |
| SUI | REV | DATE     | DESCRIPTION                | DRW | CHK | APR |

Title:  
**Fish and Shellfish Ecology Study Area**

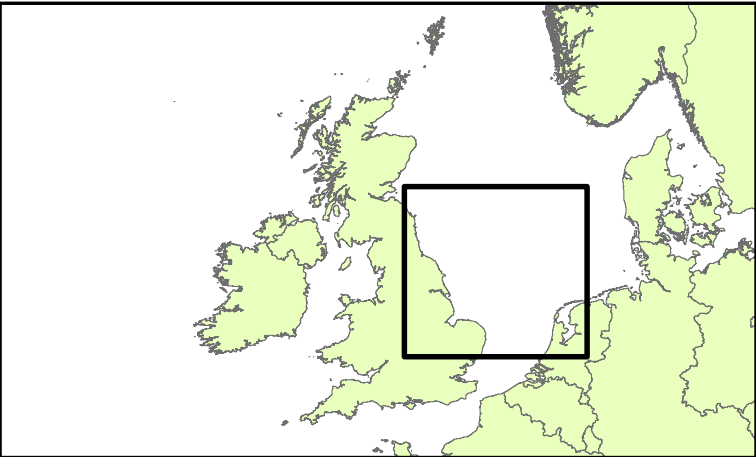
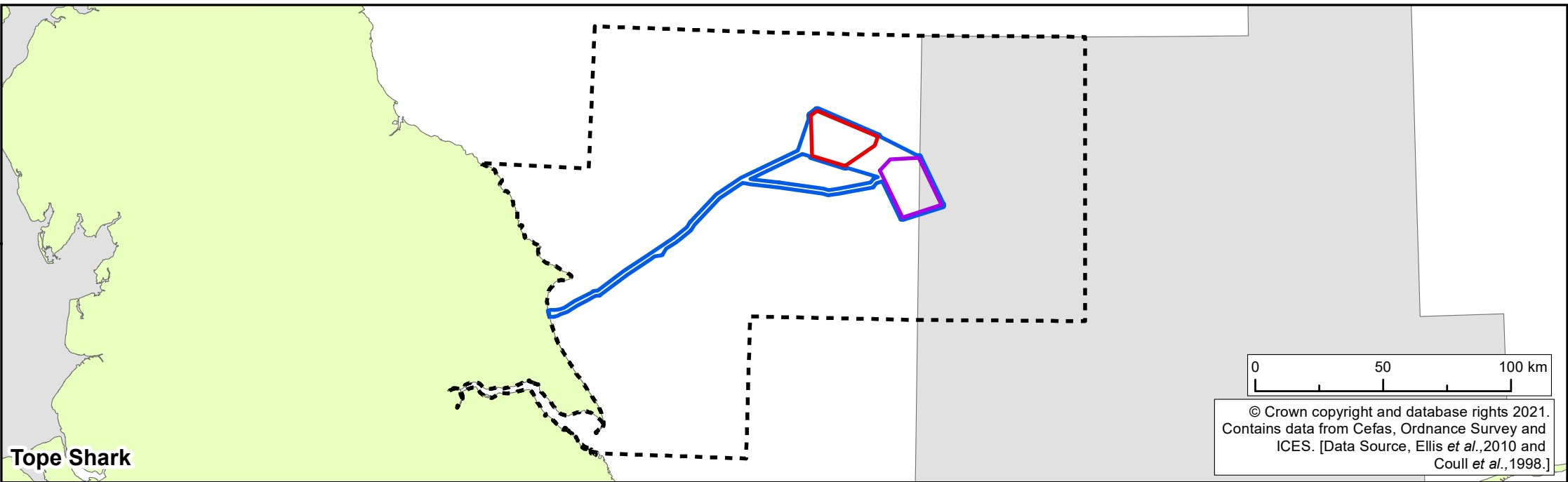
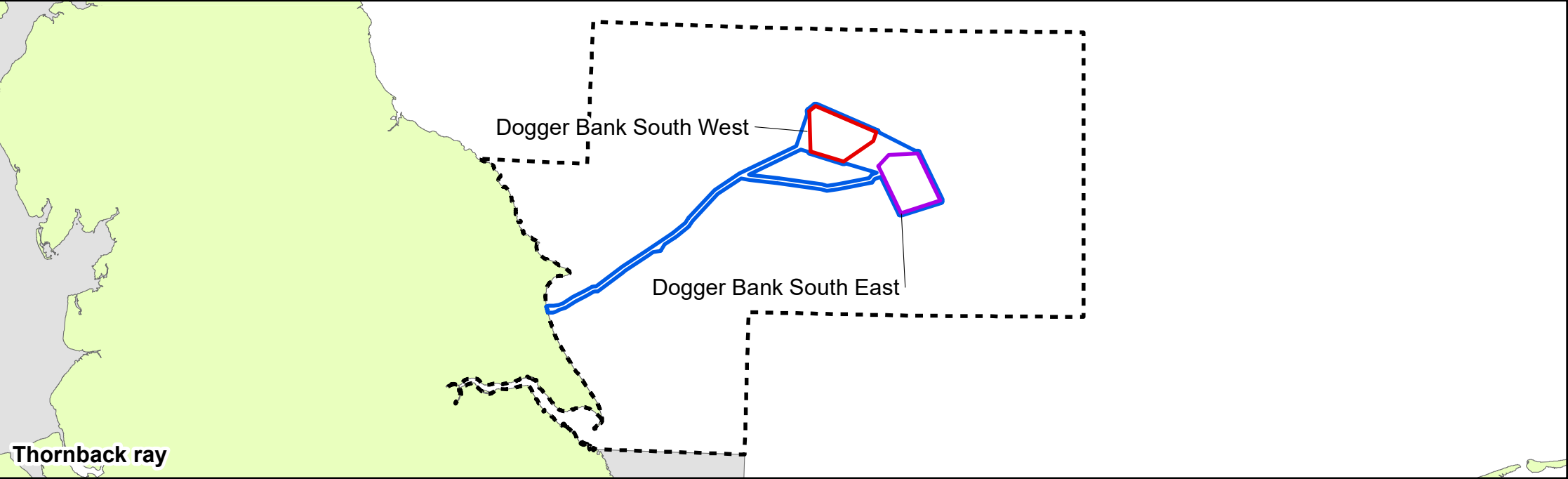
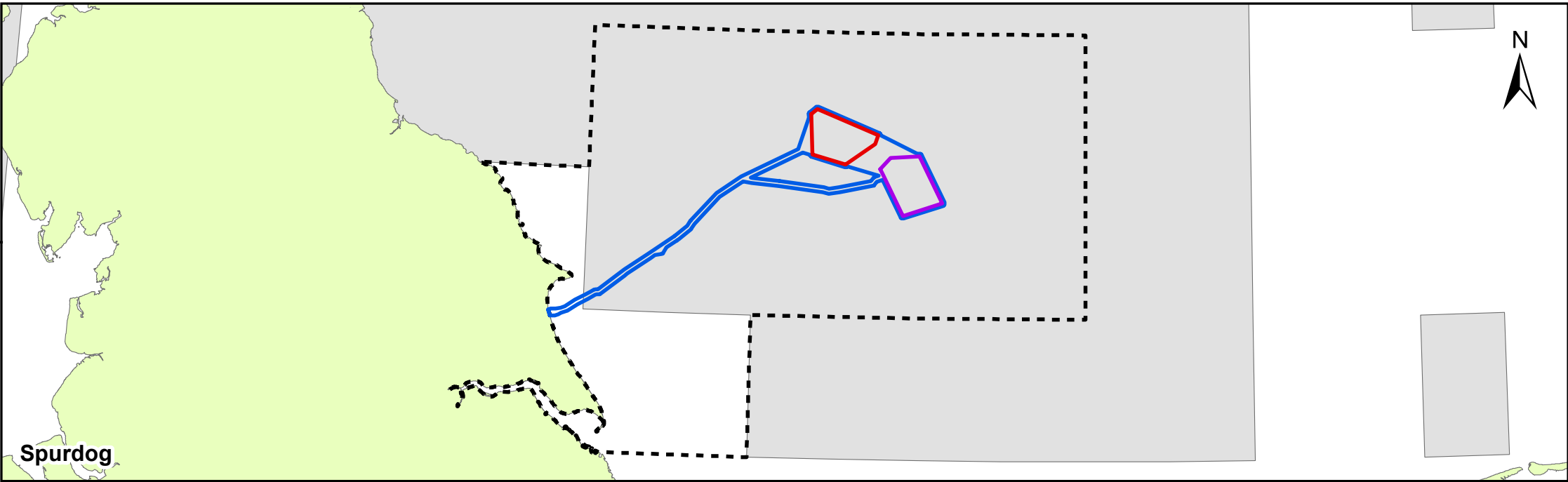
Figure: 10-1      Drawing No: PB2340-MAR-OF-ZZ-DR-Z-0001

|                                              |                  |                       |
|----------------------------------------------|------------------|-----------------------|
| Co-ordinate system:<br>WGS 1984 UTM Zone 31N | Page Size:<br>A3 | Scale:<br>1:1,000,000 |
|----------------------------------------------|------------------|-----------------------|

|                                                              |                                                                     |
|--------------------------------------------------------------|---------------------------------------------------------------------|
| Project:<br><b>Dogger Bank South<br/>Offshore Wind Farms</b> | Report:<br><b>Dogger Bank South<br/>Offshore Wind Farms<br/>EIA</b> |
|--------------------------------------------------------------|---------------------------------------------------------------------|







- Legend:
- DBS East Array Area
  - DBS West Array Area
  - Offshore Development Area
  - Fish and Shellfish Ecology Study Area
  - Nursery Grounds

|     |     |          |                            |     |     |     |
|-----|-----|----------|----------------------------|-----|-----|-----|
|     |     |          |                            |     |     |     |
| S4  | PO4 | 08/01/24 | PB2340-MAR-OF-ZZ-DR-Z-0002 | AN  | IW  | TM  |
| S3  | P03 | 25/01/23 | PB2340-MAR-OF-ZZ-DR-Z-0002 | NB  | IW  | TM  |
| S2  | P02 | 21/04/22 | PB2340-MAR-OF-ZZ-DR-Z-0003 | BO  | IW  | TM  |
| SUI | REV | DATE     | DESCRIPTION                | DRW | CHK | APR |

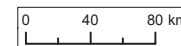
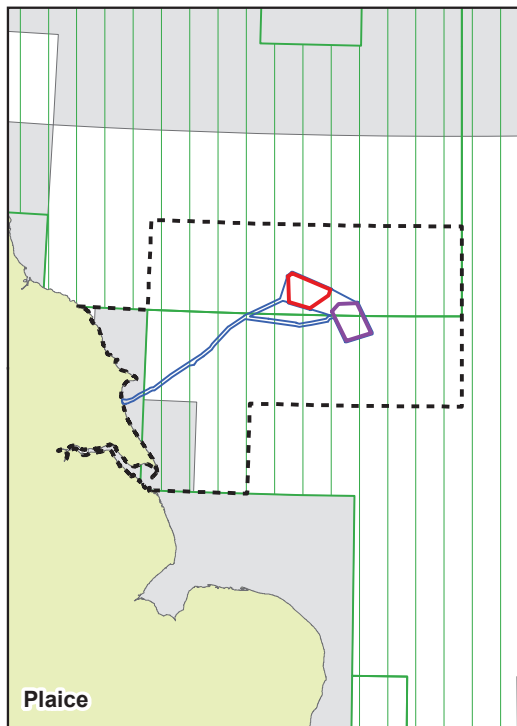
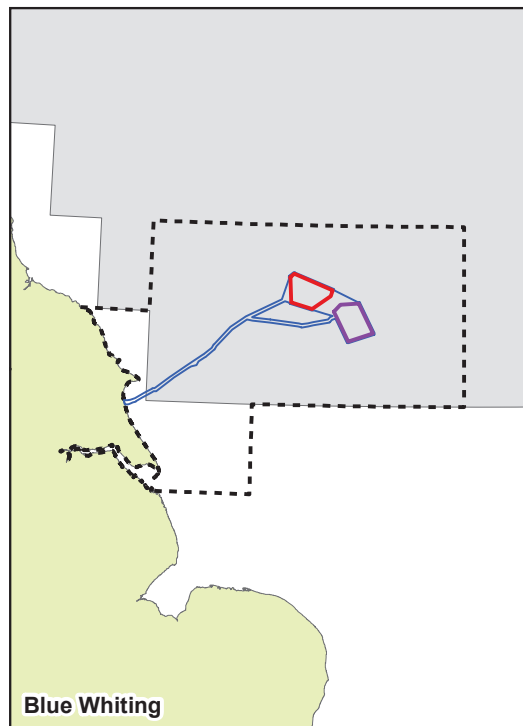
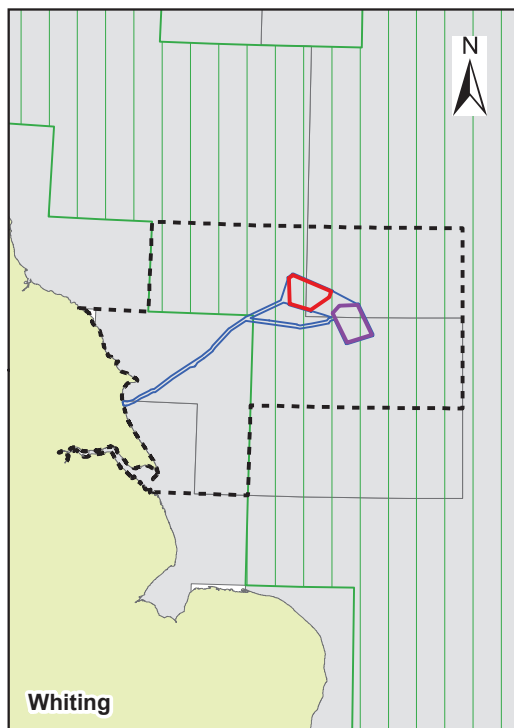
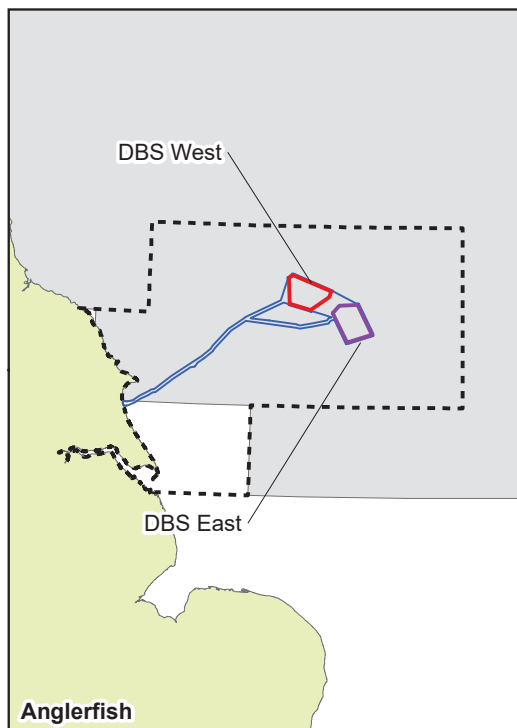
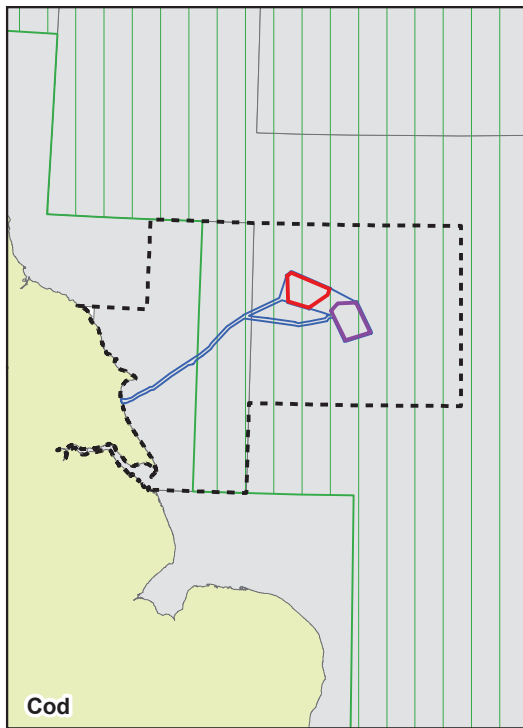
Title:

Elasmobranch nursery areas

Figure: 10-2 Drawing No: PB2340-MAR-OF-ZZ-DR-Z-0002

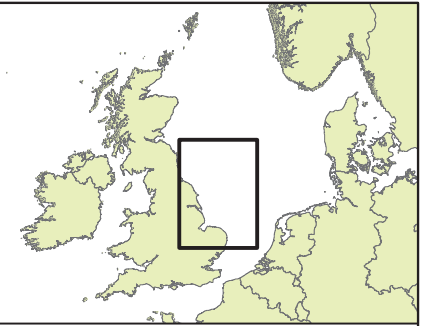
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Project: Dogger Bank South Offshore Wind Farms Report: Dogger Bank South Offshore Wind Farms EIA



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Contains data from Cefas, Ordnance Survey and  
ICES. [Data Source, Ellis *et al.*, 2012.]



- Legend:
- DBS East Array Area
  - DBS West Array Area
  - Offshore Development Area
  - Fish and Shellfish Ecology Study Area
  - Spawning grounds (Ellis *et al.*, 2012)
  - Nursery grounds (Ellis *et al.*, 2012)

| S4  | PO4 | 08/01/24 | PB2340-MAR-OF-ZZ-DR-Z-0003 | AN  | IW  | TM  |
|-----|-----|----------|----------------------------|-----|-----|-----|
| S4  | P04 | 22/03/23 | PB2340-MAR-OF-ZZ-DR-Z-0003 | NB  | IW  | OW  |
| S3  | P03 | 26/01/23 | PB2340-MAR-OF-ZZ-DR-Z-0003 | NB  | IW  | TM  |
| S2  | P02 | 21/04/22 | PB2340-MAR-OF-ZZ-DR-Z-0002 | BO  | IW  | TM  |
| SUI | REV | DATE     | DESCRIPTION                | DRW | CHK | APR |

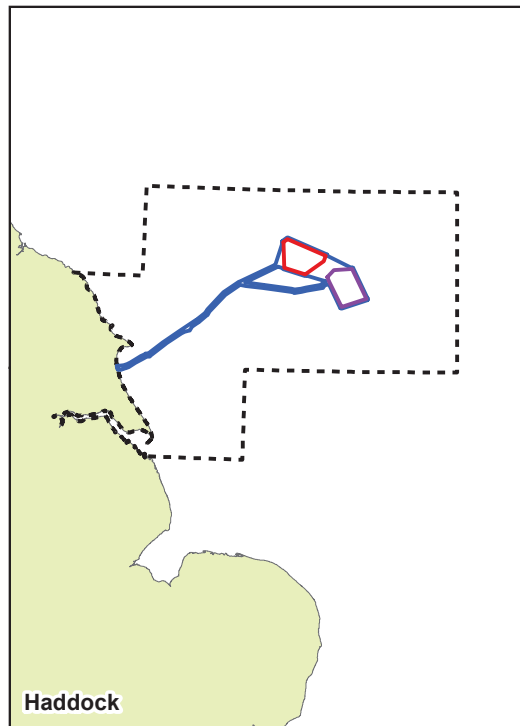
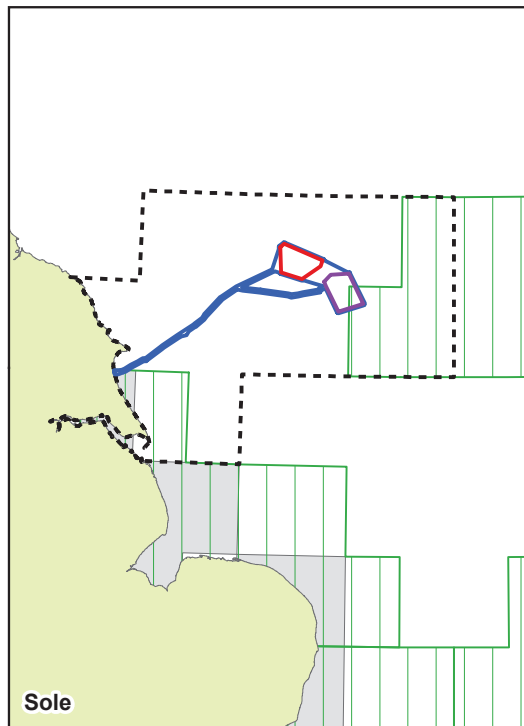
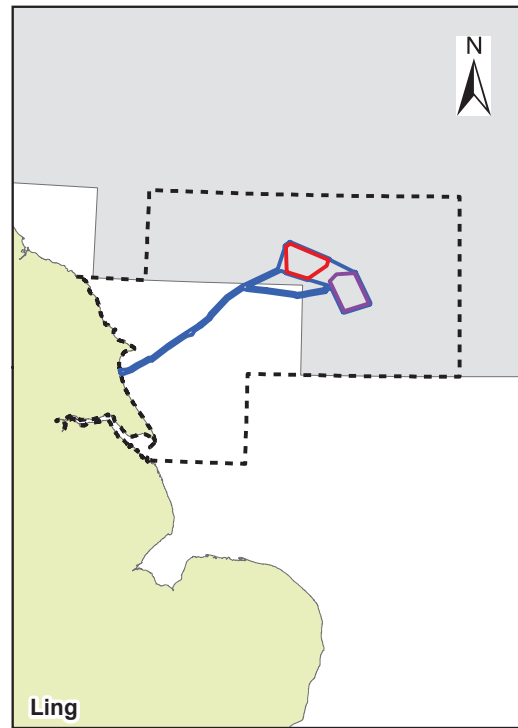
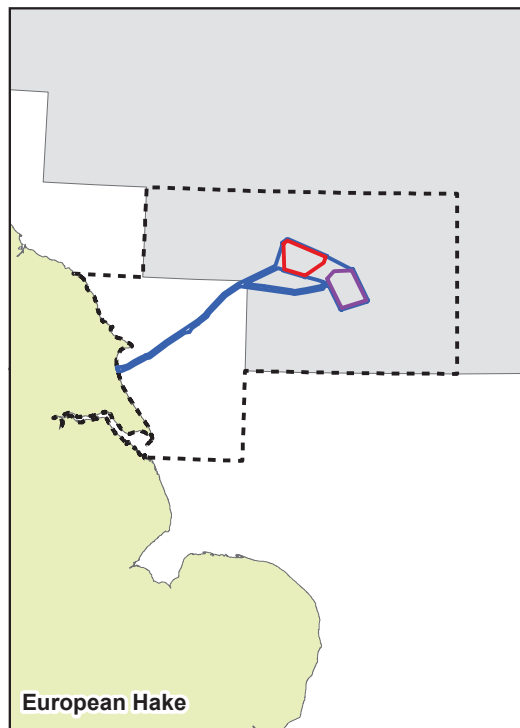
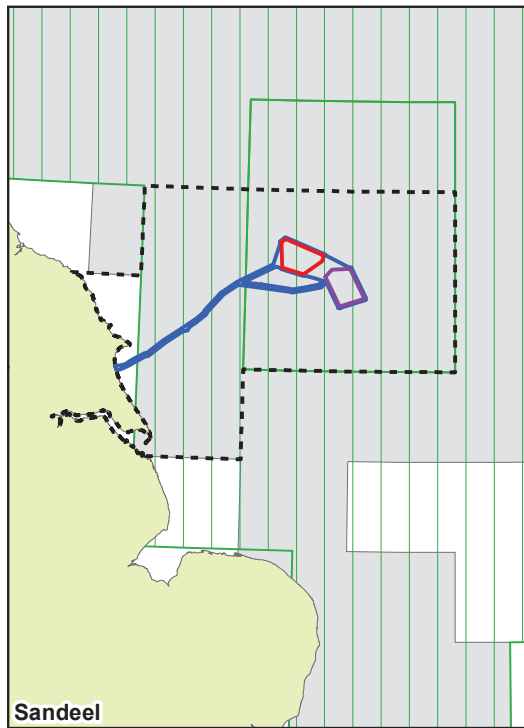
Title:

Demersal fish spawning and nursery areas 1/2

Figure: 10-3 Drawing No: PB2340-MAR-OF-ZZ-DR-Z-0003

Co-ordinate system: WGS 1984 UTM Zone 31N Page Size: A3 Scale: 1:3,300,000

Project: Dogger Bank South Offshore Wind Farms Report: Dogger Bank South Offshore Wind Farms EIA



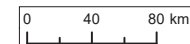
- Legend:
- DBS East Array Area
  - DBS West Array Area
  - Offshore Development Area
  - Fish and Shellfish Ecology Study Area
  - Spawning grounds (Ellis *et al.*, 2012)
  - Nursery grounds (Ellis *et al.*, 2012)

|     |     |          |                            |     |     |     |
|-----|-----|----------|----------------------------|-----|-----|-----|
| S4  | PO4 | 08/01/24 | PB2340-MAR-OF-ZZ-DR-Z-0004 | AN  | IW  | TM  |
| S4  | P04 | 22/03/23 | PB2340-MAR-OF-ZZ-DR-Z-0004 | NB  | IW  | OW  |
| S3  | P03 | 26/01/23 | PB2340-MAR-OF-ZZ-DR-Z-0004 | NB  | IW  | TM  |
| S2  | P02 | 21/04/22 | PB2340-MAR-OF-ZZ-DR-Z-0003 | BO  | IW  | TM  |
| SUI | REV | DATE     | DESCRIPTION                | DRW | CHK | APR |

Title:

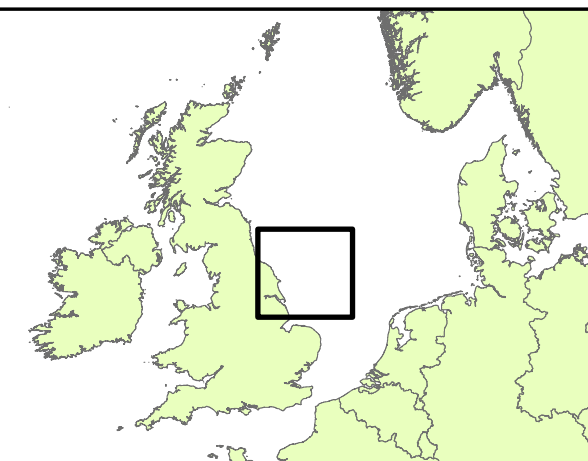
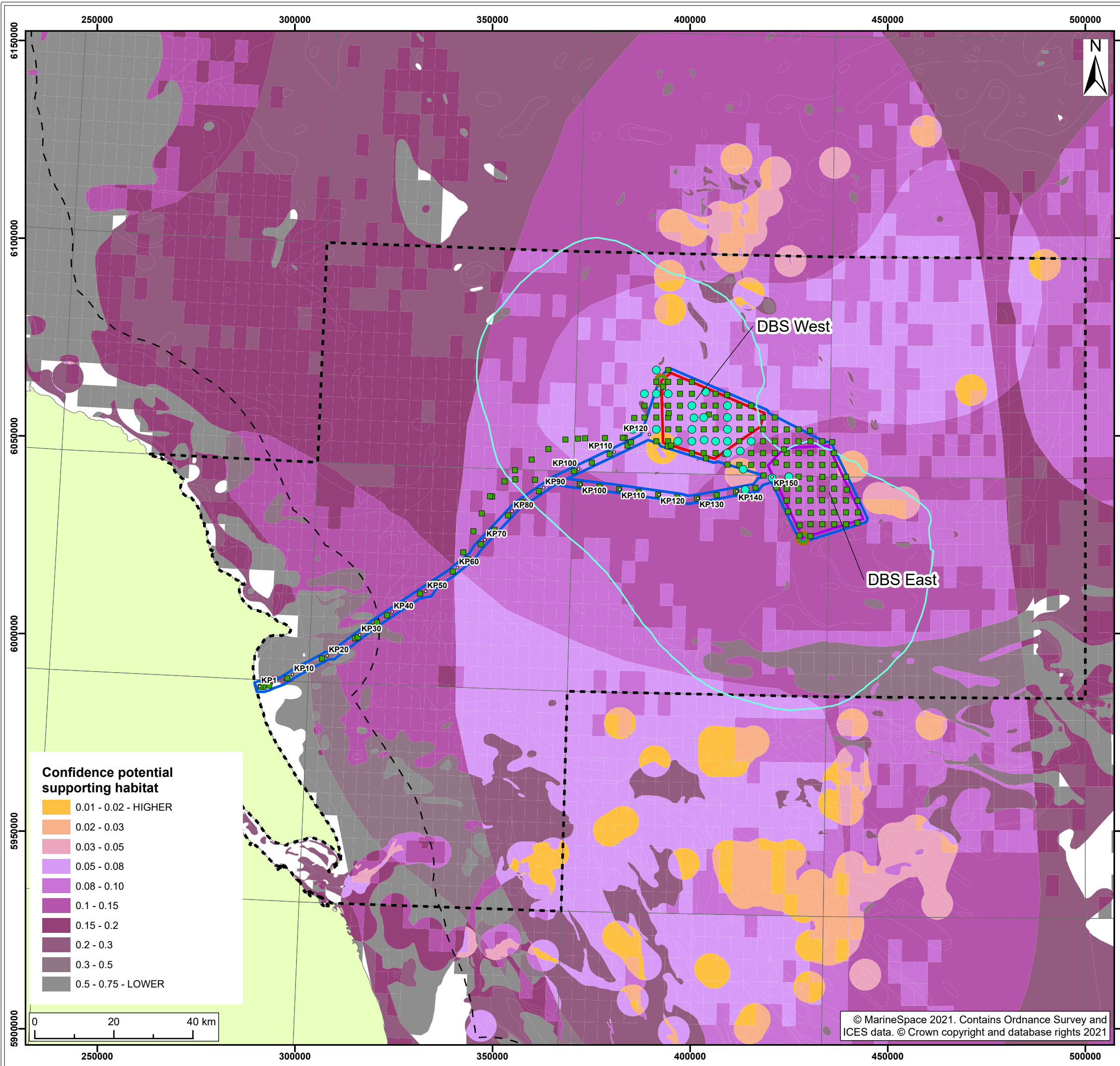
Demersal fish spawning and nursery areas 2/2

|                                                          |  |                                                                |                       |
|----------------------------------------------------------|--|----------------------------------------------------------------|-----------------------|
| Figure: 10-4                                             |  | Drawing No: PB2340-MAR-OF-ZZ-DR-Z-0004                         |                       |
| Co-ordinate system:<br>WGS 1984 UTM Zone 31N             |  | Page Size:<br>A3                                               | Scale:<br>1:3,300,000 |
| Project:<br><br>Dogger Bank South<br>Offshore Wind Farms |  | Report:<br><br>Dogger Bank South<br>Offshore Wind Farms<br>EIA |                       |



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Contains data from Cefas, Ordnance Survey and  
ICES. [Data Source, Ellis *et al.*, 2012.]





**Legend:**

- DBS East Array Area
- DBS West Array Area
- Offshore Development Area
- KP Points
- Fish and Shellfish Ecology Study Area
- UK 12 nm limit
- ICES Rectangles

**Sandeel Presence**

- Not Present
- Present

**Key UWN Thresholds for fish without swim bladder (Popper et al., 2014)**

- 186 dB re 1  $\mu\text{Pa}^2\text{s}$  SEL<sub>cum</sub> (TTS)
- 216 dB re 1  $\mu\text{Pa}^2\text{s}$  SEL<sub>cum</sub> (Recoverable Injury)
- 219 dB re 1  $\mu\text{Pa}^2\text{s}$  SEL<sub>cum</sub> (Mortality/Potential Mortal Injury)

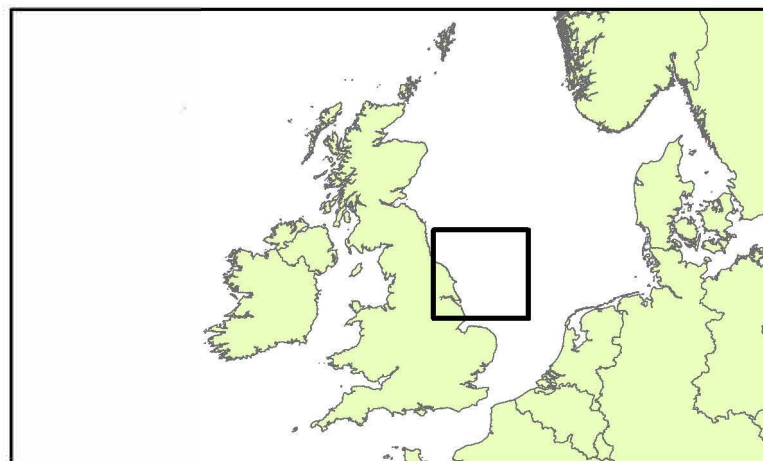
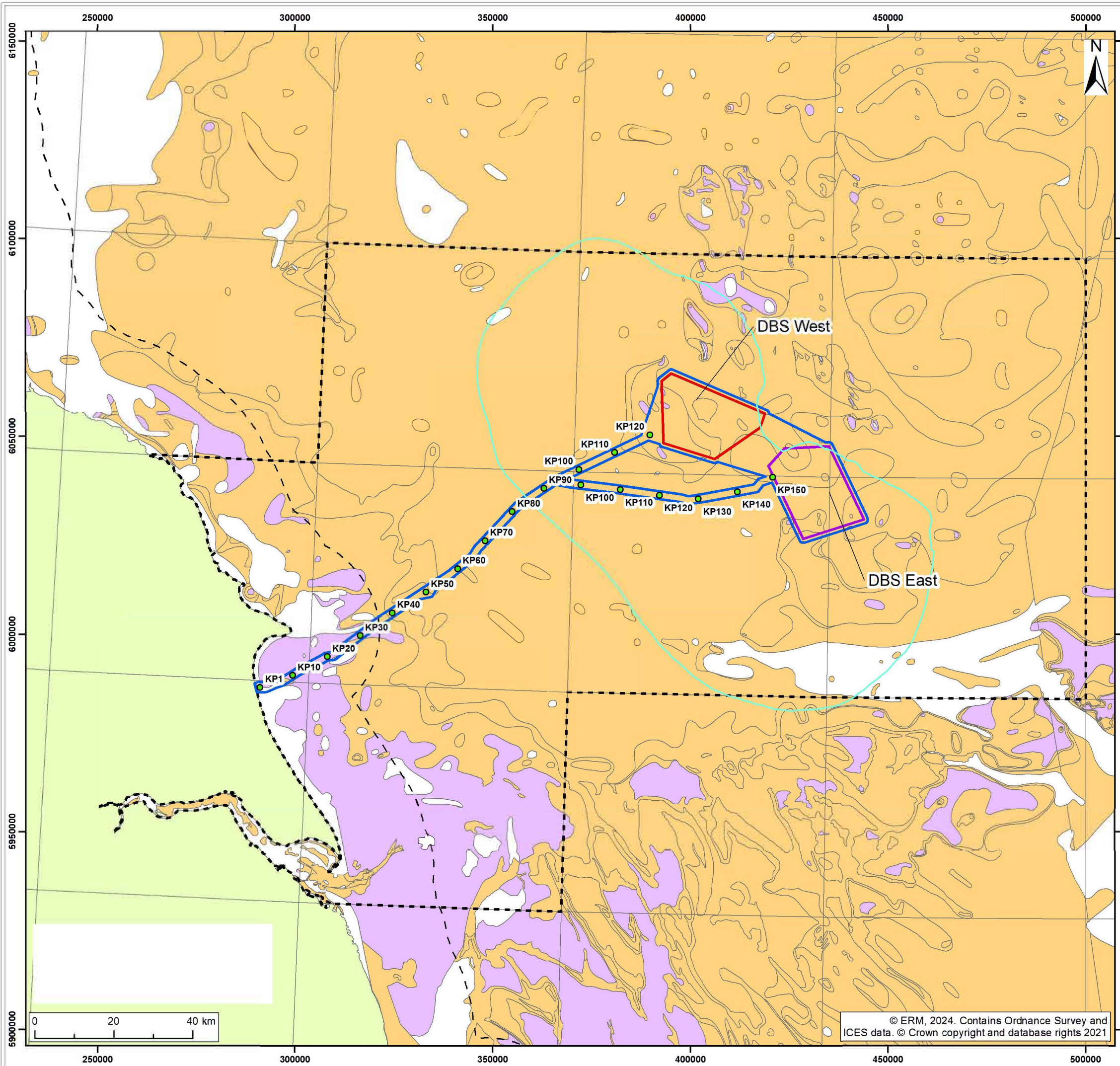
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| S1  | P01 | 02/10/24 | PB2340-MAR-OF-ZZ-DR-Z-0022 | IW  | MKH | OW  |
| SUI | REV | DATE     | DESCRIPTION                | DRW | CHK | APR |

Title:

Potential supporting habitat heat map for sandeel species in the vicinity of Dogger Bank South Offshore Wind Farms. Produced following approaches from Reach et al., 2024.

|                                                          |                                        |                                                                |                     |
|----------------------------------------------------------|----------------------------------------|----------------------------------------------------------------|---------------------|
| Figure: 10-5                                             | Drawing No: PB2340-MAR-OF-ZZ-DR-Z-0022 |                                                                |                     |
| Co-ordinate system:<br>WGS 1984 UTM Zone 31N             |                                        | Page Size:<br>A3                                               | Scale:<br>1:950,000 |
| Project:<br><br>Dogger Bank South<br>Offshore Wind Farms |                                        | Report:<br><br>Dogger Bank South<br>Offshore Wind Farms<br>EIA |                     |





**Legend:**

- DBS East Array Area
- DBS West Array Area
- Fish and Shellfish Ecology Study Area
- Offshore Development Area
- KP Points

**Key UWN Thresholds for fish without swim bladder (Popper et al., 2014)**

- 186 dB re 1  $\mu\text{Pa}^2\text{s}$  SEL<sub>cum</sub> (TTS)
- 216 dB re 1  $\mu\text{Pa}^2\text{s}$  SEL<sub>cum</sub> (Recoverable Injury)
- 219 dB re 1  $\mu\text{Pa}^2\text{s}$  SEL<sub>cum</sub> (Mortality/Potential Mortal Injury)

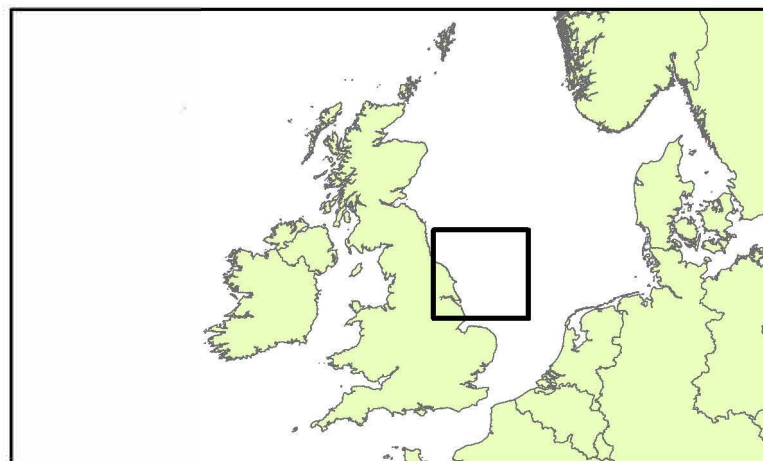
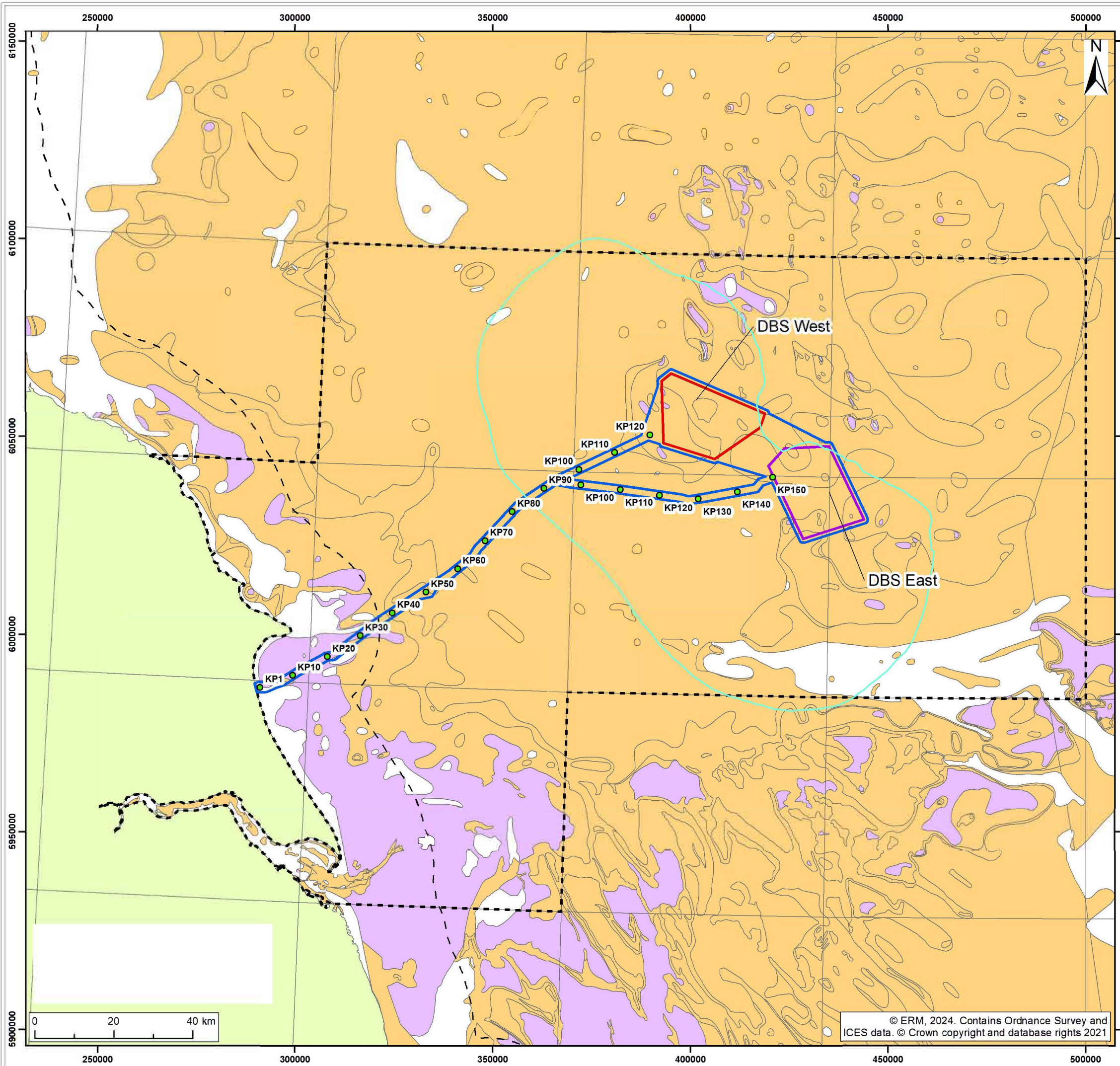
- UK 12 nm limit
- ICES Rectangles
- Preferred substrates
- Marginal substrates

|     |     |            |                            |     |     |     |
|-----|-----|------------|----------------------------|-----|-----|-----|
|     |     |            |                            |     |     |     |
| S2  | P02 | 31/10/2024 | PB2340-MAR-OF-ZZ-DR-Z-0017 | IW  | MKH | OW  |
| S1  | P01 | 02/10/24   | PB2340-MAR-OF-ZZ-DR-Z-0017 | IW  | MKH | OW  |
| SUI | REV | DATE       | DESCRIPTION                | DRW | CHK | APR |

Title:  
The extent of preferred and marginal potential supporting habitats for sandeel, represented by the EMODnet 1:250k seabed sediment data-layer, used in the development of the sandeel heat map relative to the projects. The underwater noise (UWN) contour used within the EIA has been included for reference.

|                                                          |                                        |                                                             |                     |
|----------------------------------------------------------|----------------------------------------|-------------------------------------------------------------|---------------------|
| Figure:10-6a                                             | Drawing No: PB2340-MAR-OF-ZZ-DR-Z-0017 |                                                             |                     |
| Co-ordinate system:<br>WGS 1984 UTM Zone 31N             |                                        | Page Size:<br>A3                                            | Scale:<br>1:950,000 |
| Project:<br><br>Dogger Bank South<br>Offshore Wind Farms |                                        | Report:<br><br>Dogger Bank South Offshore<br>Wind Farms EIA |                     |





**Legend:**

- DBS East Array Area
- DBS West Array Area
- Fish and Shellfish Ecology Study Area
- Offshore Development Area
- KP Points

**Key UWN Thresholds for fish without swim bladder (Popper et al., 2014)**

- 186 dB re 1  $\mu\text{Pa}^2\text{s}$  SEL<sub>cum</sub> (TTS)
- 216 dB re 1  $\mu\text{Pa}^2\text{s}$  SEL<sub>cum</sub> (Recoverable Injury)
- 219 dB re 1  $\mu\text{Pa}^2\text{s}$  SEL<sub>cum</sub> (Mortality/Potential Mortal Injury)

- UK 12 nm limit
- ICES Rectangles
- Preferred substrates
- Marginal substrates

|     |     |            |                            |     |     |     |
|-----|-----|------------|----------------------------|-----|-----|-----|
|     |     |            |                            |     |     |     |
| S2  | P02 | 31/10/2024 | PB2340-MAR-OF-ZZ-DR-Z-0017 | IW  | MKH | OW  |
| S1  | P01 | 02/10/24   | PB2340-MAR-OF-ZZ-DR-Z-0017 | IW  | MKH | OW  |
| SUI | REV | DATE       | DESCRIPTION                | DRW | CHK | APR |

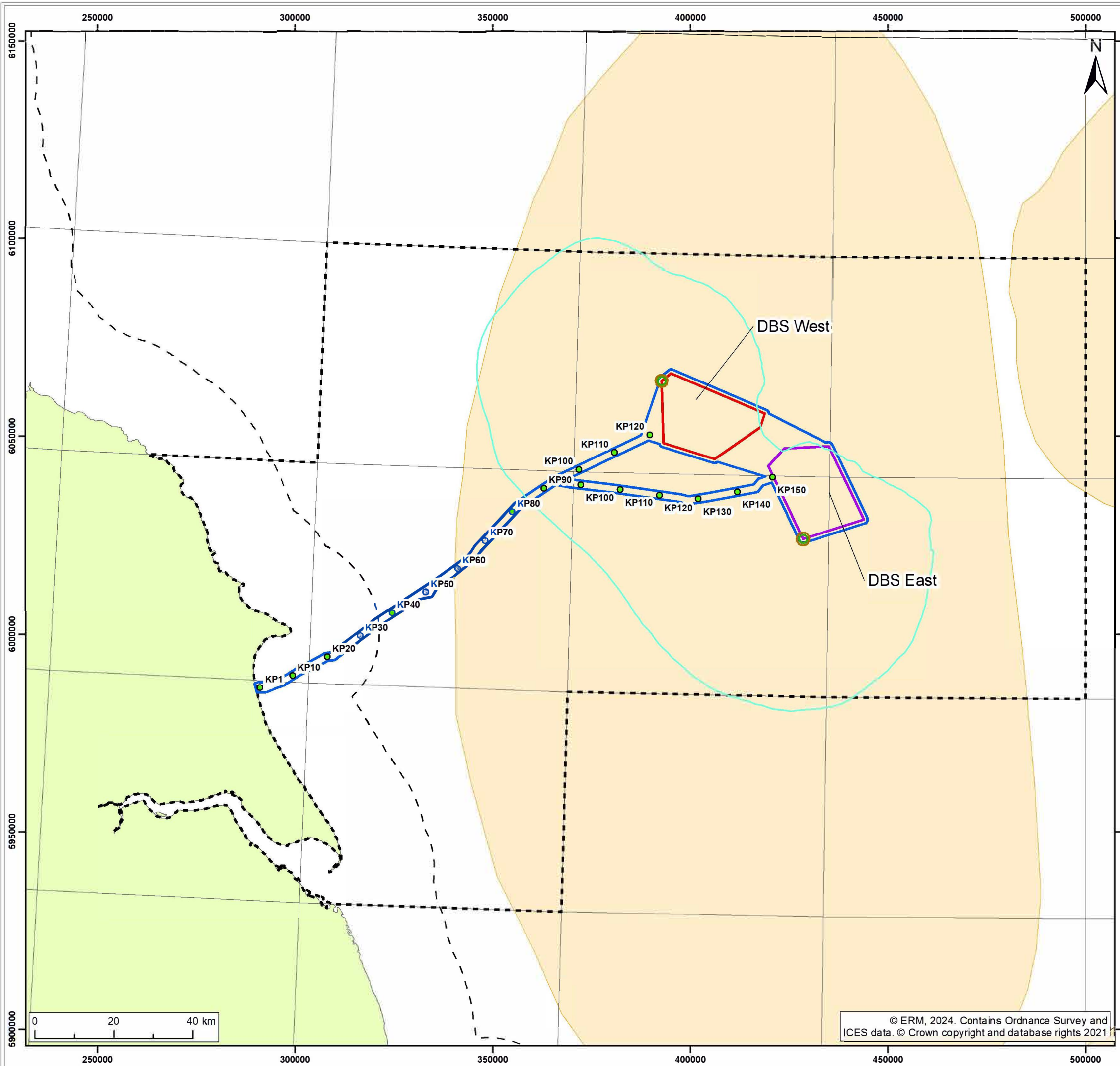
Title:  
The extent of preferred and marginal potential supporting habitats for sandeel, represented by the EMODnet 1:250k seabed sediment data-layer, used in the development of the sandeel heat map relative to the projects. The underwater noise (UWN) contour used within the EIA has been included for reference.

|                                                          |                                        |                                                             |                     |
|----------------------------------------------------------|----------------------------------------|-------------------------------------------------------------|---------------------|
| Figure:10-6b                                             | Drawing No: PB2340-MAR-OF-ZZ-DR-Z-0017 |                                                             |                     |
| Co-ordinate system:<br>WGS 1984 UTM Zone 31N             |                                        | Page Size:<br>A3                                            | Scale:<br>1:950,000 |
| Project:<br><br>Dogger Bank South<br>Offshore Wind Farms |                                        | Report:<br><br>Dogger Bank South Offshore<br>Wind Farms EIA |                     |



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**Legend:**

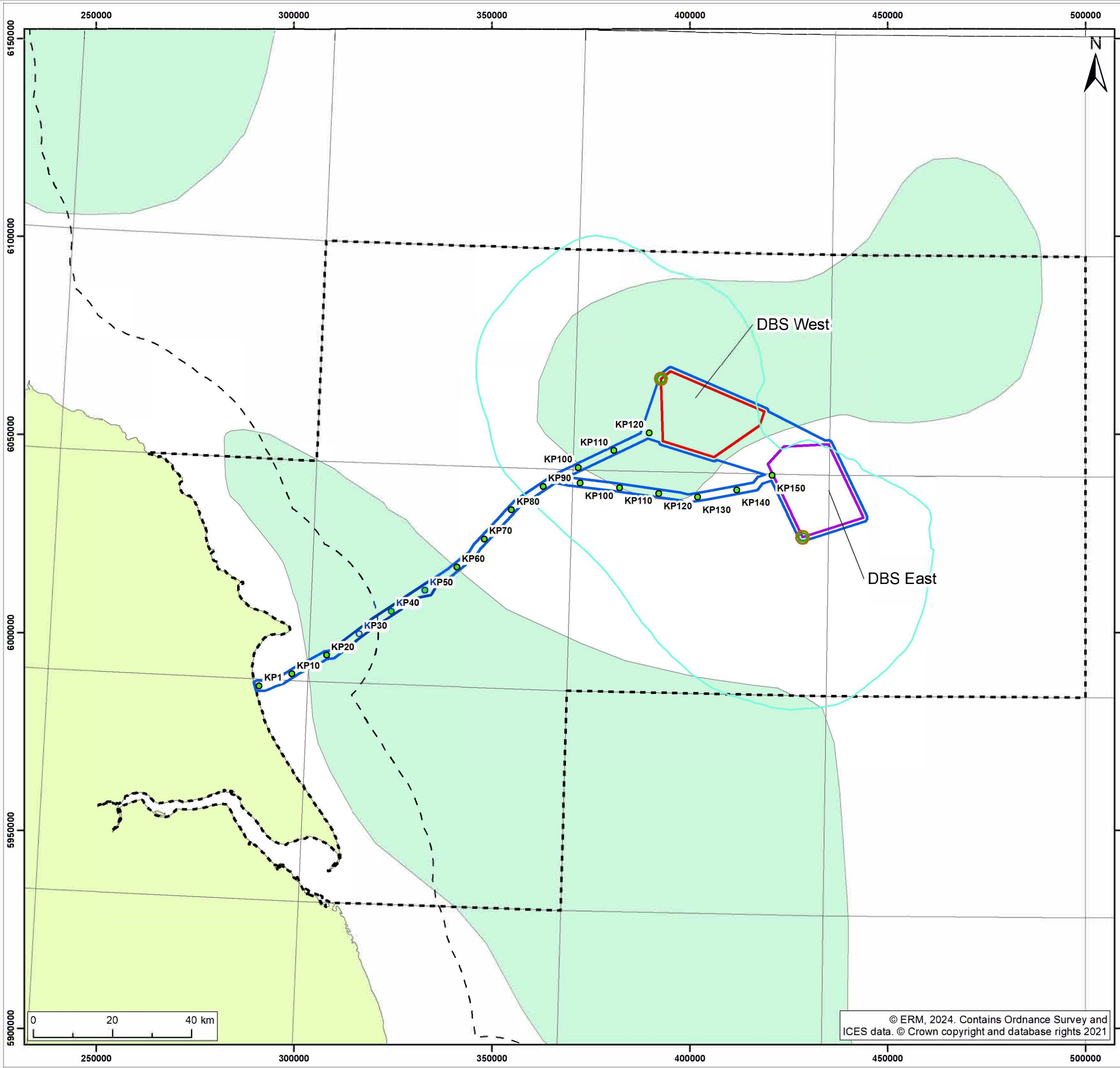
- DBS East Array Area
- DBS West Array Area
- Offshore Development Area
- KP Points

**Key UWN Thresholds for fish without swim bladder (Popper et al., 2014)**

- 186 dB re 1  $\mu\text{Pa}^2\text{s SEL}_{\text{cum}}$
- 216 dB re 1  $\mu\text{Pa}^2\text{s SEL}_{\text{cum}}$  (Recoverable)
- 219 dB re 1  $\mu\text{Pa}^2\text{s SEL}_{\text{cum}}$  (Mortality/Potential Mortal)
- Fish and Shellfish Ecology Study Area
- UK 12 nm limit
- ICES Rectangles
- Known Sandeel Grounds (Wright et al., 2019)

|                                                                                                                                                                                                                   |     |                                        |                                                             |                     |     |     |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|----------------------------------------|-------------------------------------------------------------|---------------------|-----|-----|
|                                                                                                                                                                                                                   |     |                                        |                                                             |                     |     |     |
| S2                                                                                                                                                                                                                | P02 | 31/10/2024                             | PB2340-MAR-OF-ZZ-DR-Z-0019                                  | IW                  | MKH | OW  |
| S1                                                                                                                                                                                                                | P01 | 02/10/24                               | PB2340-MAR-OF-ZZ-DR-Z-0019                                  | IW                  | MKH | OW  |
| SUI                                                                                                                                                                                                               | REV | DATE                                   | DESCRIPTION                                                 | DRW                 | CHK | APR |
| Title:                                                                                                                                                                                                            |     |                                        |                                                             |                     |     |     |
| The extent of the Wright et al. (2019) data-layer used in the development of the sandeel heat map relative to the Projects. Underwater noise (UWN) contours used within the EIA have been included for reference. |     |                                        |                                                             |                     |     |     |
| Figure:10.6c                                                                                                                                                                                                      |     | Drawing No: PB2340-MAR-OF-ZZ-DR-Z-0019 |                                                             |                     |     |     |
| Co-ordinate system:<br>WGS 1984 UTM Zone 31N                                                                                                                                                                      |     |                                        | Page Size:<br>A3                                            | Scale:<br>1:950,000 |     |     |
| Project:<br><br>Dogger Bank South<br>Offshore Wind Farms                                                                                                                                                          |     |                                        | Report:<br><br>Dogger Bank South Offshore<br>Wind Farms EIA |                     |     |     |





**Legend:**

DBS East Array

 DBS West Array

Offshore Development

KP Points

 186 dB re 1  $\mu\text{Pa}^2\text{s SEL}_{cum}$  216 dB re 1  $\mu\text{Pa}^2\text{s SEL}_{cum}$  (Recoverable) 219 dB re 1  $\mu\text{Pa}^2\text{s SEL}_{cum}$  (Mortality/Potential Mortal) Fish and Shellfish Ecology Study Area UK 12 nm limit ICES Rectangles Spawning grounds defined by Coull et al. (1998)

|     |     |            |                            |     |     |     |
|-----|-----|------------|----------------------------|-----|-----|-----|
|     |     |            |                            |     |     |     |
| S2  | P02 | 31/10/2024 | PB2340-MAR-OF-ZZ-DR-Z-0020 | IW  | MKH | OW  |
| S1  | P01 | 02/10/24   | PB2340-MAR-OF-ZZ-DR-Z-0020 | IW  | MKH | OW  |
| SUI | REV | DATE       | DESCRIPTION                | DRW | CHK | APR |

Title:  
The extent of the Coull et al. (1998) data-layer used in the development of the sandeel heat map relative to the Projects. Underwater noise (UWN) contours used within the EIA have been included for reference.

|                                                          |  |                                                             |                     |
|----------------------------------------------------------|--|-------------------------------------------------------------|---------------------|
| Figure:10-6d                                             |  | Drawing No: PB2340-MAR-OF-ZZ-DR-Z-0020                      |                     |
| Co-ordinate system:<br>WGS 1984 UTM Zone 31N             |  | Page Size:<br>A3                                            | Scale:<br>1:950,000 |
| Project:<br><br>Dogger Bank South<br>Offshore Wind Farms |  | Report:<br><br>Dogger Bank South Offshore<br>Wind Farms EIA |                     |

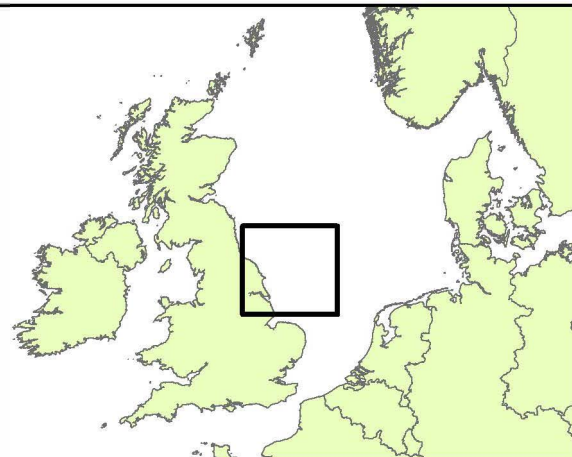
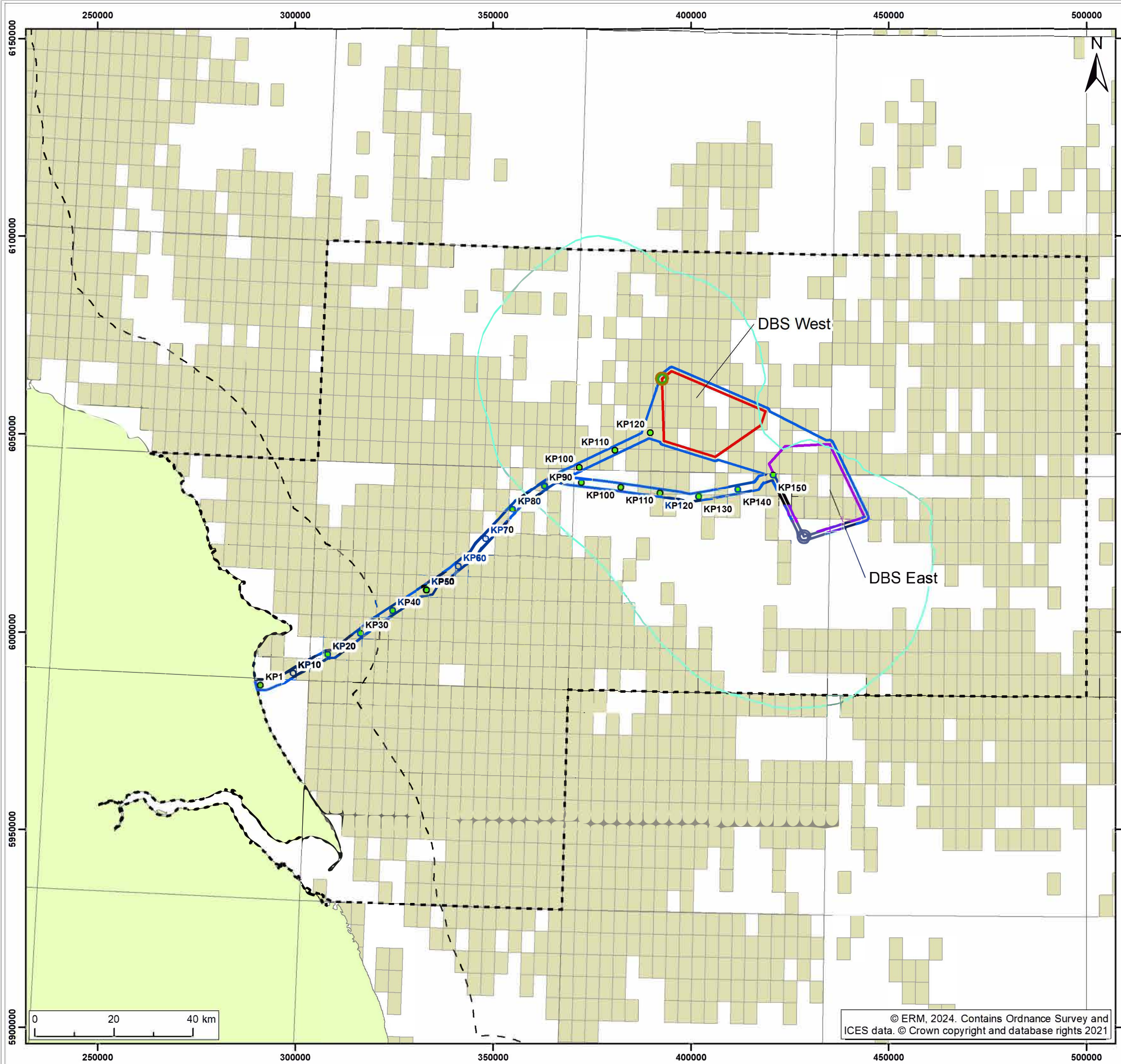
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**Legend:**

- DBS East Array
- DBS West Array
- Offshore Development
- KP Points

**Key UWN Thresholds for fish without swim bladder (Popper et al., 2014)**

- 186 dB re 1  $\mu\text{Pa}^2\text{s SEL}_{\text{cum}}$
- 216 dB re 1  $\mu\text{Pa}^2\text{s SEL}_{\text{cum}}$  (Recoverable)
- 219 dB re 1  $\mu\text{Pa}^2\text{s SEL}_{\text{cum}}$  (Mortality/Potential Mortal)

- Fish and Shellfish Ecology Study Area
- UK 12 nm limit
- ICES Rectangles
- Fishing Activity recorded by VMS (2020)

|     |     |            |                            |     |     |     |
|-----|-----|------------|----------------------------|-----|-----|-----|
|     |     |            |                            |     |     |     |
| S2  | P02 | 31/10/2024 | PB2340-MAR-OF-ZZ-DR-Z-0023 | IW  | MKH | OW  |
| S1  | P01 | 02/10/24   | PB2340-MAR-OF-ZZ-DR-Z-0023 | IW  | MKH | OW  |
| SUI | REV | DATE       | DESCRIPTION                | DRW | CHK | APR |

Title:

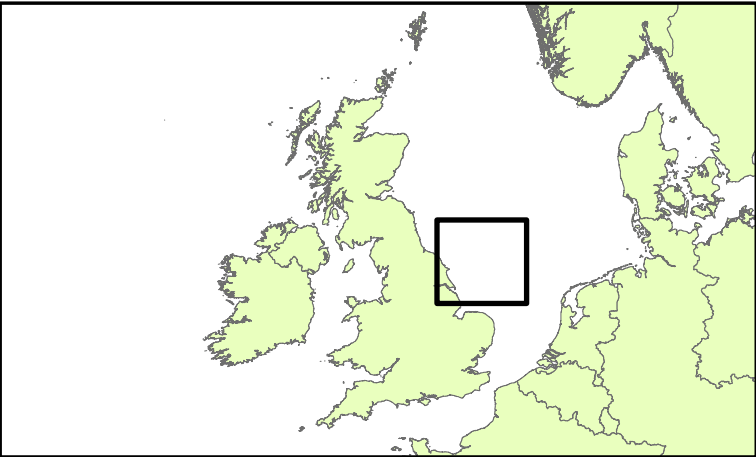
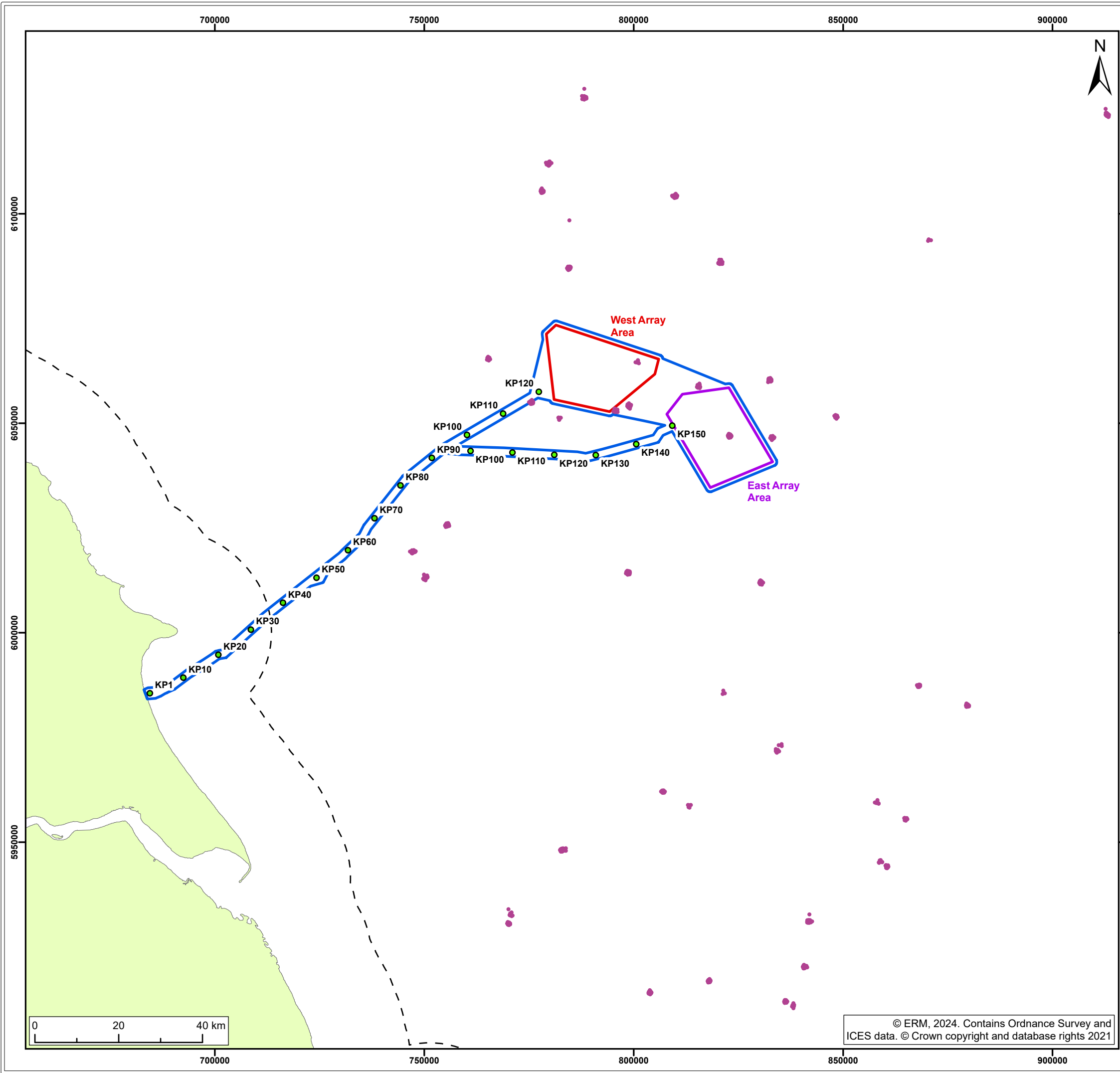
The extent of the VMS (2020) data-layer used in the development of the sandeel heat map relative to the Projects. Underwater noise (UWN) contours used within the EIA have been included for reference.

|                                                          |                                        |                                                             |                     |
|----------------------------------------------------------|----------------------------------------|-------------------------------------------------------------|---------------------|
| Figure: 10-6e                                            | Drawing No: PB2340-MAR-OF-ZZ-DR-Z-0023 |                                                             |                     |
| Co-ordinate system:<br>WGS 1984 UTM Zone 31N             |                                        | Page Size:<br>A3                                            | Scale:<br>1:950,000 |
| Project:<br><br>Dogger Bank South<br>Offshore Wind Farms |                                        | Report:<br><br>Dogger Bank South Offshore<br>Wind Farms EIA |                     |



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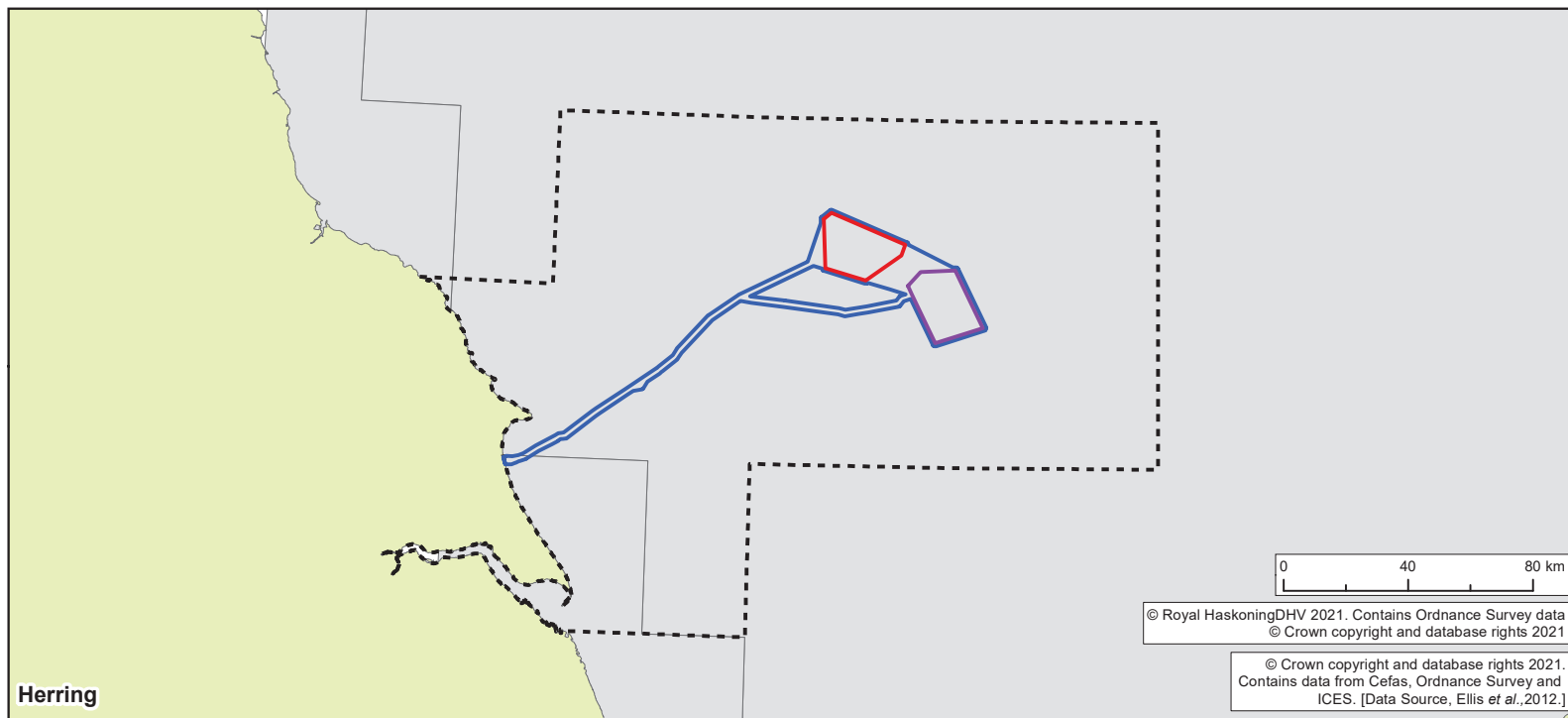
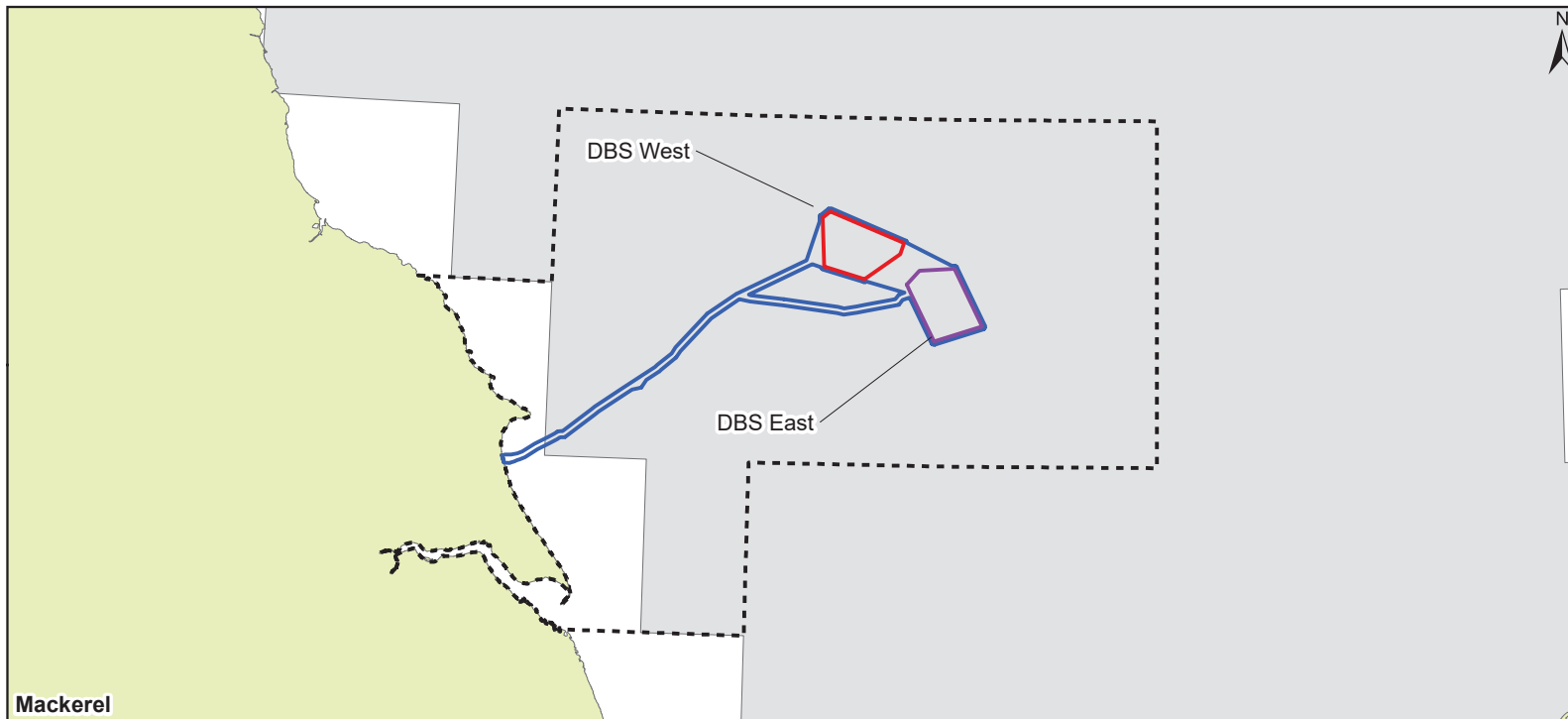




**Legend:**

- - UK 12 nm limit
- Array Area Boundary**
  - Offshore Development Area
  - DBS East Array Area
  - DBS West Array Area
- KP Points
- Survey Data**
  - North Sea Sandeel Survey (2014 - 2024)

|                                                                                                                           |     |                                               |                                                             |                     |     |     |
|---------------------------------------------------------------------------------------------------------------------------|-----|-----------------------------------------------|-------------------------------------------------------------|---------------------|-----|-----|
|                                                                                                                           |     |                                               |                                                             |                     |     |     |
|                                                                                                                           |     |                                               |                                                             |                     |     |     |
|                                                                                                                           |     |                                               |                                                             |                     |     |     |
| S1                                                                                                                        | P01 | 2/20/2025                                     | J0754512-MAP-101-SandeelSurvey-01                           | MW                  | MKH |     |
| SUI                                                                                                                       | REV | DATE                                          | DESCRIPTION                                                 | DRW                 | CHK | APR |
| Title:                                                                                                                    |     |                                               |                                                             |                     |     |     |
| The distribution of North Sea Sandeel Survey (NSSS) presence samples within the vicinity of the Offshore Development Area |     |                                               |                                                             |                     |     |     |
| Figure: 10-7                                                                                                              |     | Drawing No: J0754512-MAP-101-SandeelSurvey-01 |                                                             |                     |     |     |
| Co-ordinate system:<br>WGS 1984 UTM Zone 30N                                                                              |     |                                               | Page Size:<br>A3                                            | Scale:<br>1:900,000 |     |     |
| Project:<br><br>Dogger Bank South<br>Offshore Wind Farms                                                                  |     |                                               | Report:<br><br>Dogger Bank South<br>Offshore Wind Farms EIA |                     |     |     |



Legend:

- DBS East Array Area
- DBS West Array Area
- Offshore Development Area
- Fish and Shellfish Ecology Study Area
- Nursery grounds (Ellis *et al.*, 2012)

| S4  | PO4 | 08/01/24 | PB2340-MAR-OF-ZZ-DR-Z-0005 | AN  | IW  | TM  |
|-----|-----|----------|----------------------------|-----|-----|-----|
| S4  | P04 | 33/03/23 | PB2340-MAR-OF-ZZ-DR-Z-0005 | NB  | IW  | IW  |
| S3  | P03 | 26/01/23 | PB2340-MAR-OF-ZZ-DR-Z-0005 | NB  | IW  | TM  |
| S2  | P02 | 21/04/22 | PB2340-MAR-OF-ZZ-DR-Z-0002 | BO  | IW  | TM  |
| SUI | REV | DATE     | DESCRIPTION                | DRW | CHK | APR |

Title:

Pelagic fish nursery areas

Figure: 10-8 Drawing No: PB2340-MAR-OF-ZZ-DR-Z-0005

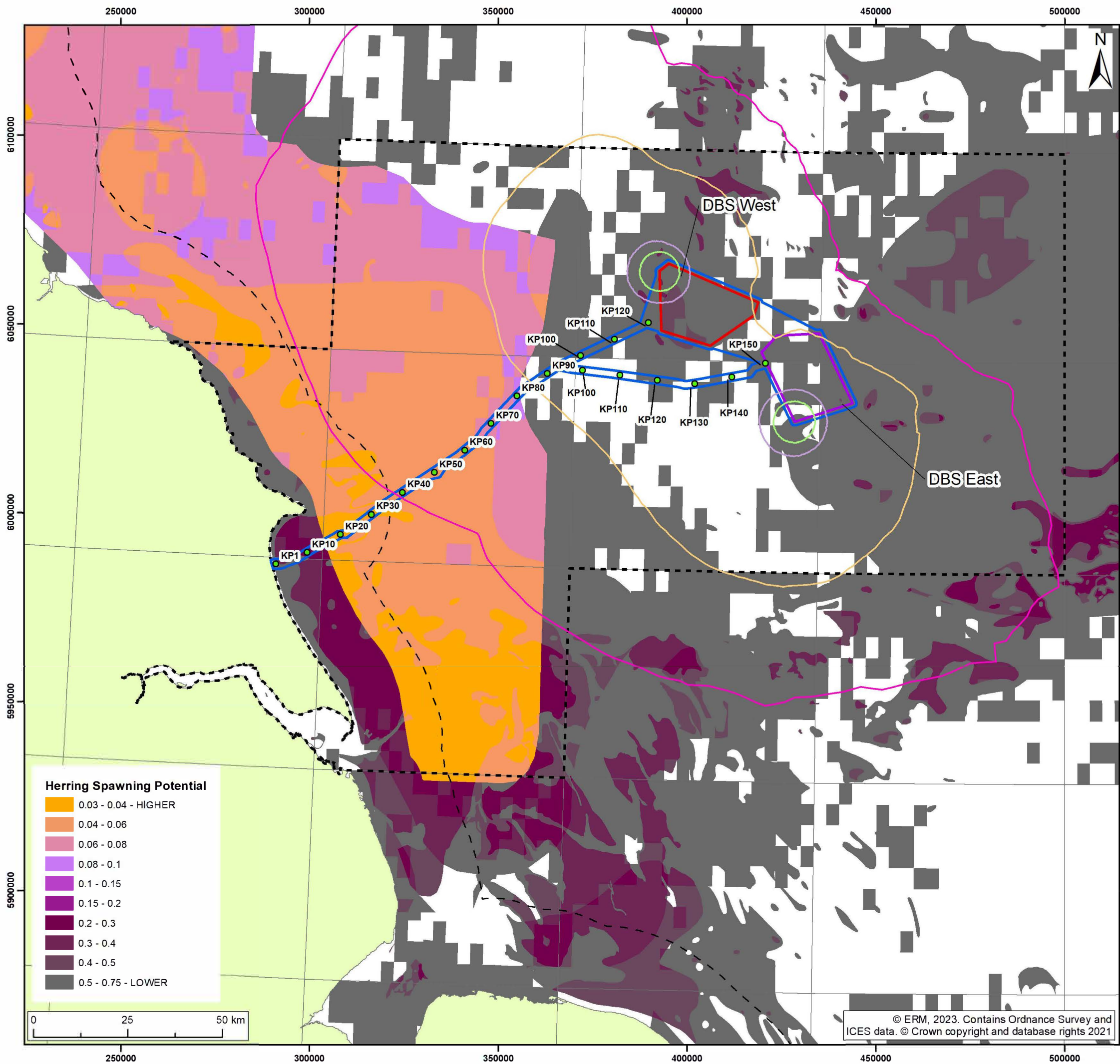
Co-ordinate system: WGS 1984 UTM Zone 31N Page Size: A3 Scale: 1:1,700,000

Project: Dogger Bank South Offshore Wind Farms Report: Dogger Bank South Offshore Wind Farms EIA

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Contains data from Cefas, Ordnance Survey and  
ICES. [Data Source, Ellis *et al.*, 2012.]





**Legend:**

- DBS East Array
- DBS West Array
- Offshore Development Area
- KP Points
- Fish and Shellfish Ecology Study Area
- UK 12 nm limit
- ICES Rectangles

**Disturbance Threshold (based on Hawkins et al., 2014)**

- 135 dB re 1  $\mu\text{Pa}^2\text{s}$  SEL<sub>ss</sub> (Behaviour Threshold)

**Key UWN Thresholds (Popper et al., 2014)**

- 186 dB re 1  $\mu\text{Pa}^2\text{s}$  SEL<sub>cum</sub> (TTS) 186
- 203 dB re 1  $\mu\text{Pa}^2\text{s}$  SEL<sub>cum</sub> (Recoverable Injury) 203
- 207 dB re 1  $\mu\text{Pa}^2\text{s}$  SEL<sub>cum</sub> (Mortality/Potential Mortal Injury) 207

|     |     |          |                            |     |     |     |
|-----|-----|----------|----------------------------|-----|-----|-----|
| S1  | P01 | 22/03/23 | PB2340-MAR-OF-ZZ-DR-Z-0025 | NB  | IW  | TM  |
| SUI | REV | DATE     | DESCRIPTION                | DRW | CHK | APR |

Title:  
Potential spawning habitat heat map for Atlantic herring in the vicinity of Dogger Bank South Offshore Wind Farms. Produced following approaches from Kyle-Henney et al. (2024). The underwater noise (UWN) contour used within the EIA has been included for reference.

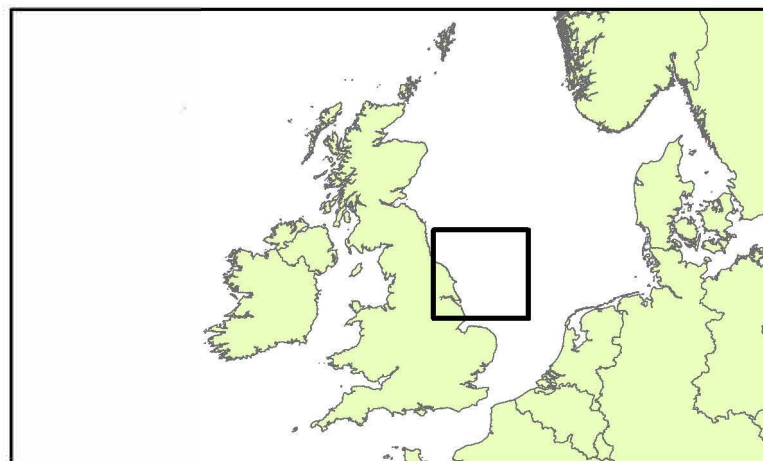
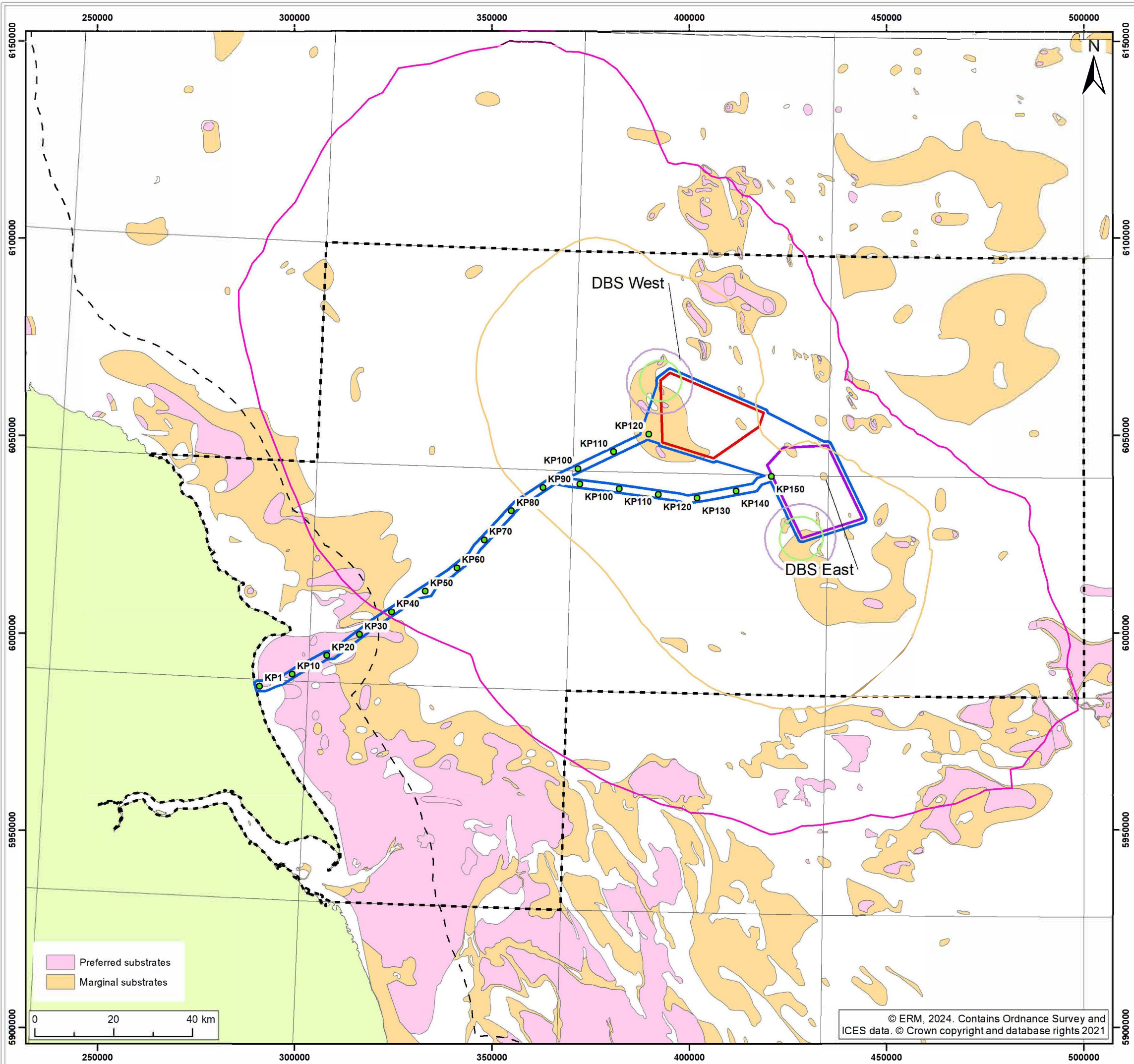
Figure: 10-9      Drawing No: PB2340-MAR-OF-ZZ-DR-Z-0025

|                                                   |                                                      |                       |
|---------------------------------------------------|------------------------------------------------------|-----------------------|
| Co-ordinate system:<br>WGS 1984 UTM Zone 31N      | Page Size:<br>A3                                     | Scale:<br>1:1,000,000 |
| Project:<br>Dogger Bank South Offshore Wind Farms | Report:<br>Dogger Bank South Offshore Wind Farms EIA |                       |



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**Legend:**

- DBS East Array Area
- DBS West Array Area
- Preferred substrates
- Fish and Shellfish Ecology Study
- UK 12 nm limit
- ICES Rectangles
- Offshore Development Area
- KP Points
- Marginal substrates

**Disturbance Threshold (based on Hawkins et al., 2014)**

- 135 dB re 1  $\mu\text{Pa}^2\text{s}$  SEL<sub>ss</sub> (Behaviour Threshold)

**Key UWN Thresholds (Popper et al., 2014)**

- 186 dB re 1  $\mu\text{Pa}^2\text{s}$  SEL<sub>cum</sub> (TTS)
- 203 dB re 1  $\mu\text{Pa}^2\text{s}$  SEL<sub>cum</sub> (Recoverable Injury)
- 207 dB re 1  $\mu\text{Pa}^2\text{s}$  SEL<sub>cum</sub> (Mortality/Potential Mortal Injury)

|     |     |            |                            |     |     |     |
|-----|-----|------------|----------------------------|-----|-----|-----|
| S2  | P02 | 31/10/2024 | PB2340-MAR-OF-ZZ-DR-Z-0013 | IW  | MKH | OW  |
| S1  | P01 | 02/10/24   | PB2340-MAR-OF-ZZ-DR-Z-0013 | IW  | MKH | OW  |
| SUI | REV | DATE       | DESCRIPTION                | DRW | CHK | APR |

Title:  
The extent of preferred and marginal potential spawning habitats for Atlantic herring, represented by the EMODnet 1:250k seabed sediment data-layer, used in the development of the Atlantic herring heat map relative to the Projects. Underwater noise (UWN) contours used within the EIA have been included for reference.

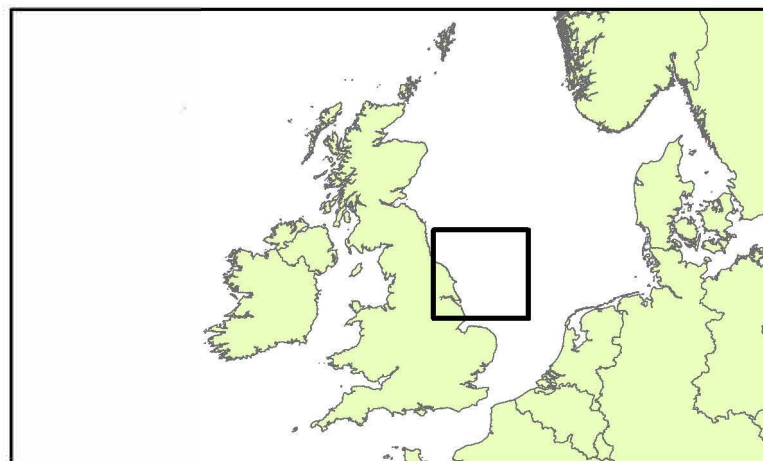
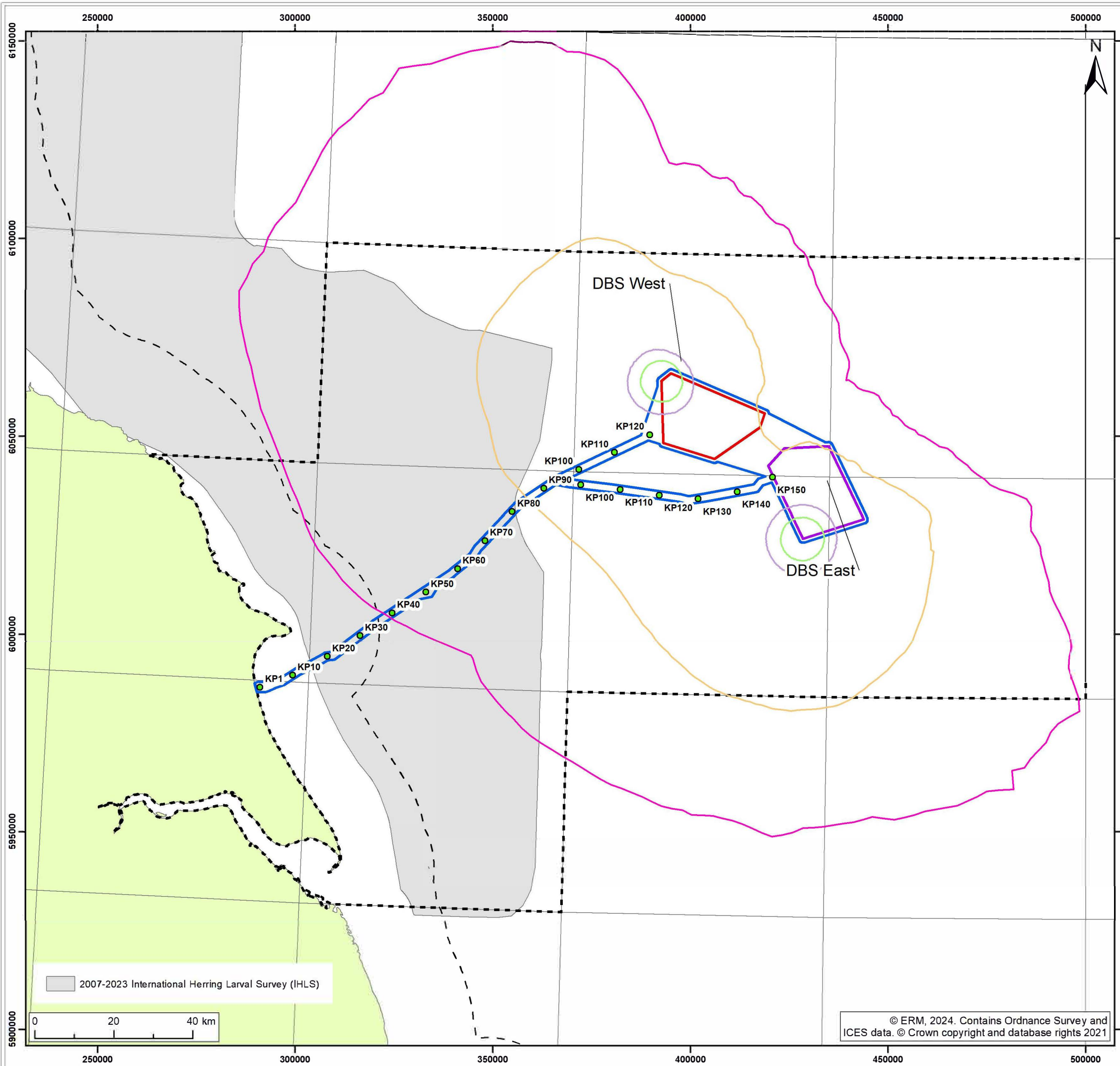
Figure: 10-10a      Drawing No: PB2340-MAR-OF-ZZ-DR-Z-0013

|                                                   |                                                      |                     |
|---------------------------------------------------|------------------------------------------------------|---------------------|
| Co-ordinate system:<br>WGS 1984 UTM Zone 31N      | Page Size:<br>A3                                     | Scale:<br>1:950,000 |
| Project:<br>Dogger Bank South Offshore Wind Farms | Report:<br>Dogger Bank South Offshore Wind Farms EIA |                     |



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**Legend:**

- DBS East Array
- DBS West Array
- 2007-2023 International Herring Larval Survey (IHLS)
- Fish and Shellfish Ecology Study Area
- UK 12 nm limit
- ICES Rectangles
- Offshore Development Area
- KP Points

**Disturbance Threshold (based on Hawkins et al., 2014)**

- 135 dB re 1 µPa²s SEL<sub>ss</sub> (Behaviour)

**Key UWN Thresholds (Popper et al., 2014)**

- 186 dB re 1 µPa²s SEL<sub>cum</sub>
- 203 dB re 1 µPa²s SEL<sub>cum</sub> (Recoverable)
- 207 dB re 1 µPa²s SEL<sub>cum</sub> (Mortality/Potential Mortal)

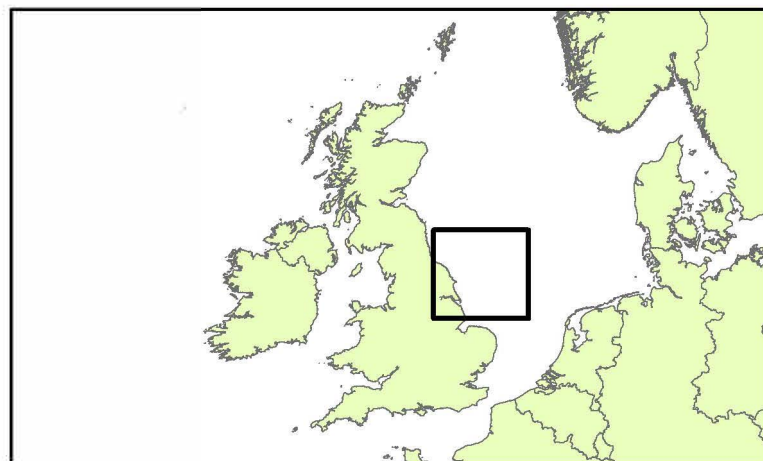
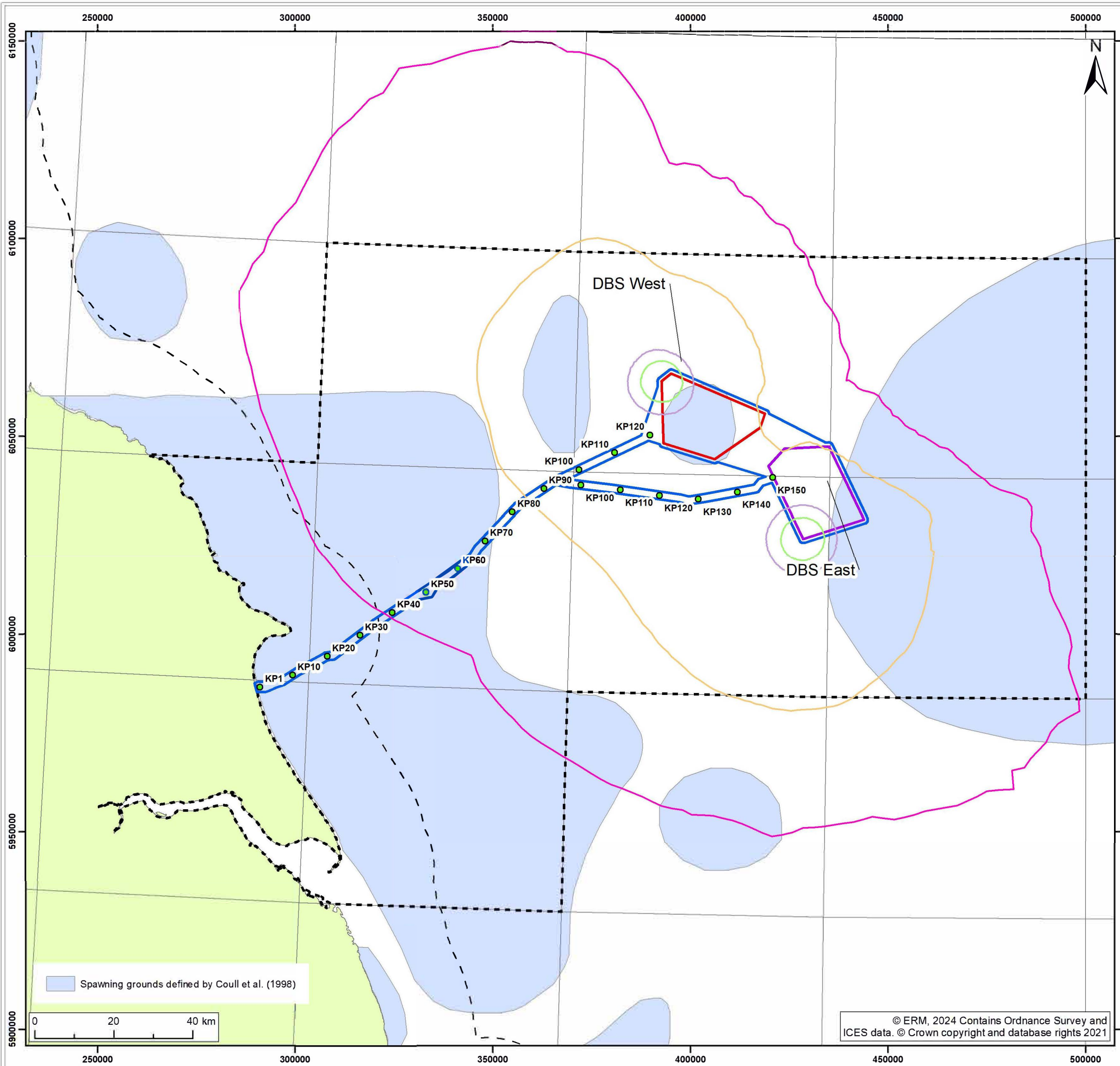
|     |     |          |                            |     |     |     |
|-----|-----|----------|----------------------------|-----|-----|-----|
|     |     |          |                            |     |     |     |
| S2  | P02 | 31/10/24 | PB2340-MAR-OF-ZZ-DR-Z-0014 | IW  | MKH | OW  |
| S1  | P01 | 02/10/24 | PB2340-MAR-OF-ZZ-DR-Z-0014 | IW  | MKH | OW  |
| SUI | REV | DATE     | DESCRIPTION                | DRW | CHK | APR |

Title:

The extent of the IHLS (General) data-layer used in the development of the Atlantic herring heat map relative to the Projects. Underwater noise (UWN) contours used within the EIA have been included for reference.

|                                                          |  |                                                             |                     |
|----------------------------------------------------------|--|-------------------------------------------------------------|---------------------|
| Figure:10-10b                                            |  | Drawing No: PB2340-MAR-OF-ZZ-DR-Z-0014                      |                     |
| Co-ordinate system:<br>WGS 1984 UTM Zone 31N             |  | Page Size:<br>A3                                            | Scale:<br>1:950,000 |
| Project:<br><br>Dogger Bank South<br>Offshore Wind Farms |  | Report:<br><br>Dogger Bank South Offshore<br>Wind Farms EIA |                     |





**Legend:**

- DBS East Array
- DBS West Array
- Offshore Development Area
- KP Points
- Spawning grounds defined by Coull et al. (1998)
- Fish and Shellfish Ecology Study Area
- UK 12 nm limit
- ICES Rectangles

**Disturbance Threshold (based on Hawkins et al., 2014)**

- 135 dB re 1  $\mu\text{Pa}^2\text{s}$  SEL<sub>ss</sub> (Behaviour)

**Key UWN Thresholds (Popper et al., 2014)**

- 186 dB re 1  $\mu\text{Pa}^2\text{s}$  SEL<sub>cum</sub>
- 203 dB re 1  $\mu\text{Pa}^2\text{s}$  SEL<sub>cum</sub> (Recoverable)
- 207 dB re 1  $\mu\text{Pa}^2\text{s}$  SEL<sub>cum</sub> (Mortality/Potential Mortal)

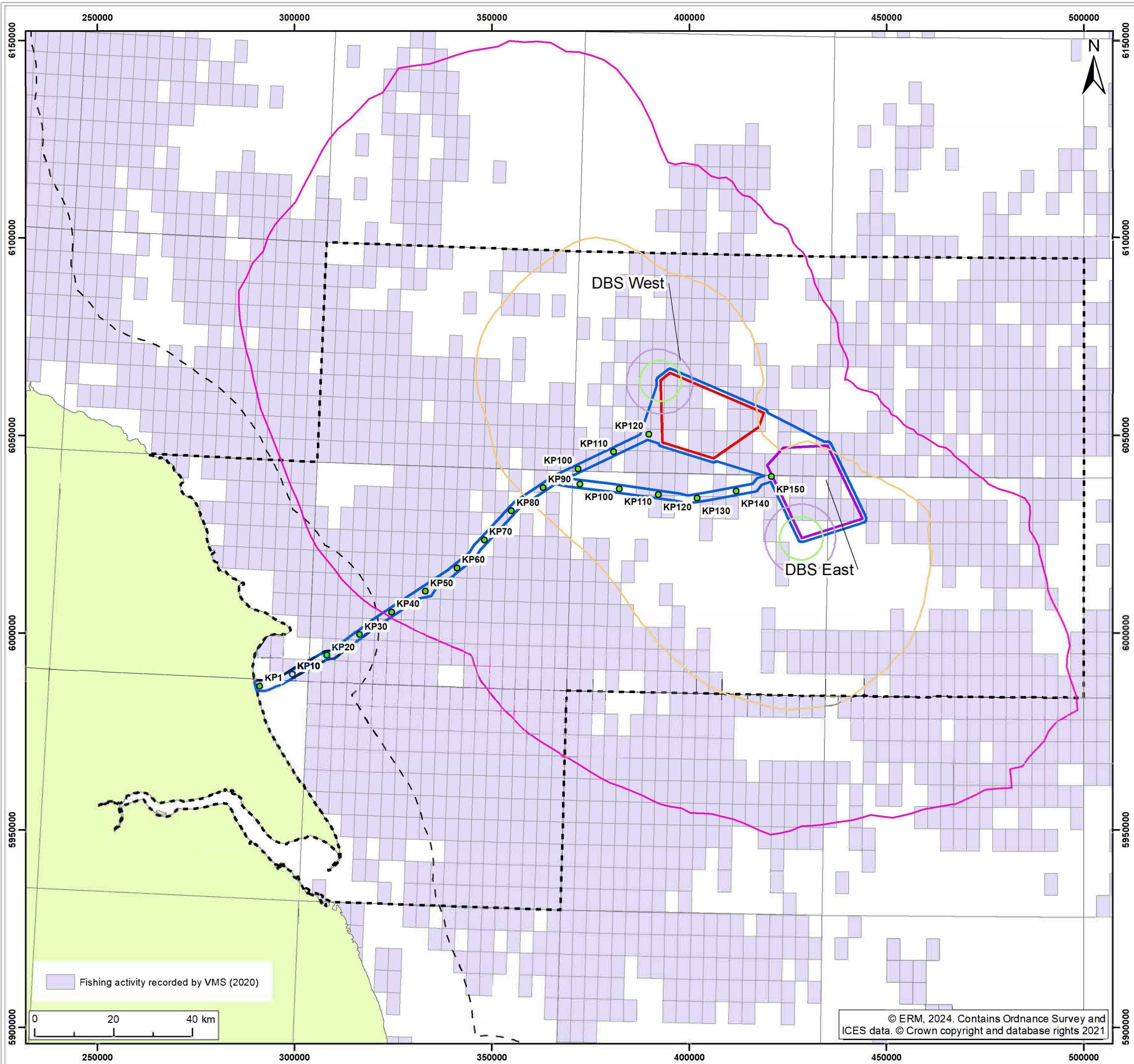
|     |     |            |                            |     |     |     |
|-----|-----|------------|----------------------------|-----|-----|-----|
|     |     |            |                            |     |     |     |
| S2  | P02 | 31/10/2024 | PB2340-MAR-OF-ZZ-DR-Z-0015 | IW  | MKH | OW  |
| S1  | P01 | 02/10/24   | PB2340-MAR-OF-ZZ-DR-Z-0015 | IW  | MKH | OW  |
| SUI | REV | DATE       | DESCRIPTION                | DRW | CHK | APR |

Title:  
The extent of the Coull et al. (1998) data-layer used in the development of the Atlantic herring heat map relative to the Projects. Underwater noise (UWN) contours used within the EIA have been included for reference.

|                                                          |  |                                                             |                     |
|----------------------------------------------------------|--|-------------------------------------------------------------|---------------------|
| Figure:10-10c                                            |  | Drawing No: PB2340-MAR-OF-ZZ-DR-Z-0015                      |                     |
| Co-ordinate system:<br>WGS 1984 UTM Zone 31N             |  | Page Size:<br>A3                                            | Scale:<br>1:950,000 |
| Project:<br><br>Dogger Bank South<br>Offshore Wind Farms |  | Report:<br><br>Dogger Bank South Offshore<br>Wind Farms EIA |                     |







**Legend:**

- DBS East Array
- DBS West Array
- Fishing activity recorded by VMS (2020)
- Fish and Shellfish Ecology Study Area
- UK 12 nm limit
- ICES Rectangles
- Offshore Development Area
- KP Points

**Disturbance Threshold (based on Hawkins et al., 2014)**

- 135 dB re 1  $\mu\text{Pa}^2\text{s}$  SEL<sub>ss</sub> (Behaviour)

**Key UWN Thresholds (Popper et al., 2014)**

- 186 dB re 1  $\mu\text{Pa}^2\text{s}$  SEL<sub>cum</sub>
- 203 dB re 1  $\mu\text{Pa}^2\text{s}$  SEL<sub>cum</sub> (Recoverable)
- 207 dB re 1  $\mu\text{Pa}^2\text{s}$  SEL<sub>cum</sub> (Mortality/Potential Mortal)

|     |     |            |                            |     |     |     |
|-----|-----|------------|----------------------------|-----|-----|-----|
|     |     |            |                            |     |     |     |
| S2  | P02 | 31/10/2024 | PB2340-MAR-OF-ZZ-DR-Z-0016 | IW  | MKH | OW  |
| S1  | P01 | 02/10/24   | PB2340-MAR-OF-ZZ-DR-Z-0016 | IW  | MKH | OW  |
| SUI | REV | DATE       | DESCRIPTION                | DRW | CHK | APR |

Title:

The extent of the VMS data-layer used in the development of the Atlantic herring heat map relative to the Projects. Underwater noise (UWN) contours used within the EIA have been included for reference.

Figure:10-10d

Drawing No: PB2340-MAR-OF-ZZ-DR-Z-0016

|                                                       |                                                          |                     |
|-------------------------------------------------------|----------------------------------------------------------|---------------------|
| Co-ordinate system:<br>WGS 1984 UTM Zone 31N          | Page Size:<br>A3                                         | Scale:<br>1:950,000 |
| Project:<br><br>Dogger Bank South Offshore Wind Farms | Report:<br><br>Dogger Bank South Offshore Wind Farms EIA |                     |

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