

Chapter 21 Intertidal and Offshore Ornithology

Figure 21.1 Intertidal and offshore ornithology study area and relevant designated sites

Figure 21.2 LionLink Wintering bird survey 2023/2024 sightings data

Figure 21.3 LionLink Inshore and beach breeding bird Survey 2024 sightings data

Figure 21.4 European Shag spatial variation in predicted densities (individuals/Km²) in January and June

Figure 21.5 Razorbill spatial variation in predicted densities (individuals/Km²) in January and June.

Figure 21.6 Common Guillemot spatial variation in predicted densities (individuals/Km²) in January and June.

Figure 21.7 Herring Gull spatial variation in predicted densities (individuals/Km²) in January and June.

Figure 21.8 Kittiwake spatial variation in predicted densities (individuals/Km²) in January and June.

Figure 21.9 Lesser Black-backed Gull spatial variation in predicted densities (individuals/Km²) in January and June.

Figure 21.10 Red-throated diver spatial variation within the Outer Thames Estuary SPA 2013

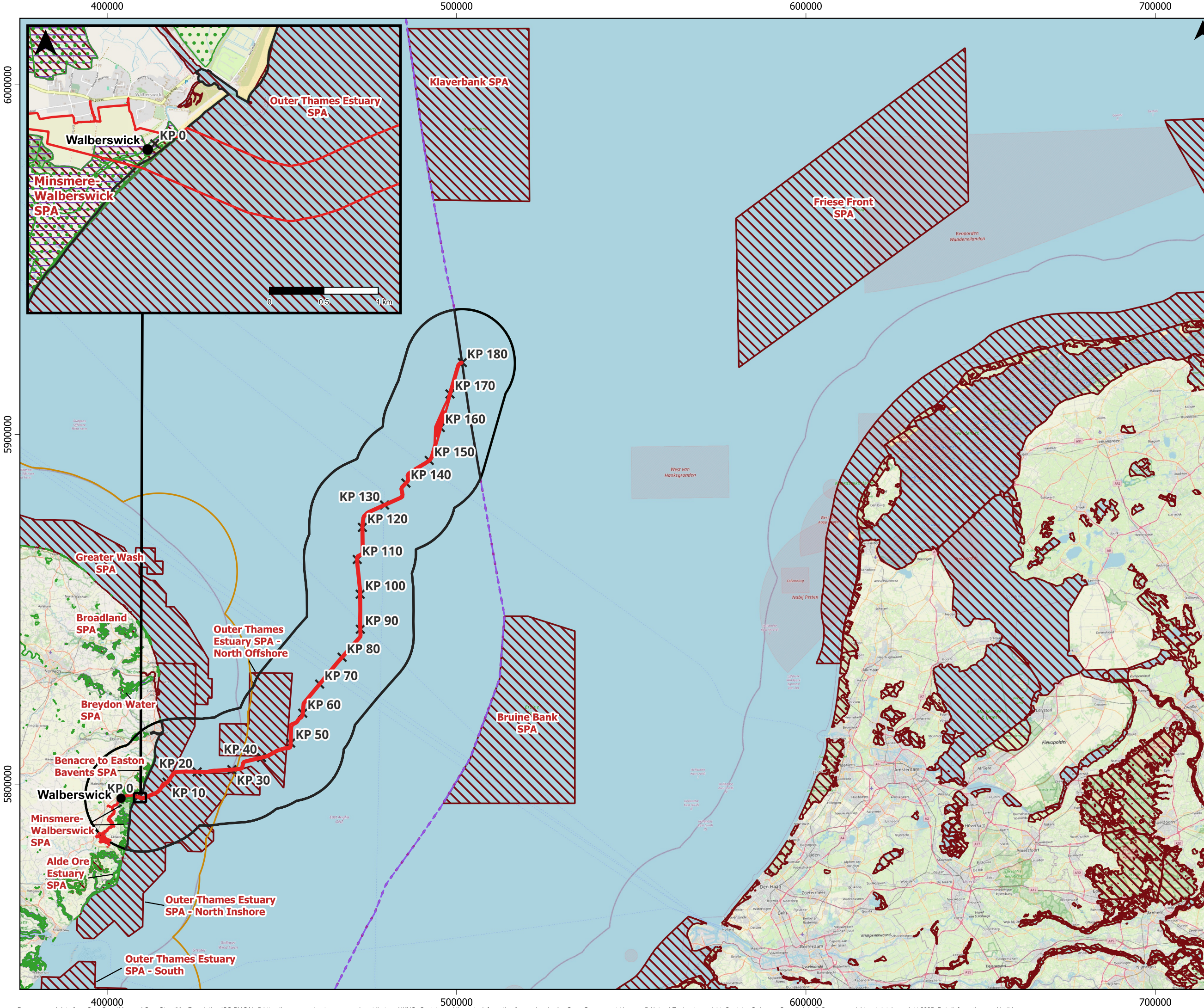
Figure 21.11 Red-throated diver spatial variation within the Outer Thames Estuary SPA 2018

Figure 21.12 Monthly red-throated diver sightings from LionLink wintering bird survey 2023/24

Figure 21.13 Red-throated diver bird count 2013 in comparison to vessel density

Figure 21.14 Red-throated diver bird count 2018 in comparison to vessel density

Figure 21.15 Worst case scenario vessel transit routes through Outer Thames Estuary SPA



- Proposed Scheme Draft Order Limits
- ✕ Kilometre Point (10km)
- Study Area (15km)
- Special Protection Area (SPA)
- Site Of Special Scientific Interest (SSSI)
- RAMSAR Site
- Exclusive Economic Zone Limit
- 12NM Limit



Coordinate System
ETRS89 / UTM zone 31N

Kilometres

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Drawing Title
Figure 21.1 Intertidal And Offshore Ornithology Study Area And Relevant Designated Sites

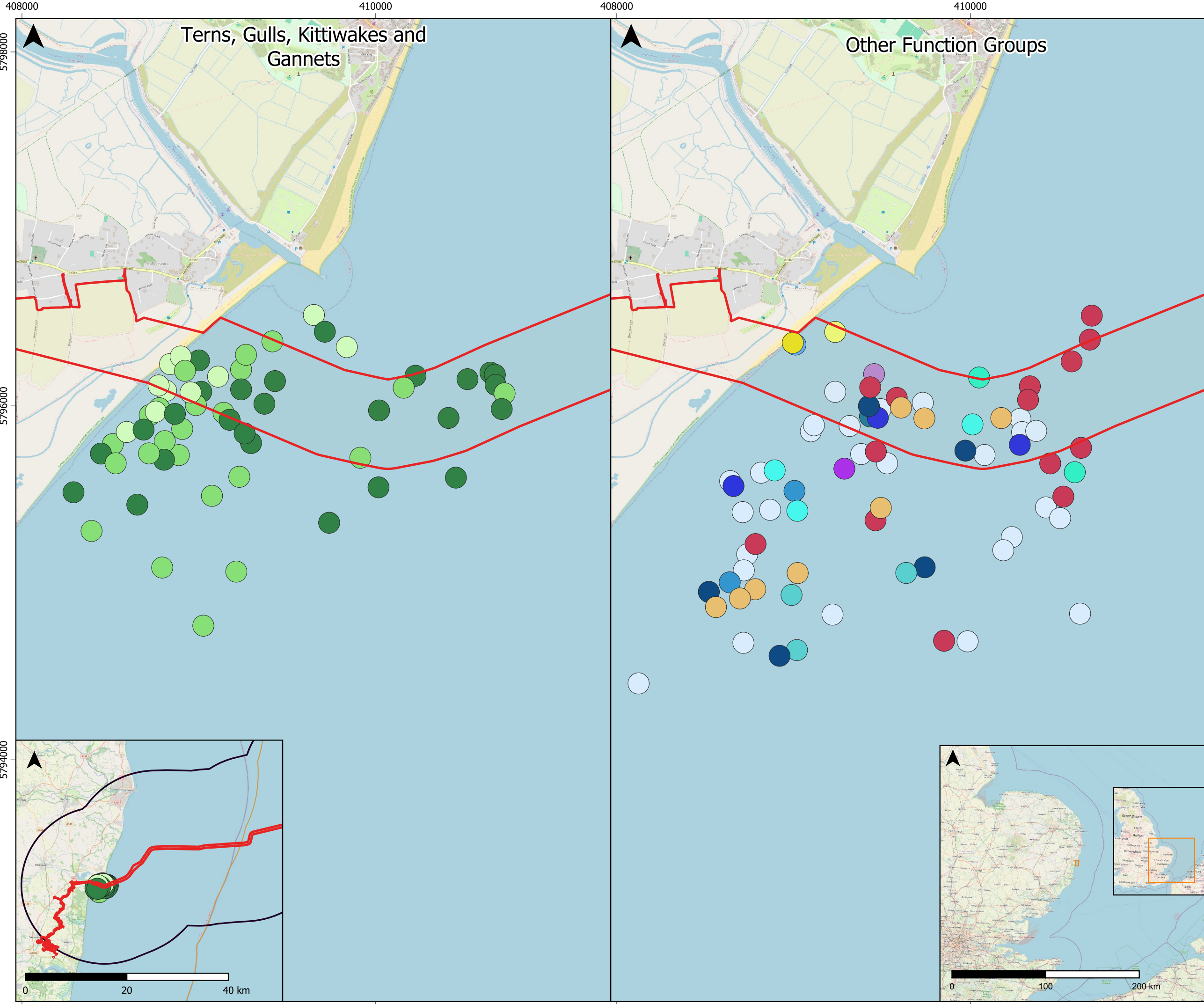
Scale at A3
1:1,000,000

Role
Environment

Suitability
S2

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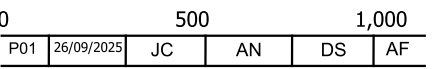
Drawing Number
LLK1-CEA-DWG-ENV-00020



- Proposed Scheme Draft Order Limits
- Study Area (15km)
- Function Groups**
- Terns, Gulls, Kittiwakes, Gannets**
- Black-headed Gull
- Great Black-backed Gull
- Herring Gull
- Divers, Grebes, Mergansers**
- Cormorant
- Great Crested Grebe
- Red-throated Diver
- Shag
- Slavonian Grebe
- Waders, and Harriers**
- Turnstone
- Auks**
- Little Auk
- Seaducks, Geese and Swans**
- Canada Goose
- Common Scoter
- Long-tailed Duck
- Pintail
- Shoveler
- Teal
- Velvet Scoter
- Wigeon

Coordinate System
ETRS89 / UTM zone 31N

Metres



P01	26/09/2025	JC	AN	DS	AF
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Project Name



Client
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Drawing Title
Figure 21.2 LionLink Wintering Bird Survey Data (2023-2024)

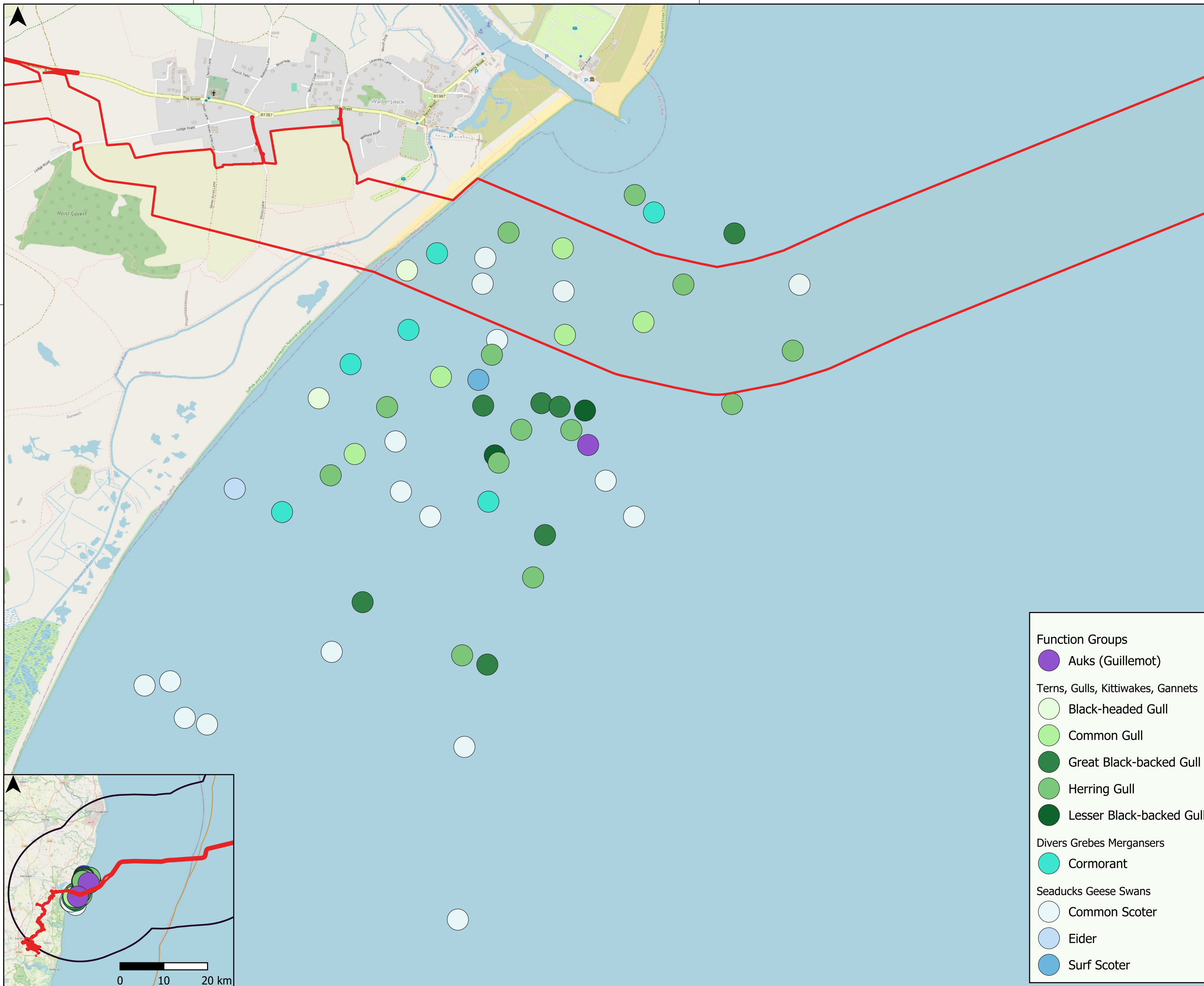
Scale at A3
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Role
Environment

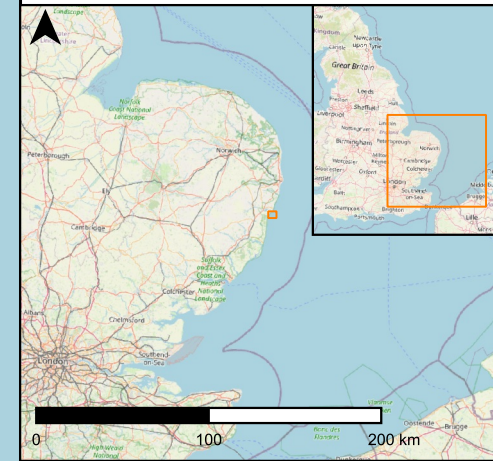
Suitability
S2

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Proposed Scheme Draft Order Limits
 Study Area (15km)



Coordinate System
ETRS89 / UTM zone 31N
Metres

0						250						500					
P01	26/09/2025	JC	AN	DS	AF												
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Drawing Title
Figure 21.3 LionLink Inshore and Beach Breeding Bird Survey 2024 Sightings Data

Scale at A3
1:14,000

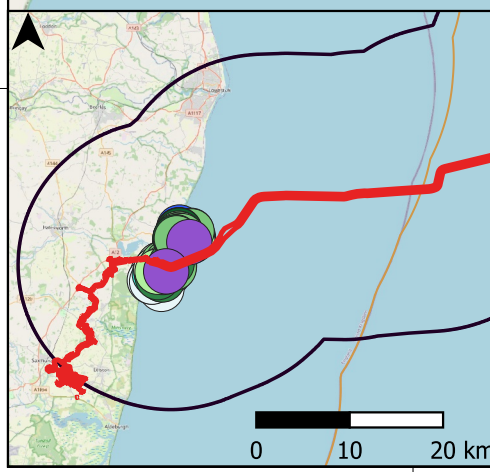
Role
Environment

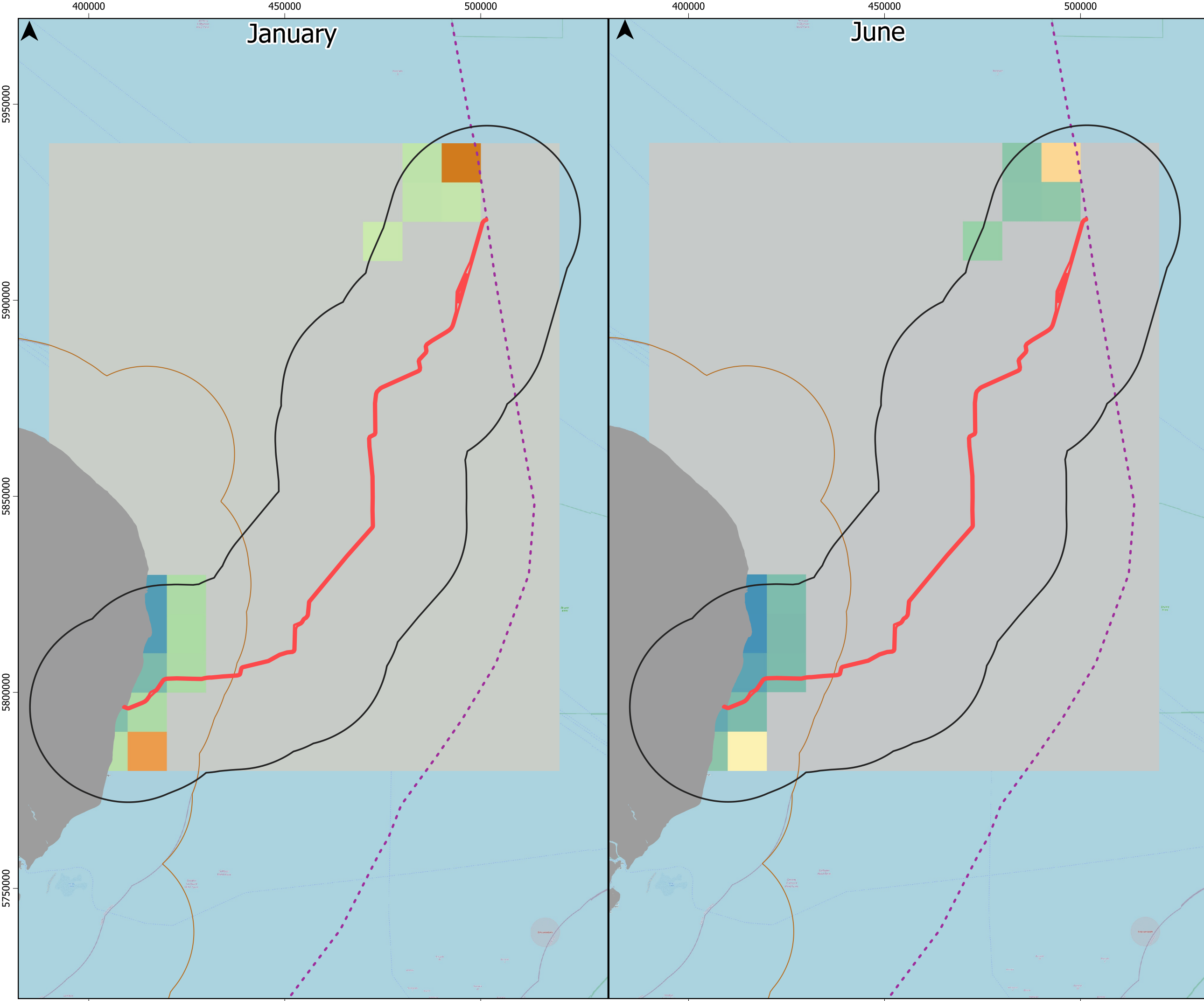
Suitability
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Drawing Number
LLK1-CEA-DWG-ENV-00027

- Function Groups**
- Auks (Guillemot)
 - Terns, Gulls, Kittiwakes, Gannets**
 - Black-headed Gull
 - Common Gull
 - Great Black-backed Gull
 - Herring Gull
 - Lesser Black-backed Gull
 - Divers Grebes Mergansers**
 - Cormorant
 - Seaducks Geese Swans**
 - Common Scoter
 - Eider
 - Surf Scoter





Proposed Offshore Scheme
 Draft Order Limits

European Shag Foraging Range Mean
 Maximim ± 1 SD, 23.7 km

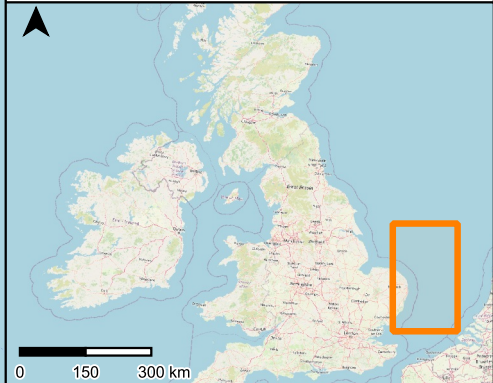
Spatial Variation In Predicted Densities
 (Animals Per km²) Of European Shag.
 Values Are Provided At
 10 km Resolution

0.03
 0

No European Shag Density Data

Exclusive Economic Zone Limit

12NM Limit



Coordinate System
 ETRS89 / UTM zone 31N
 Kilometres

0 20 40

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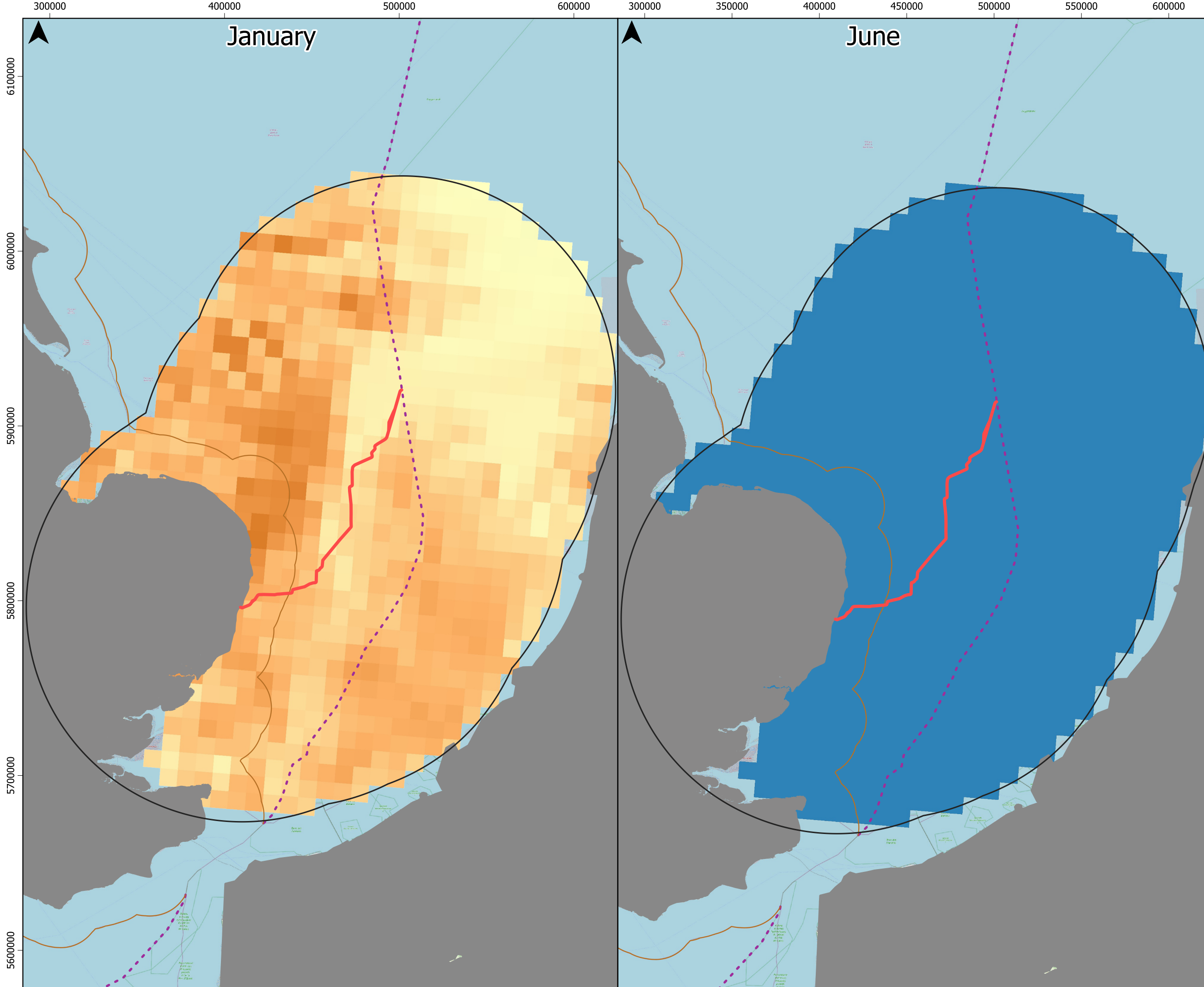
Client
 National Grid LionLink Limited
 (NGLLL)

Drawing Title
 Figure 21.4 European Shag Spatial
 Variation In Predicted Densities
 (Individuals/km²) In January And June,
 2019
 Scale at A3
 1:900,000

Role
Environment

Suitability
 S2

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Drawing Number LLK1-CEA-DWG-ENV-00026	



January

June

Proposed Offshore Scheme Draft Order Limits A3

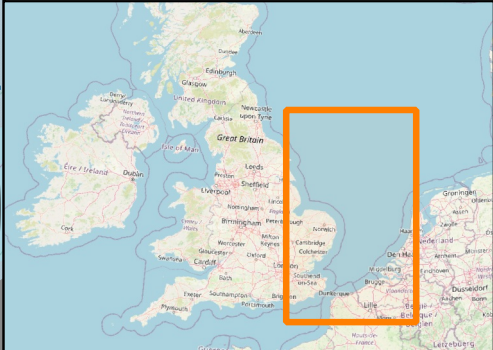
Razorbill Foraging Range
Mean Maximum \pm 1 SD,
122.2km

Spatial Variation In Predicted Densities (Animals Per km²) Of Razorbill. Values Are Provided At 10 km Resolution

0.3
0.15

Exclusive Economic Zone Limit

12NM Limit



Coordinate System
ETRS89 / UTM zone 31N
Kilometres

0 30 60

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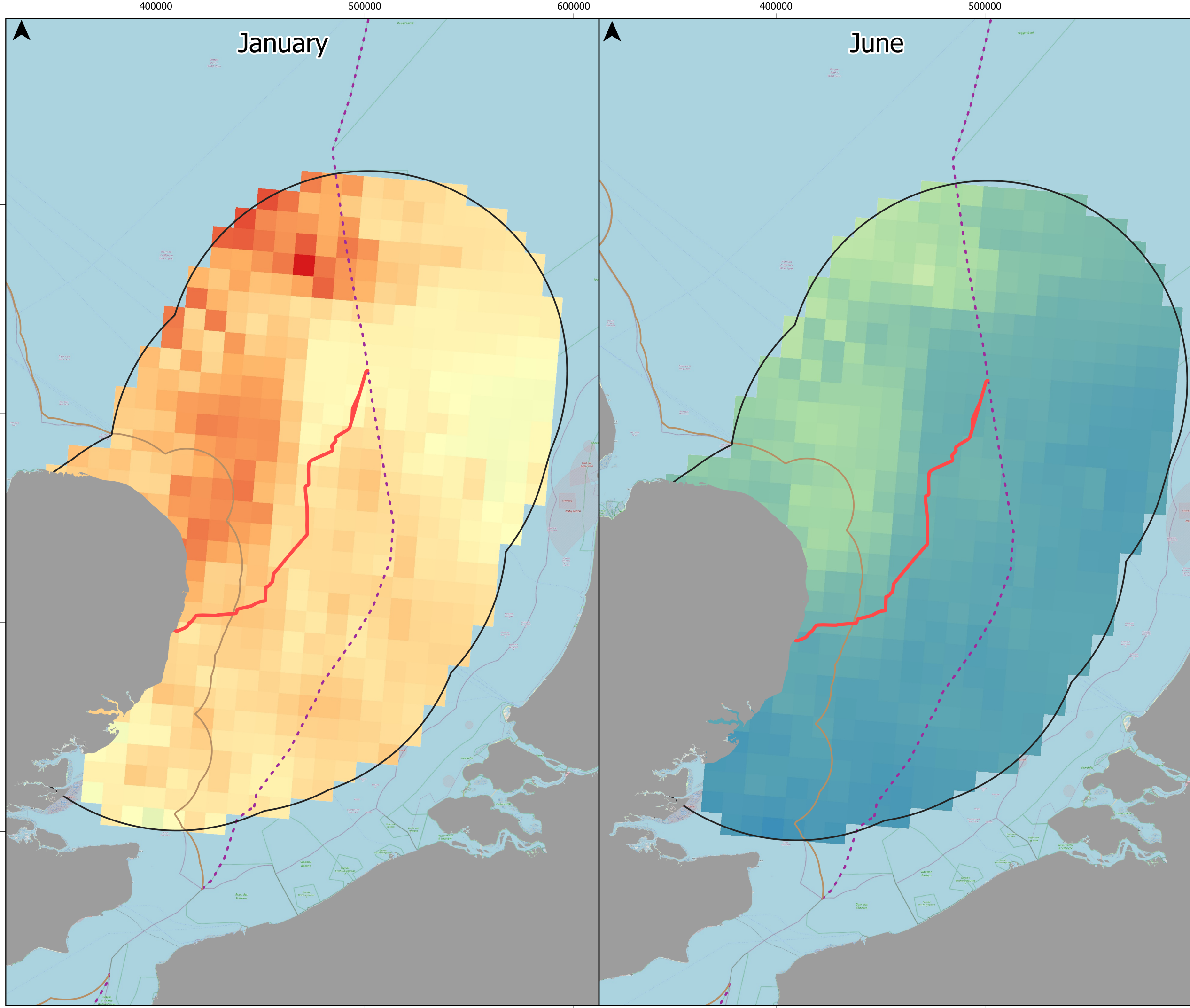
Drawing Title
Figure 21.5 Razorbill Spatial Variation In Predicted Densities (Individuals/km²) In January And June

Scale at A3
1:2,000,000

Role
Environment
Suitability
S2

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January

June

Proposed Offshore Scheme
Draft Order Limits

Common Guillemot Foraging Range
Mean Maximum ± 1 SD, 95.2km

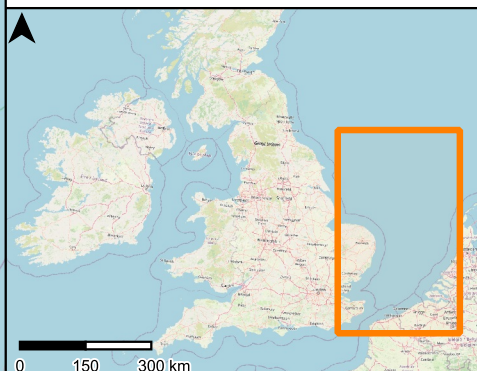
Spatial Variation In Predicted Densities (Animals Per km²) Of Common Guillemot Values Are Provided At 10 km Resolution

1.87

0.1

Exclusive Economic Zone Limit

12NM Limit



Coordinate System
ETRS89 / UTM zone 31N
Kilometres

0	50	100
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Drawing Title
Figure 21.6 Common Guillemot Spatial Variation In Predicted Densities (Birds/km²) In January And June, 2019

Scale at A3
1:1,700,000

Role
Environment
Suitability
S2

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LLK1-CEA-DWG-ENV-00024

A3

400000

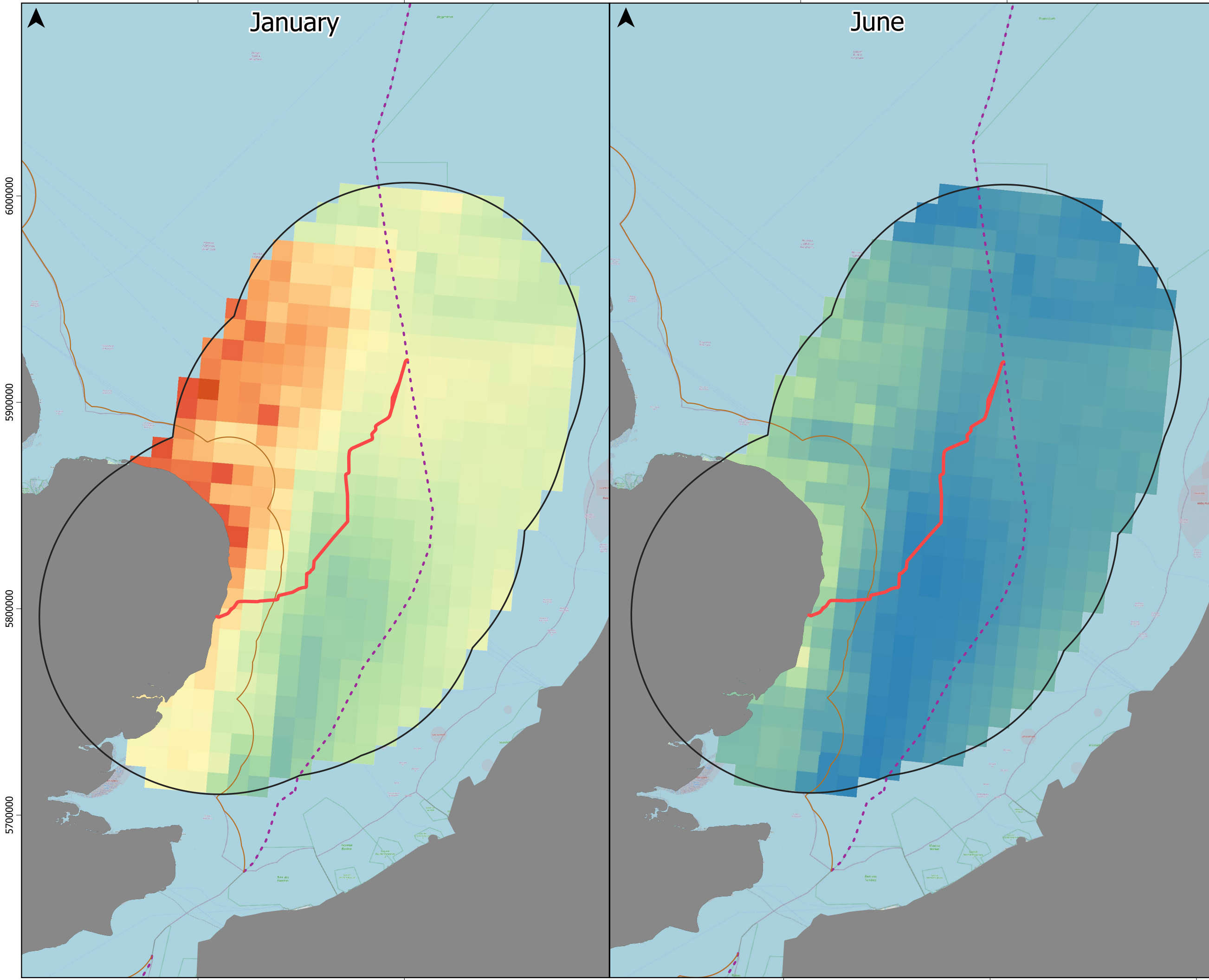
500000

400000

500000

January

June



6000000

5900000

5800000

5700000



400000

500000

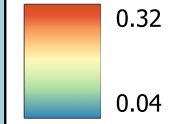
400000



500000

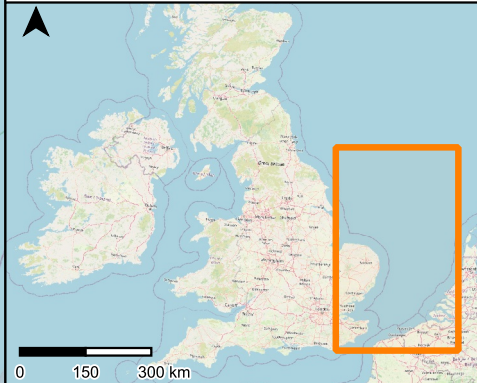
600000

-  Proposed Offshore Scheme Draft Order Limits
-  Herring Gull Foraging Range Mean Maximum ± 1 SD, 85.6km

Spatial Variation In Predicted Densities (Animals Per km²) of Herring Gull. Values Are Provided At 10 km Resolution



-  Exclusive Economic Zone Limit
-  12MN Limit



Coordinate System
ETRS89 / UTM zone 31N

Kilometres
0 50 100

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Drawing Title
Figure 21.7 Herring Gull Spatial Variation In Predicted Densities (Birds/km²) In January And June, 2019

Scale at A3
1:1,700,000

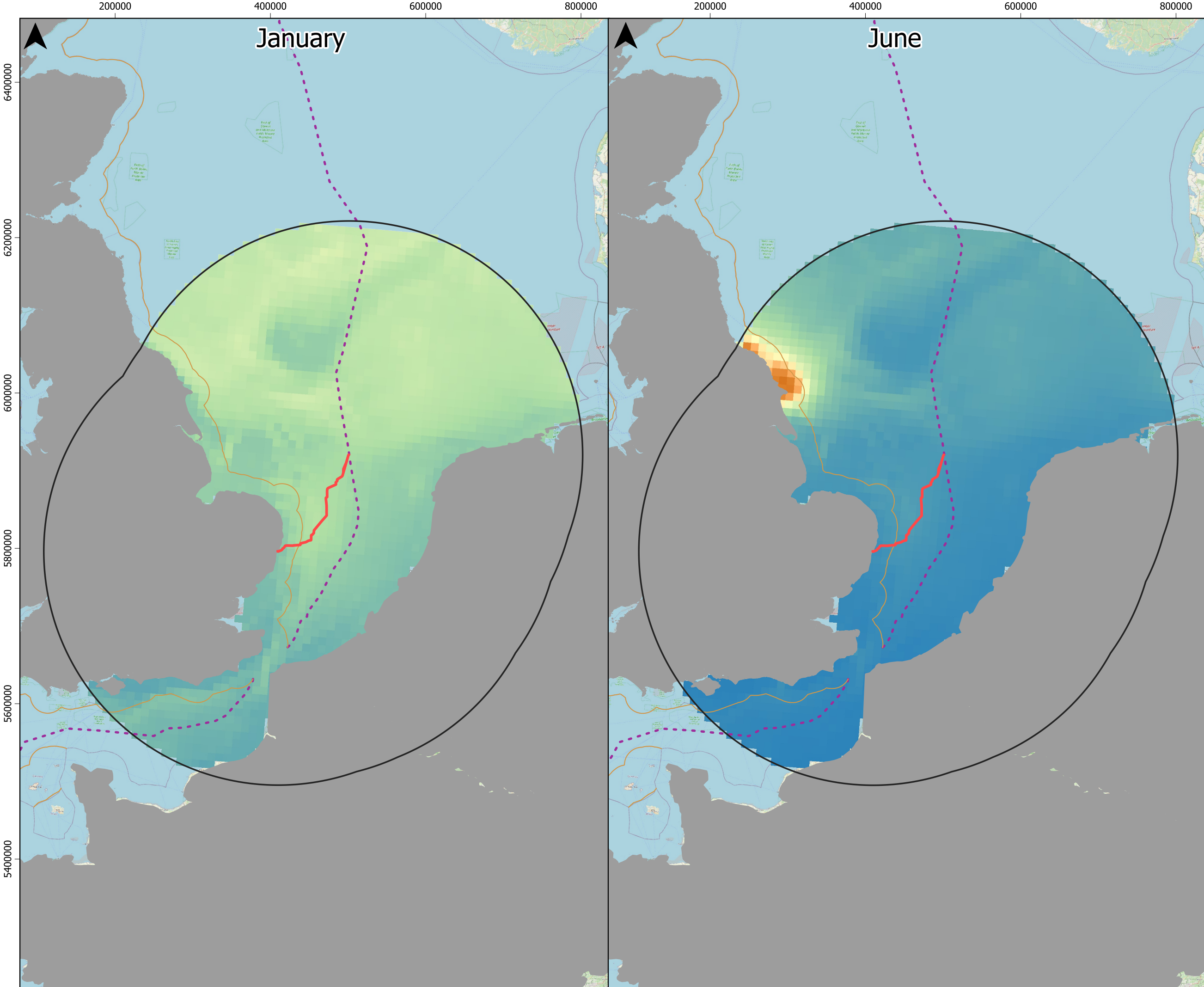
Role
Environment

Suitability
S2

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Drawing Number
LLK1-CEA-DWG-ENV-00023

A3



January

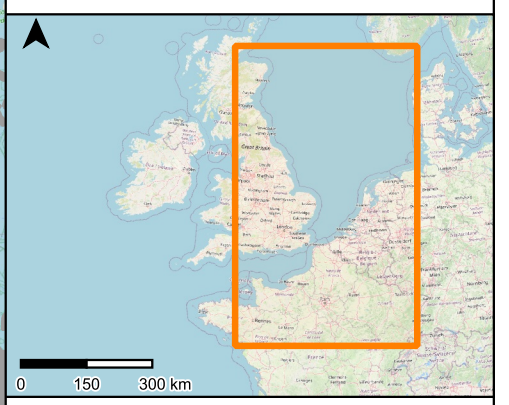
June

Proposed Offshore Scheme
 Draft Order Limits
 Black Legged Kittiwake Foraging Range Mean Maximum ± 1 SD, 300.6km

Spatial Variation In Predicted Densities (Animals Per km²) Of Black Legged Kittiwake Values Are Provided At 10 km Resolution

1.92
0.06

Exclusive Economic Zone Limit
12NM Limit



Coordinate System
ETRS89 / UTM zone 31N

Kilometres
0 100 200

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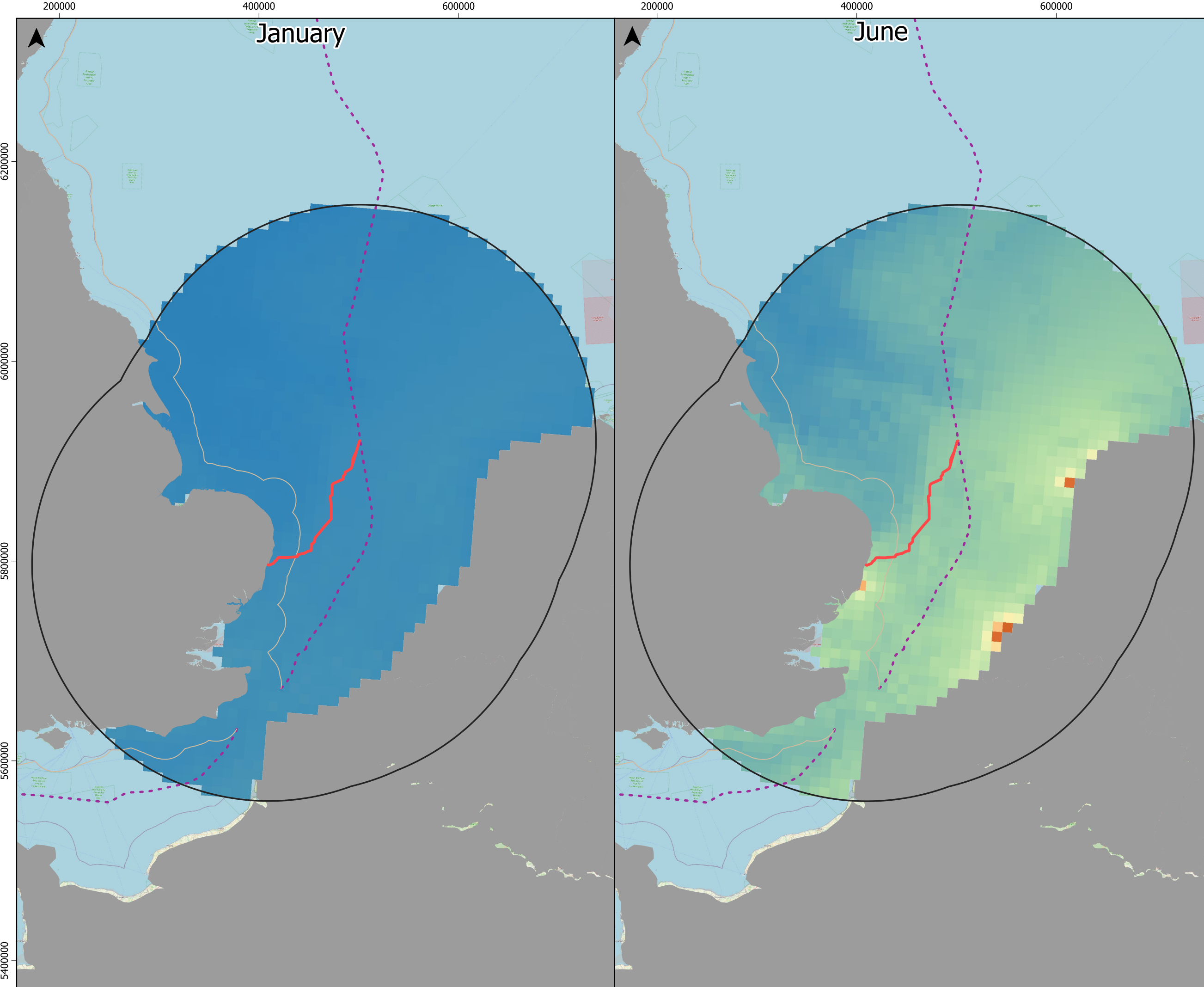
Drawing Title
Figure 21.8 Black Legged Kittiwake Spatial Variation In Predicted Densities (Individuals/Km²) In January And June, 2019
Scale at A3
1:4,500,000

Role
Environment

Suitability
S2

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A3

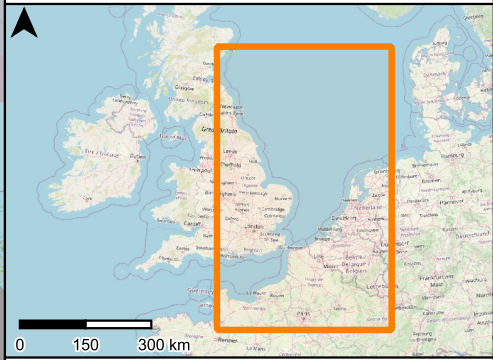
- Proposed Offshore Scheme Draft Order Limits
- Lesser Black-backed Gull Foraging Range Mean Maximum ± 1 SD, 236km

Spatial Variation In Predicted Densities (Animals Per km²) Of Lesser Black-backed Gull. Values Are Provided At 10 km Resolution

1.3

0.01

- Exclusive Economic Zone Limit
- 12NM Limit



Coordinate System
ETRS89 / UTM zone 31N

Kilometres

0 100 200

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Drawing Title

Figure 21.9 Lesser Black-backed Gull Spatial Variation In Predicted Densities (Individuals/km²) In January And June, 2019

Scale at A3

1:3,500,000

Role

Environment

Suitability

S2

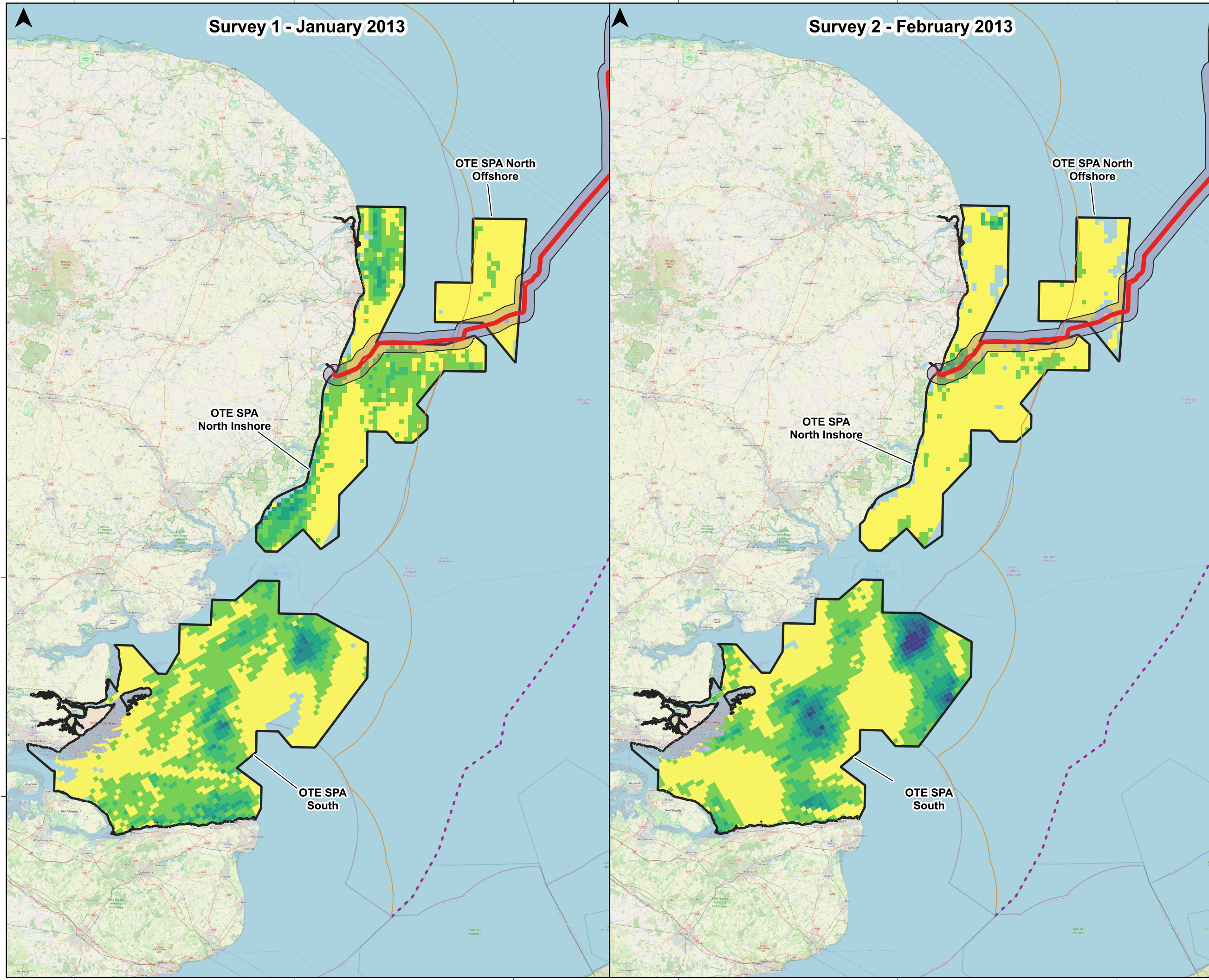
Project Number	Rev
C01467	P01

Drawing Number

LLK1-CEA-DWG-ENV-00022

Survey 1 - January 2013

Survey 2 - February 2013



Proposed Offshore Scheme Draft Order Limits

Displacement Zone (2km)

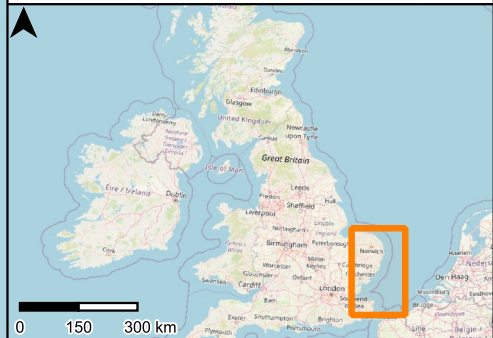
Outer Thames Estuary (OTE) SPA

Red-throated Diver Density Estimate (Birds/km²)

- 1 - 2
- 2 - 5
- 5 - 10
- 10 - 20
- 20 - 30
- 30 - 40

Exclusive Economic Zone Limit

12NM Limit



Coordinate System
ETRS89 / UTM zone 31N

Kilometres

0	20	40
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Project Name

LIONLINK

Client
National Grid LionLink Limited (NGLLL)

Drawing Title
Figure 21.10 Red-throated Diver Spatial Variation In Predicted Densities Within The Outer Thames Estuary SPA 2013

Scale at A3
1:800,000

Role
Environment

Suitability
S2

Project Number C01467	Rev P01
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Drawing Number
LLK1-CEA-DWG-ENV-00110

Survey 1 - 4th February 2018

Survey 2 - 17th February 2018

Legend

- Proposed Offshore Scheme
- Draft Order Limits
- Outer Thames Estuary (OTE) SPA
- Displacement Zone (2km)

Red-throated Diver Kernel Density Estimate (Birds/0.075km²) In February 2018

- >0 - 1
- 1 - 2
- 2 - 5
- 5 - 10
- 10 - 20
- 20 - 30
- 30 - 40
- 40 - 50
- 50 - 70
- >70

- Exclusive Economic Zone Limit
- 12NM Limit



Coordinate System
ETRS89 / UTM zone 31N

Kilometres

0	20	40
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Drawing Title
Figure 21.11 Red-throated Diver Spatial Variation In Predicted Densities Within The Outer Thames Estuary SPA 2018

Scale at A3
1:800,000

Role
Environment

Suitability
S2

Project Number C01467	Rev P01
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Drawing Number
LLK1-CEA-DWG-ENV-00029

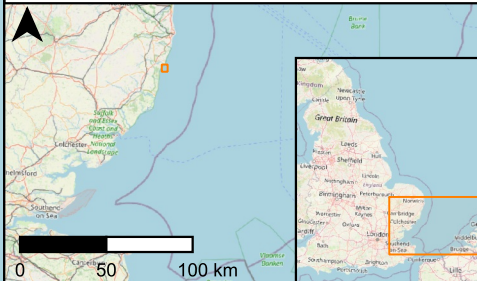


Proposed Scheme Draft Order Limits

HDD Punchout Area

Red-throated Diver (Wintering Bird Survey) Count

- 1 - 2
- 2 - 3
- 5 - 10
- 10 - 22



Coordinate System
ETRS89 / UTM zone 31N

Metres

0 500 1,000

P01	26/09/2025	JC	AN	DS	AF
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Drawing Title

Figure 21.12 Monthly Red-throated Diver Sitings From LionLink Wintering Bird survey (2023-2024)

Scale at A3
1:30,000

Role

Environment

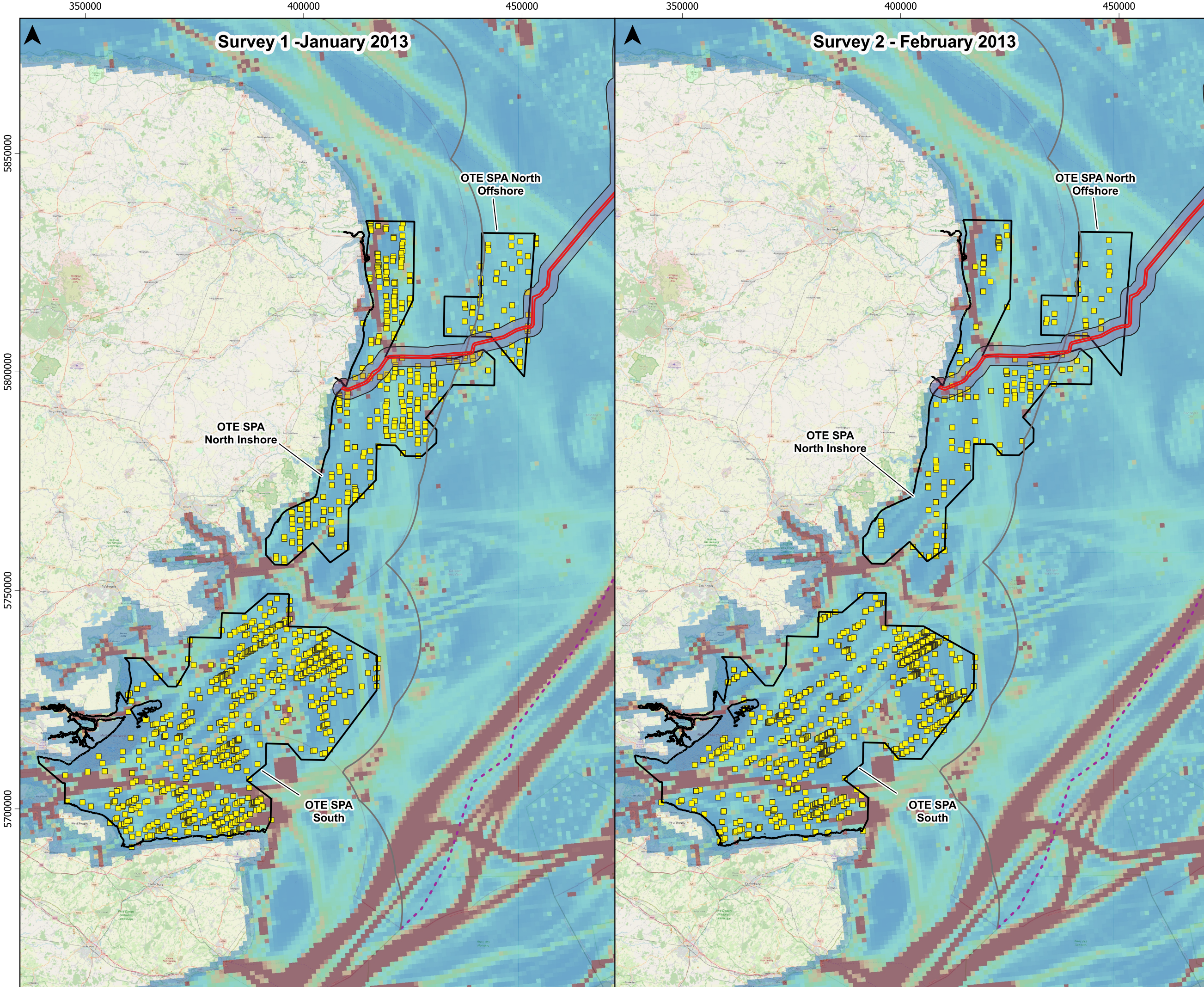
Suitability

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Drawing Number

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A3

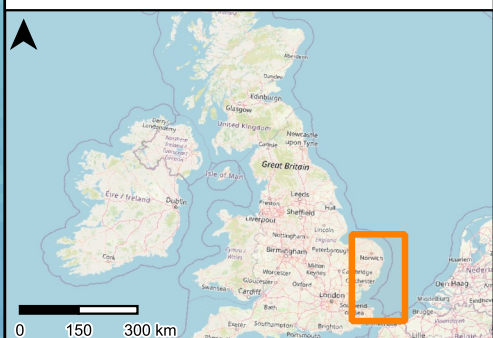
- Proposed Offshore Scheme Draft Order Limits
- Displacement Zone (2km)
- Outer Thames Estuary (OTE) SPA
- Red-throated Diver

Vessel Density, 2023 (Hrs Per Square km)

>15

0

- Exclusive Economic Zone Limit
- 12NM Limit



Coordinate System
ETRS89 / UTM zone 31N

Kilometres

0 20 40

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Project Name

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Drawing Title
Figure 21.13 Red-throated Diver Bird Count 2013 In Comparison To Vessel Density

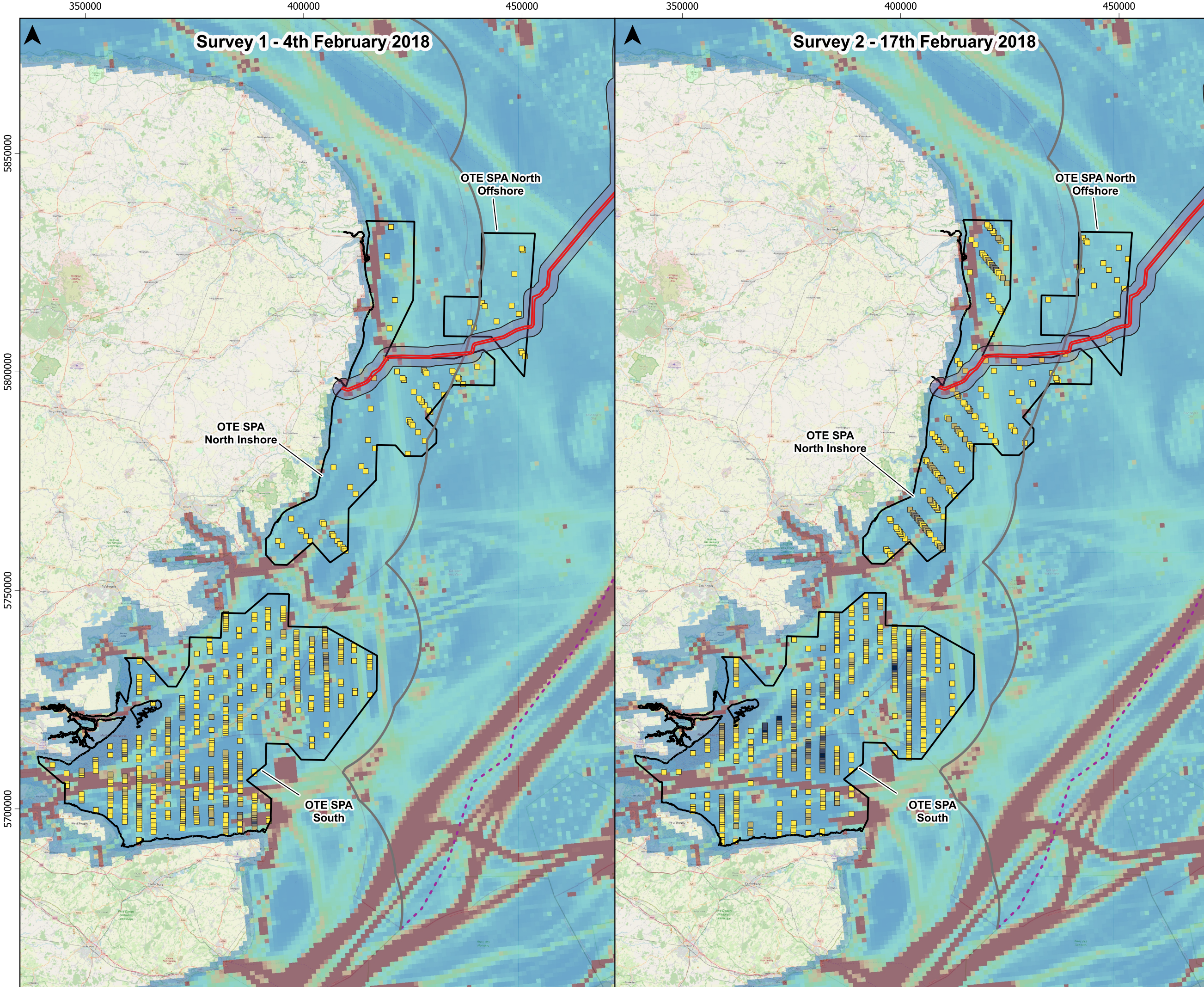
Scale at A3
1:800,000

Role
Environment

Suitability
S2

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Drawing Number
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Proposed Offshore Scheme
 Draft Order Limits

Outer Thames Estuary (OTE) SPA
 Displacement Zone (2km)

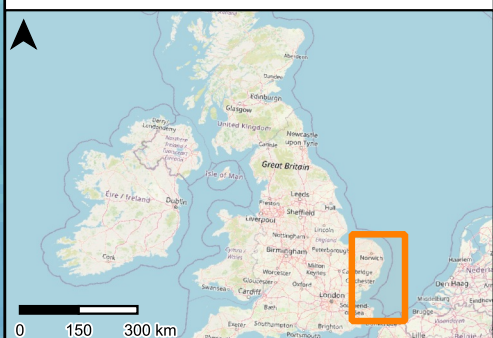
Red-throated Diver Bird Count

- 1 - 2
- 2 - 10
- 10 - 20
- 20 - 40
- > 40

Vessel Density, 2023 (Hrs Per Square km)

- >15
- 0

Exclusive Economic Zone Limit
 12NM Limit



Coordinate System
 ETRS89 / UTM zone 31N

Kilometres

0 20 40

P01	28/07/2025	JC	AN	DS	AF
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LIONLINK

Client
 National Grid LionLink Limited (NGLLL)

Drawing Title
 Figure 21.14 Red-throated diver bird count 2018 in comparison to vessel density

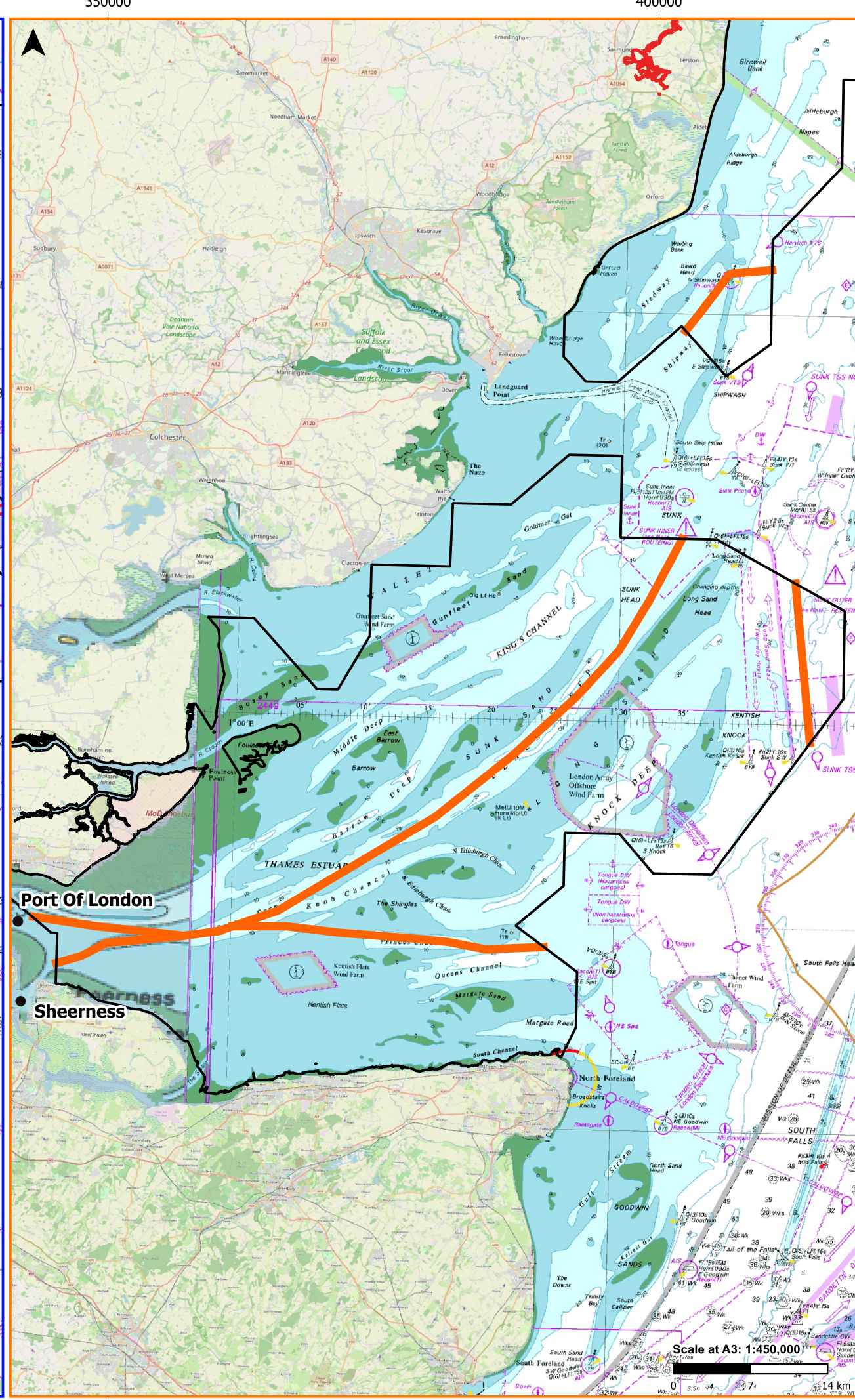
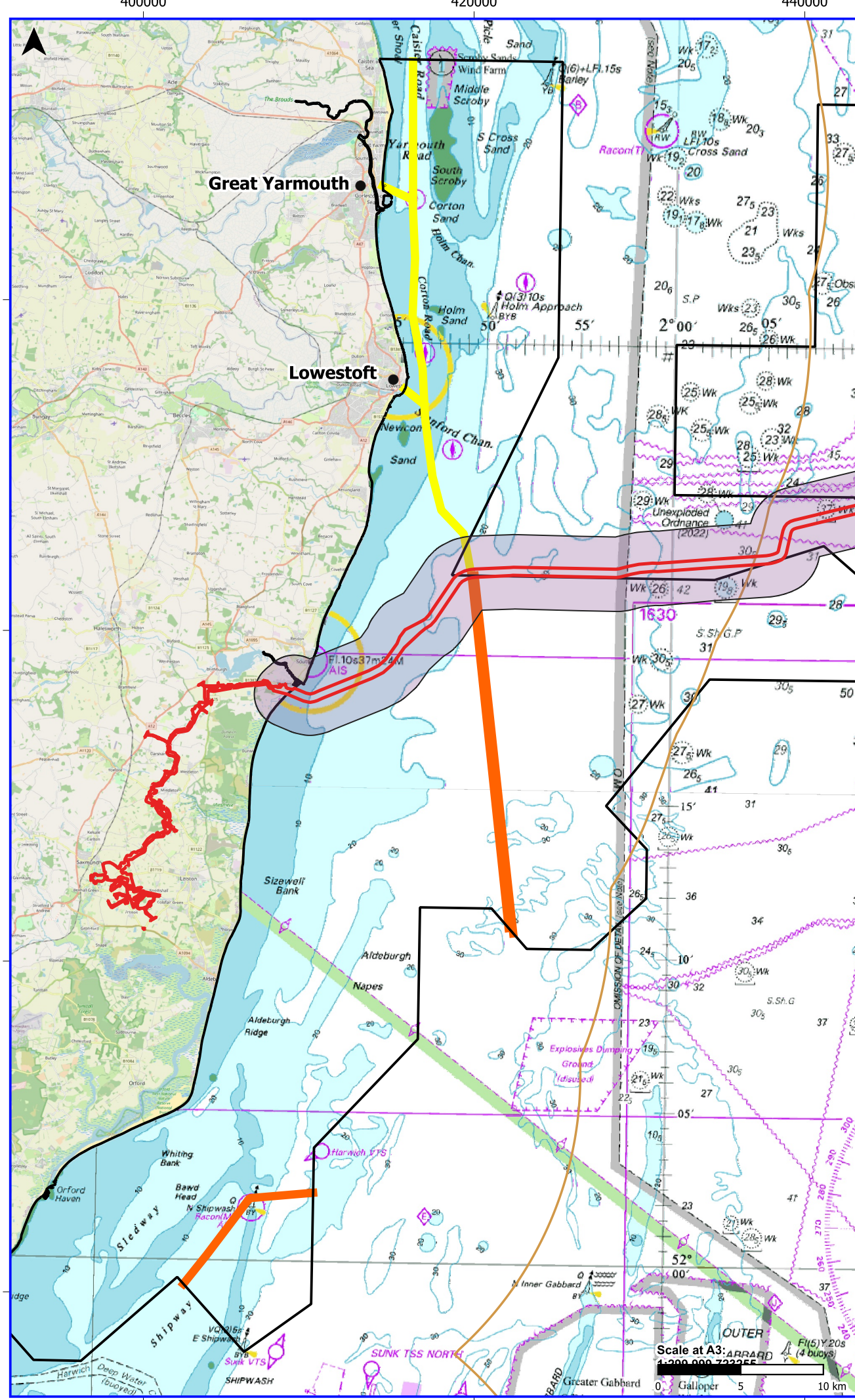
Scale at A3
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Role
 Environment

Suitability
 S2

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Drawing Number
 LLK1-CEA-DWG-ENV-00051



A3

- Proposed Scheme Draft Order Limits
- Displacement Zone (2km)
- Outer Thames Estuary SPA
- Port

Worst Case Scenario Vessel Transit Route Within The Outer Thames Estuary SPA

- Route from the North
- Route from the South
- 12NM Limit
- Exclusive Economic Zone Limit

Coordinate System
ETRS89 / UTM zone 31N

Kilometres

P01	26/09/2025	AN	JC	DS	AF
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Project Name

LIONLINK

Client
National Grid LionLink Limited (NGLL)

Drawing Title
Figure 21.15 Worst Case Scenario Vessel Transit Routes Through Outer Thames Estuary SPA

Scale at A3
1:300,000

Role
Environment

Suitability
S2

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Drawing Number
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