Environmental Impact Assessment Report

NISA
North Irish Sea Array

Volume 7A: Figures

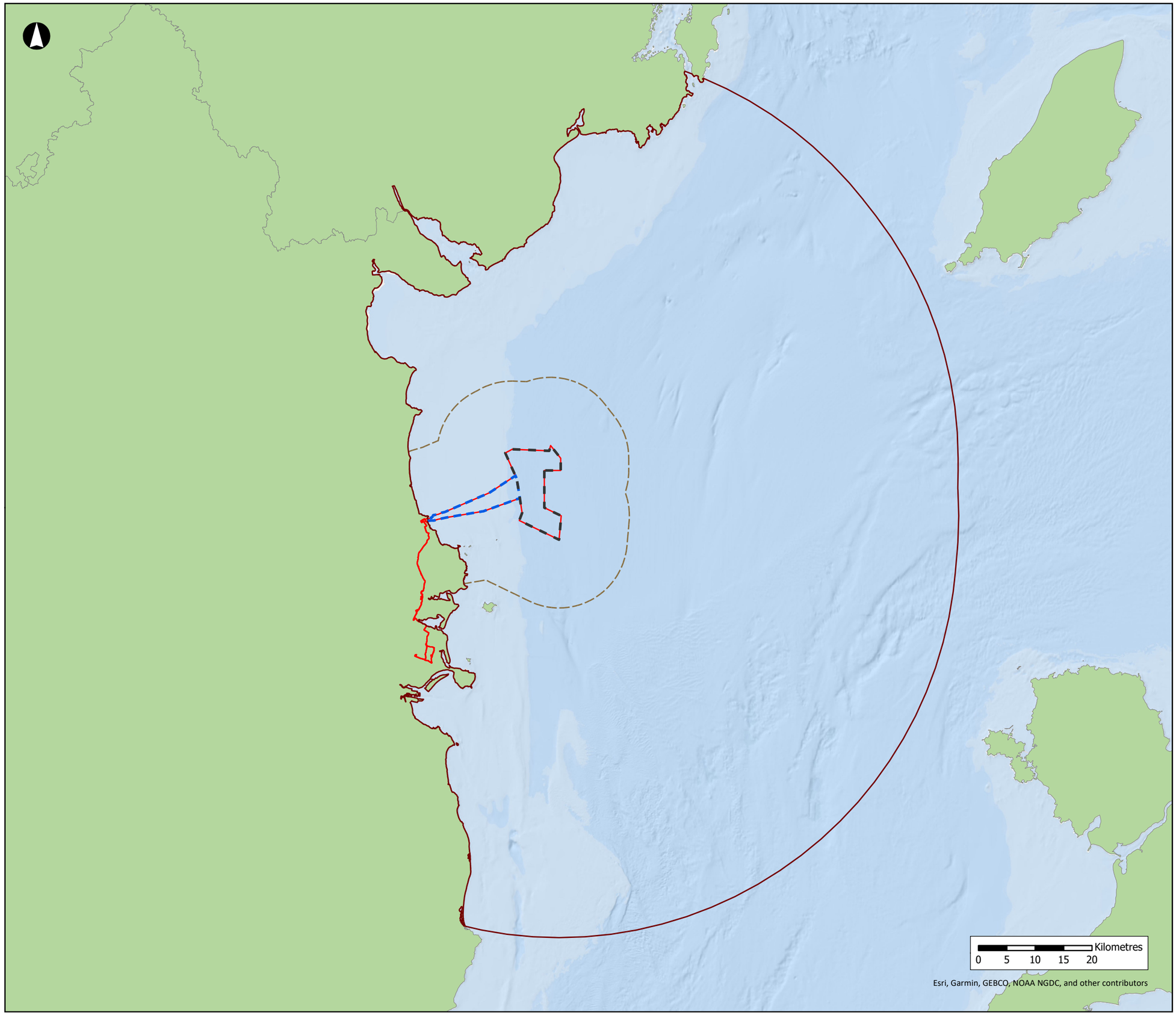
Figures for Chapter 13 Fish and Shellfish Ecology

Statkraft

CIP
Copenhagen Infrastructure Partners

GoBe
APEM Group

ARUP



Proposed Development Boundary
Array Area
Offshore Export Cable Corridor
Underwater Noise ZoI - 70km
Sedimentary ZoI - 12km

NISA
North Irish Sea Array

ARUP GoBe

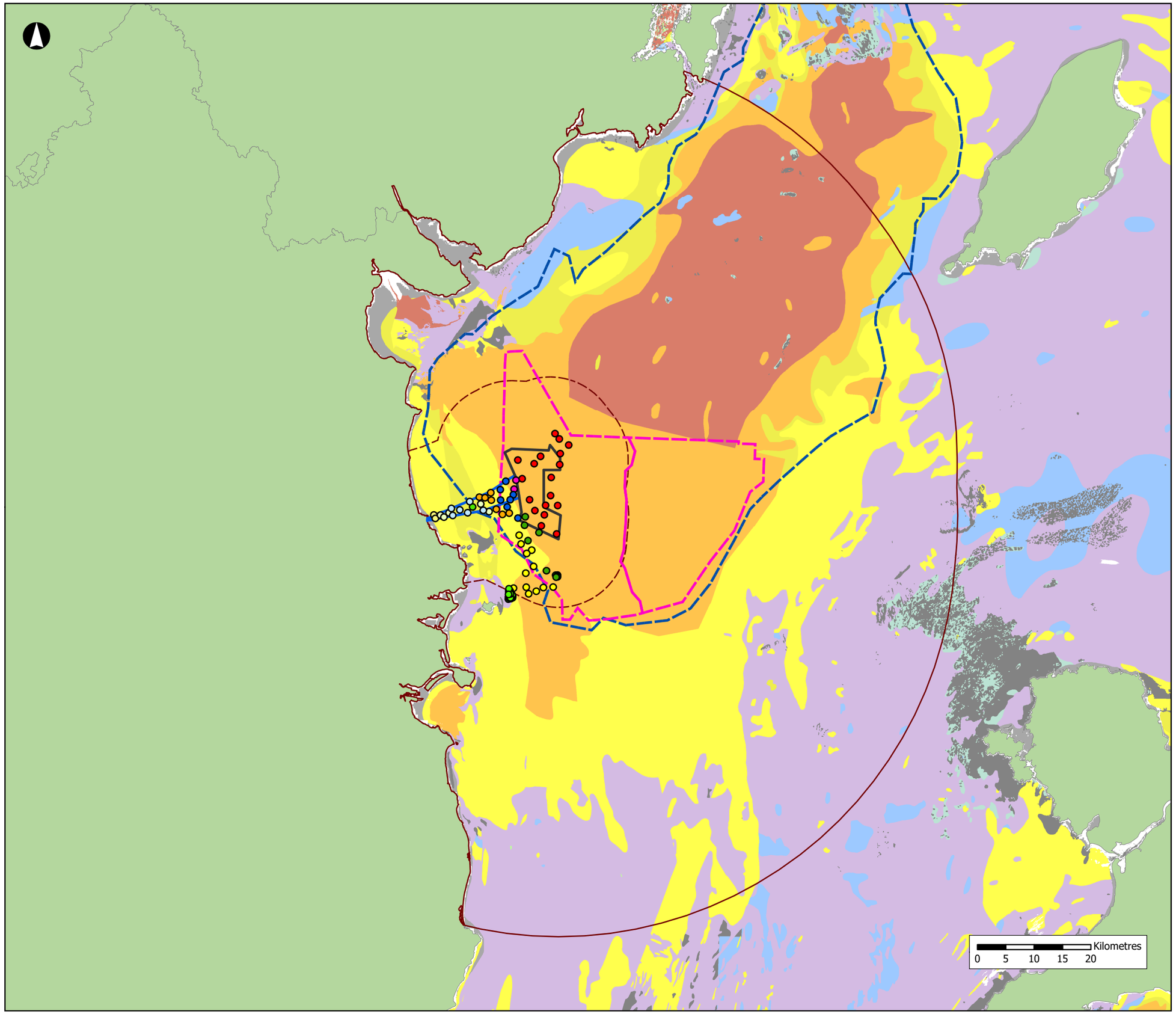
Project

North Irish Sea Array Offshore Wind Farm

Figure Title

Study Area for Fish and Shellfish Ecology Baseline

Job No: 281240	**Datum:** WGS84 **Projection:** UTM30N
Date: May 2024	**Figure No:** 13.1
Scale: 1:650,000 @A3	
Status: Issue	



Array Area
Offshore Export Cable Corridor
Underwater Noise ZoI - 70km
Sedimentary ZoI - 12km
Main Nephrops Fishing Grounds
Nephrops Grounds

Station Biotopes:

- SS.SMu.CFiMu.MegMax
- SS.SMu.CFiMu.SpnMeg
- SS.SMu.CSaMu.AfilKurAnit
- SS.SSa.OSa.OfusAfil
- SS.SMu.CSaMu
- SS.SMu.CSaMu.AfilEten
- SS.SMu.CSaMu.AfilKurAnit
- SS.SMx.CMx.KurThyMx
- SS.SSa.CFiSa
- SS.SSa.CMuSa.AalbNuc
- SS.SSa.IMuSa.FfabMag
- SS.SMx.CMx

Seabed Substrate (EUSeaMap2021)

- Fine mud
- Muddy sand
- Sandy mud
- Sand
- Sediment
- Mixed sediment
- Coarse substrate
- Rock or other hard substrata
- Mussel beds
- Seabed

NISA
North Irish Sea Array

ARUP GoBe

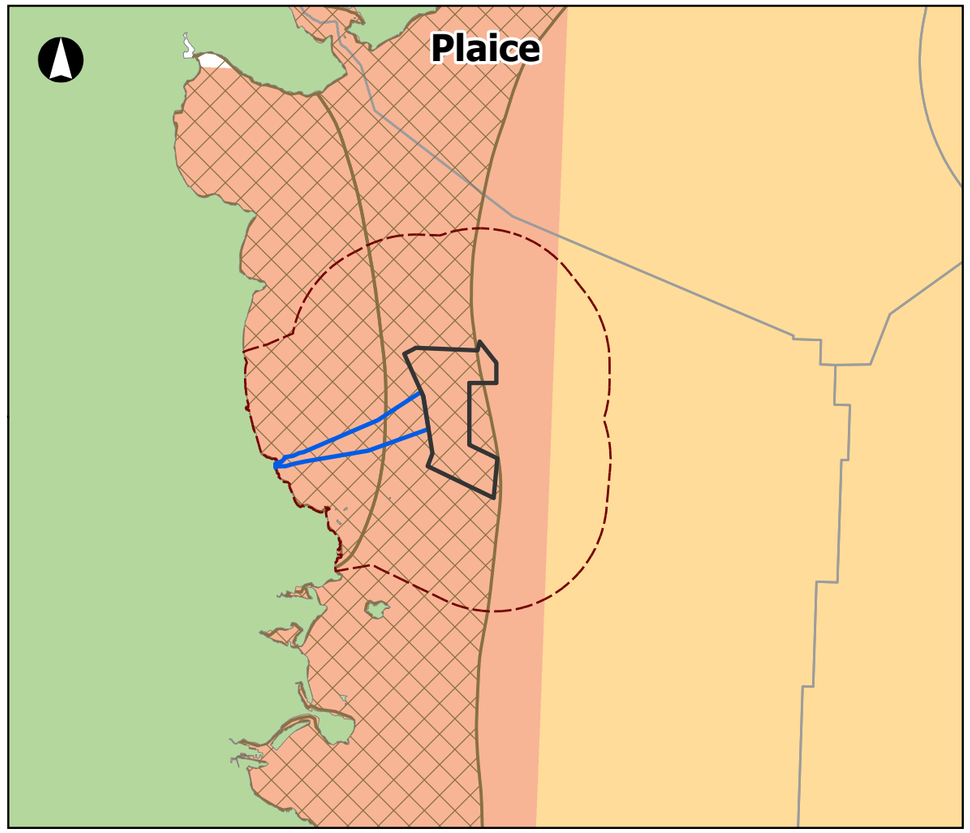
Project

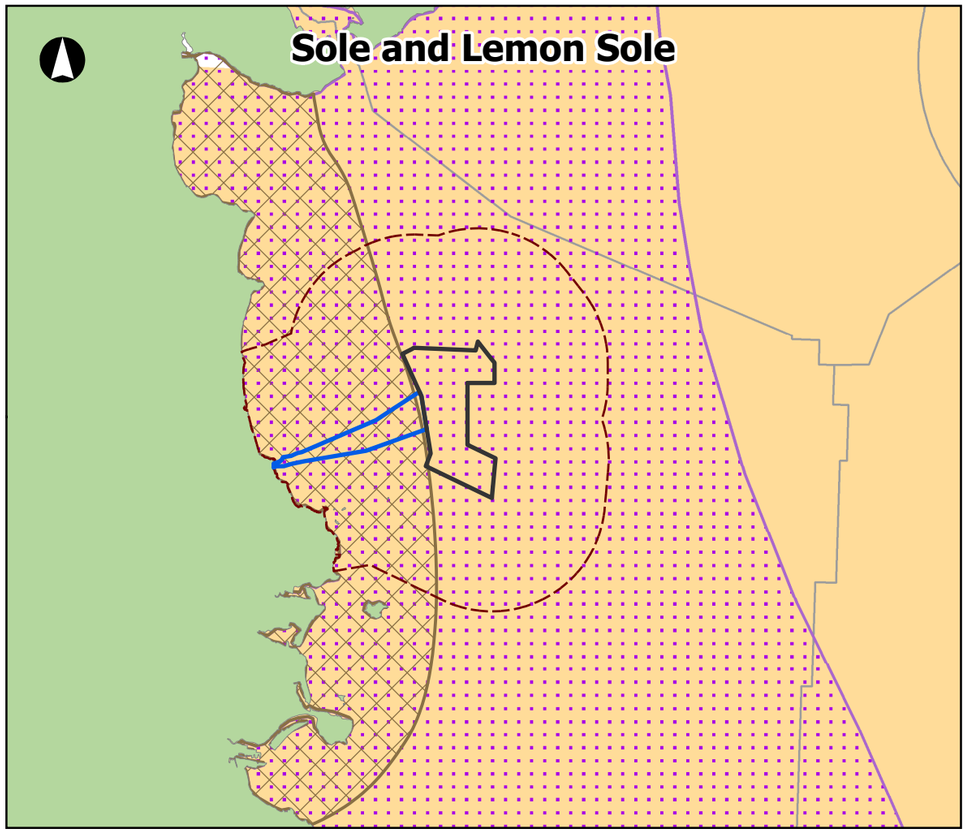
North Irish Sea Array Offshore Wind Farm

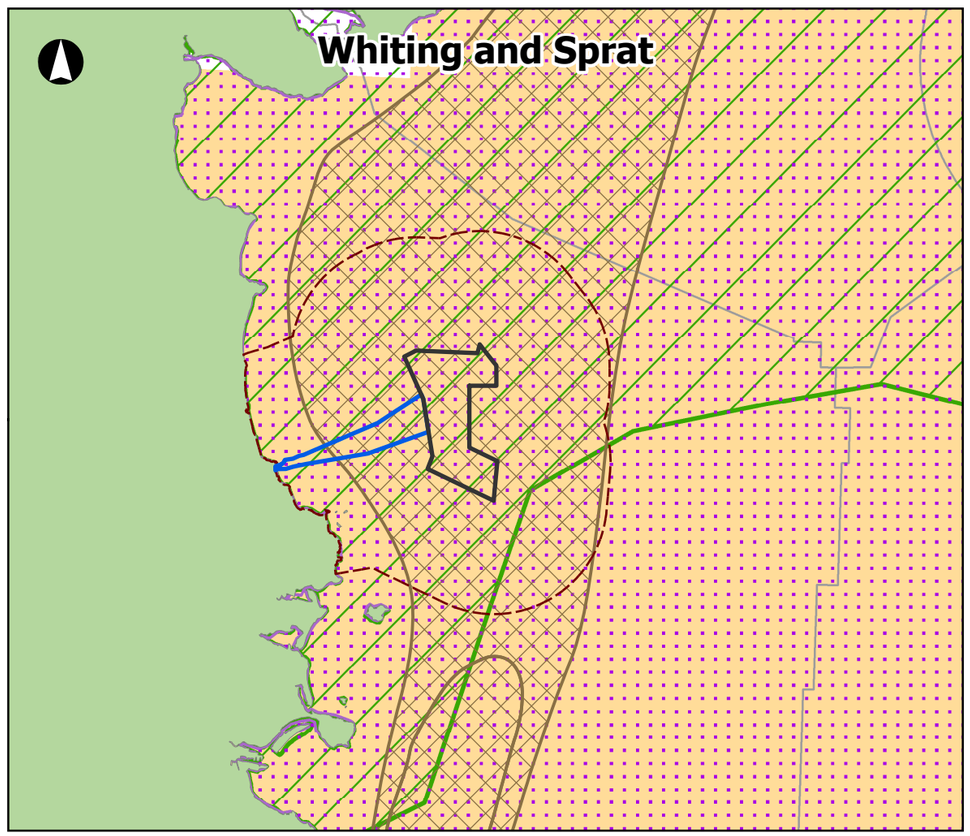
Figure Title

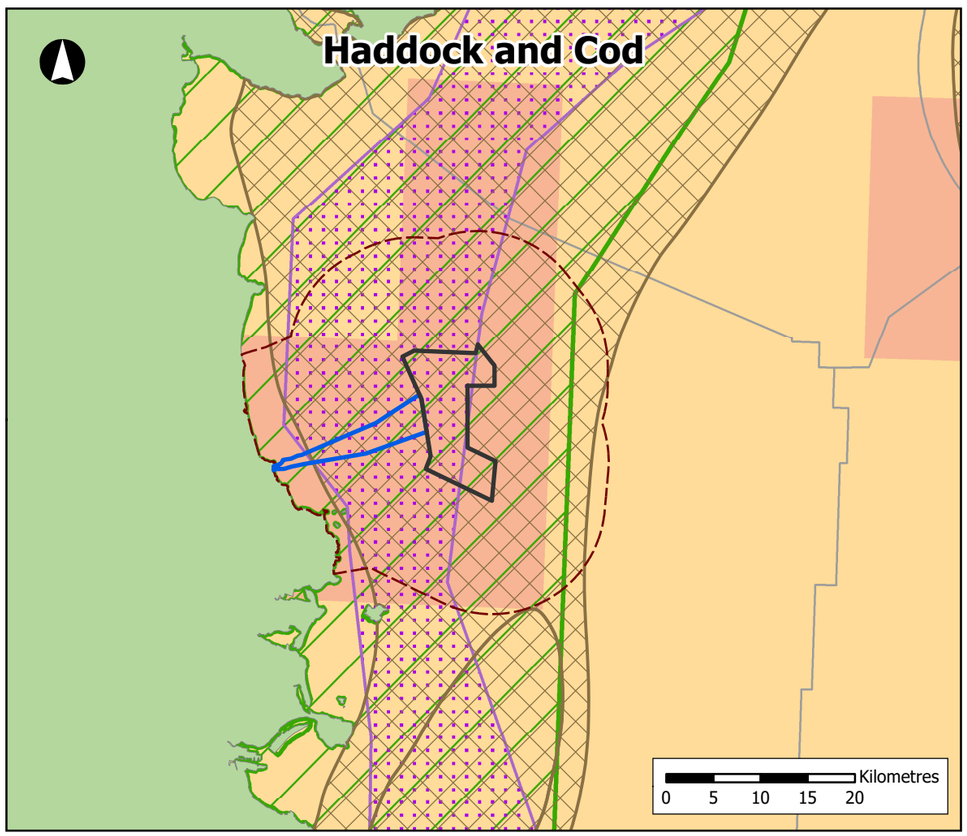
Seabed Substrates and Biotopes within the Array and ECC

Job No: 281240	**Datum:** WGS84 **Projection:** UTM30N
Date: May 2024	**Figure No:** 13.2
Scale: 1:650,000 @A3	
Status: Issue	









Array Area
Offshore Export Cable Corridor
Sedimentary ZoI - 12km
EEZ Boundary

Spawning Grounds (MI, 2016)
Whiting and Cod

Spawning Grounds (Coull et al., 1998)
Lemon Sole, Sprat and Haddock
Plaice, Sole, Whiting and Cod

Spawning Grounds (Intensity)
(Ellis et al., 2012)
High Intensity (Plaice, Cod)
Low Intensity (Plaice, Sole, Whiting, Cod)

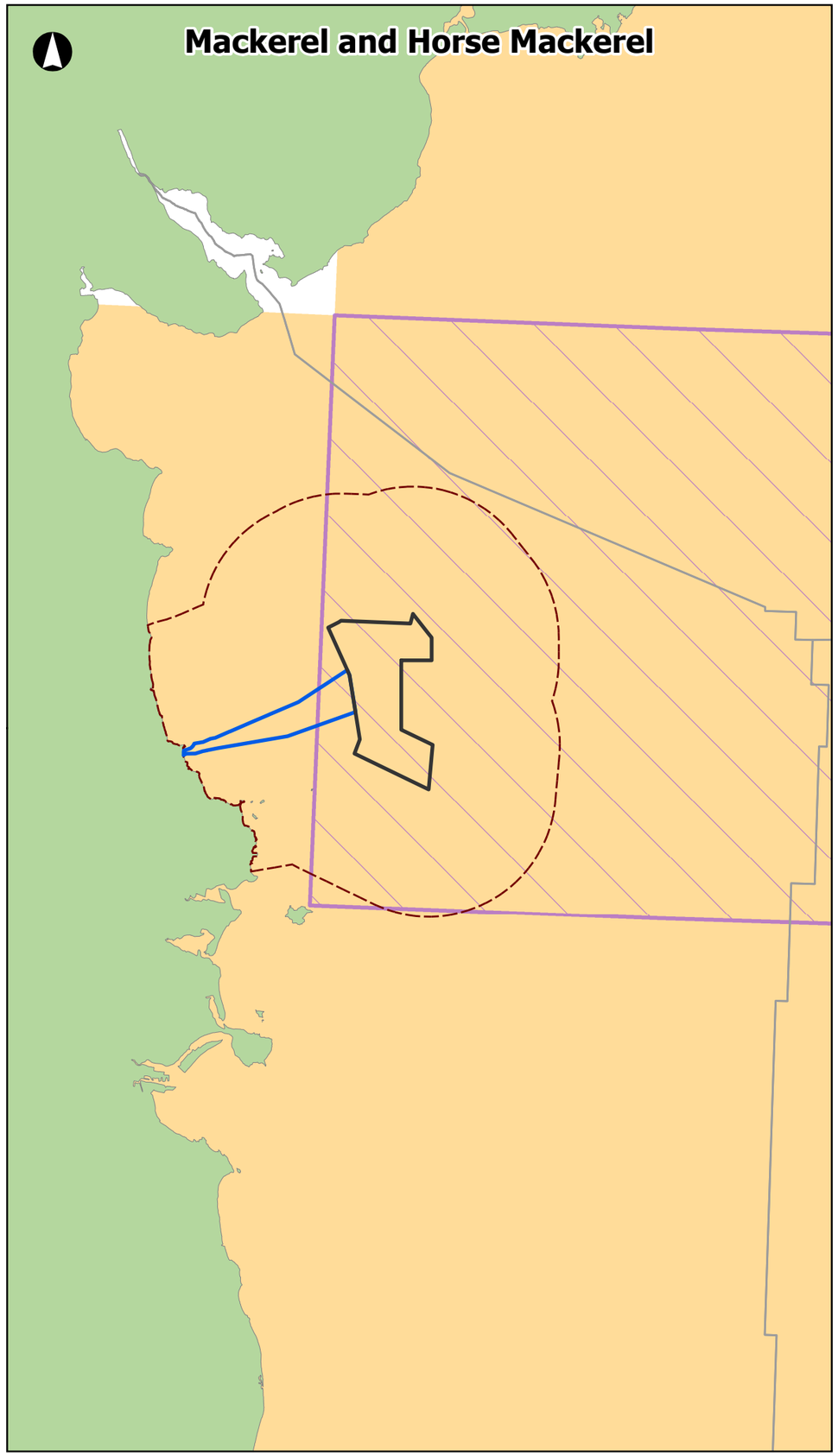
NISA
North Irish Sea Array

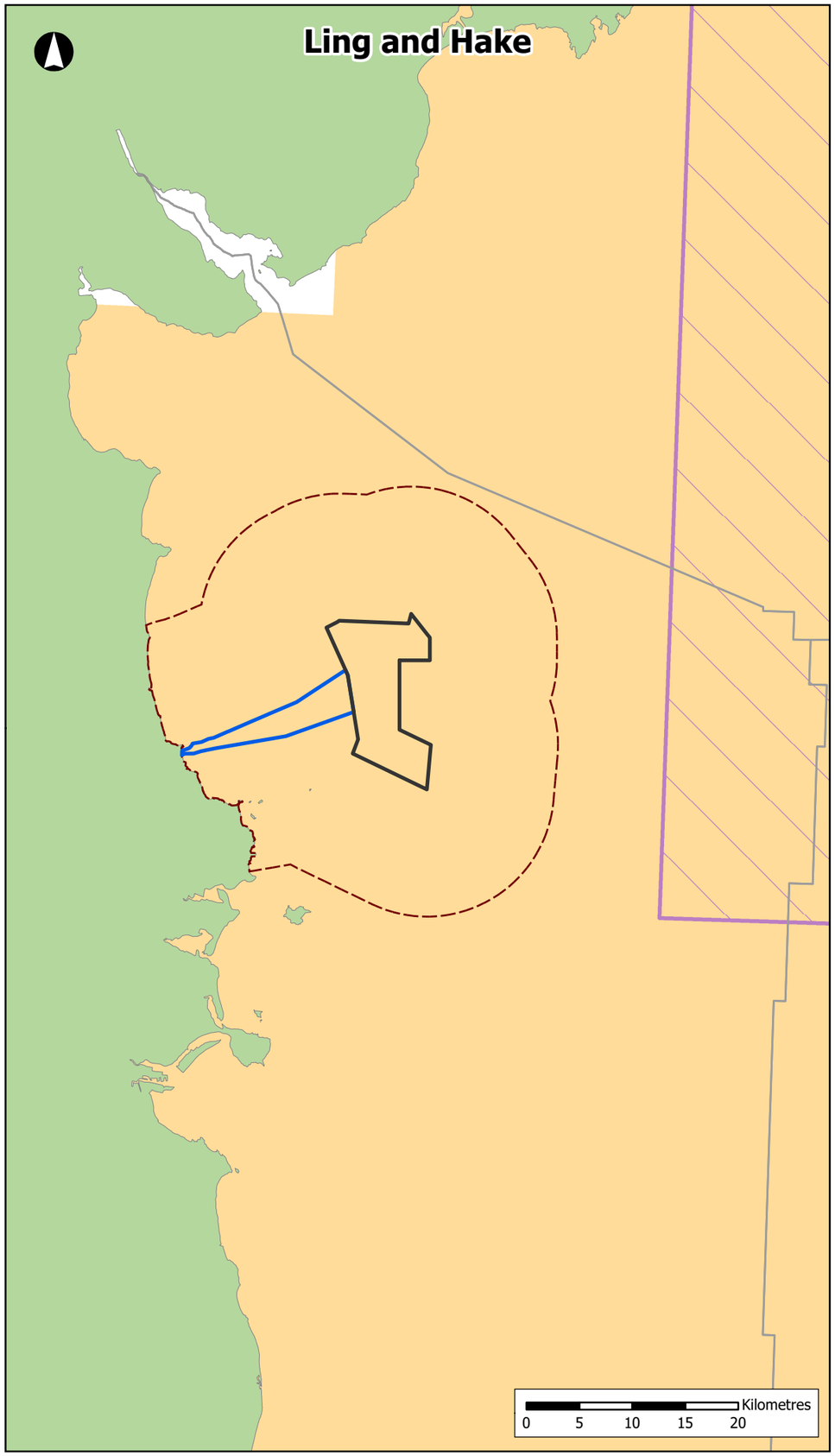
ARUP GoBe

Project
North Irish Sea Array Offshore Wind Farm

Figure Title
Spawning Grounds for Plaice, Sole, Lemon Sole, Whiting, Sprat, Cod and Haddock (Coull et al., 1998; Ellis et al., 2012; Marine Institute, 2016)

Job No: 281240	**Datum:** WGS84 **Projection:** UTM30N
Date: May 2024	**Figure No:** 13.3
Scale: 1:650,000 @A3	
Status: Issue	





Array Area
Offshore Export Cable Corridor
Sedimentary ZoI - 12km
EEZ Boundary

Spawning Grounds (Intensity)
(Ellis et al., 2012)

Low Intensity (Mackerel, Ling)
Low Intensity (Horse Mackerel, Hake)

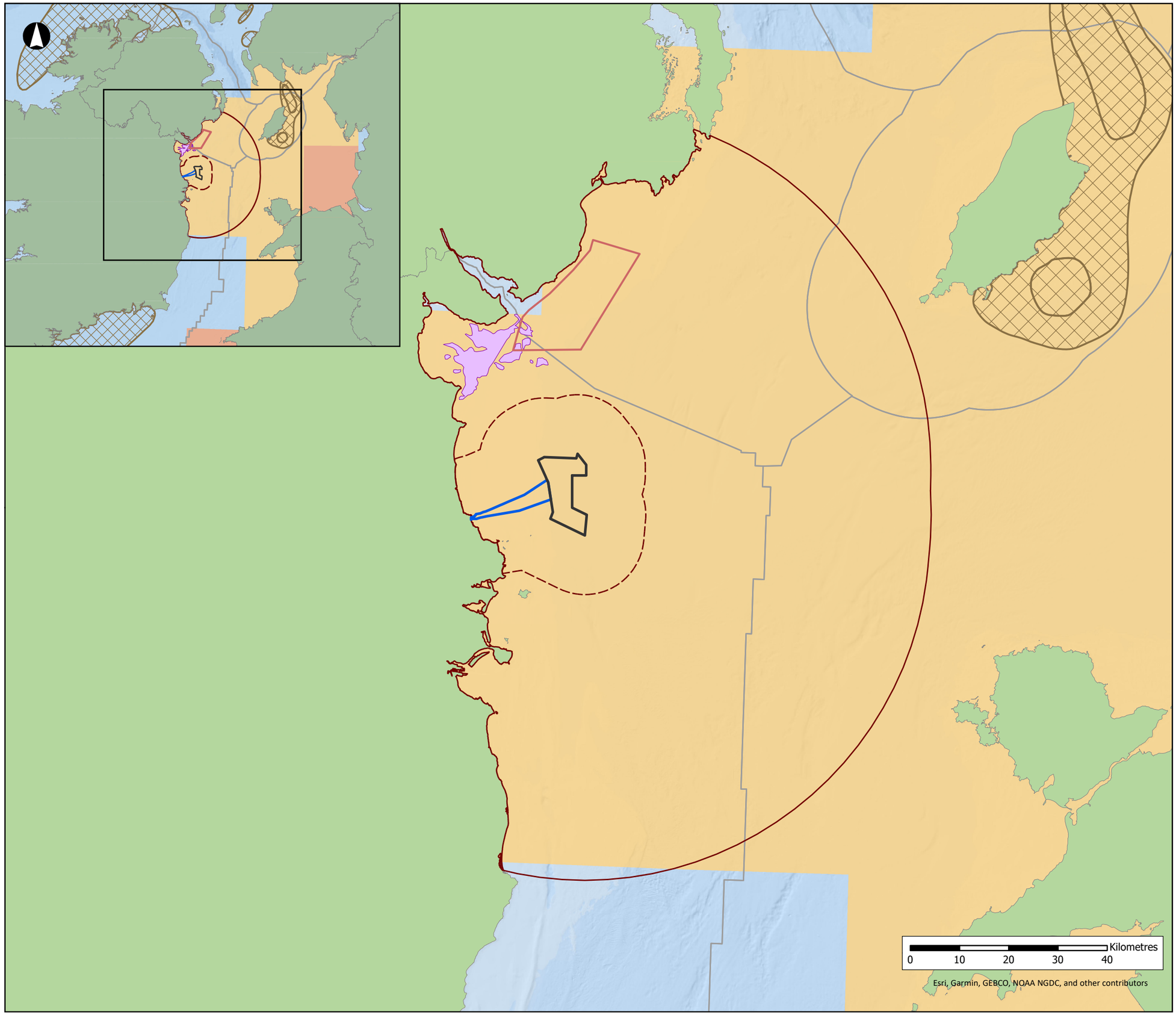
NISA
North Irish Sea Array

ARUP GoBe

Project
North Irish Sea Array Offshore Wind Farm

Figure Title
Spawning grounds for Mackerel, Horse Mackerel, Ling and Hake (Ellis et al., 2012)

Job No: 281240	**Datum:** WGS84 **Projection:** UTM30N
Date: May 2024	**Figure No:** 13.4
Scale: 1:500,000 @A3	
Status: Issue	



Array Area
Offshore Export Cable Corridor
Underwater Noise ZoI - 70km
Sedimentary ZoI - 12km
EEZ Boundary
Potential Suitable Herring Spawning Ground (Dundalk Bay) (MPA Advisory Group, 2023)
Traditional Mourne Herring Spawning Area (Dickey-Collas et al., 2001)

Spawning Grounds (Coull et al., 1998)

Herring

Spawning Grounds (Intensity) (Ellis et al., 2012)

Sandeel, High Intensity
Sandeel, Low Intensity

NISA
North Irish Sea Array

ARUP GoBe

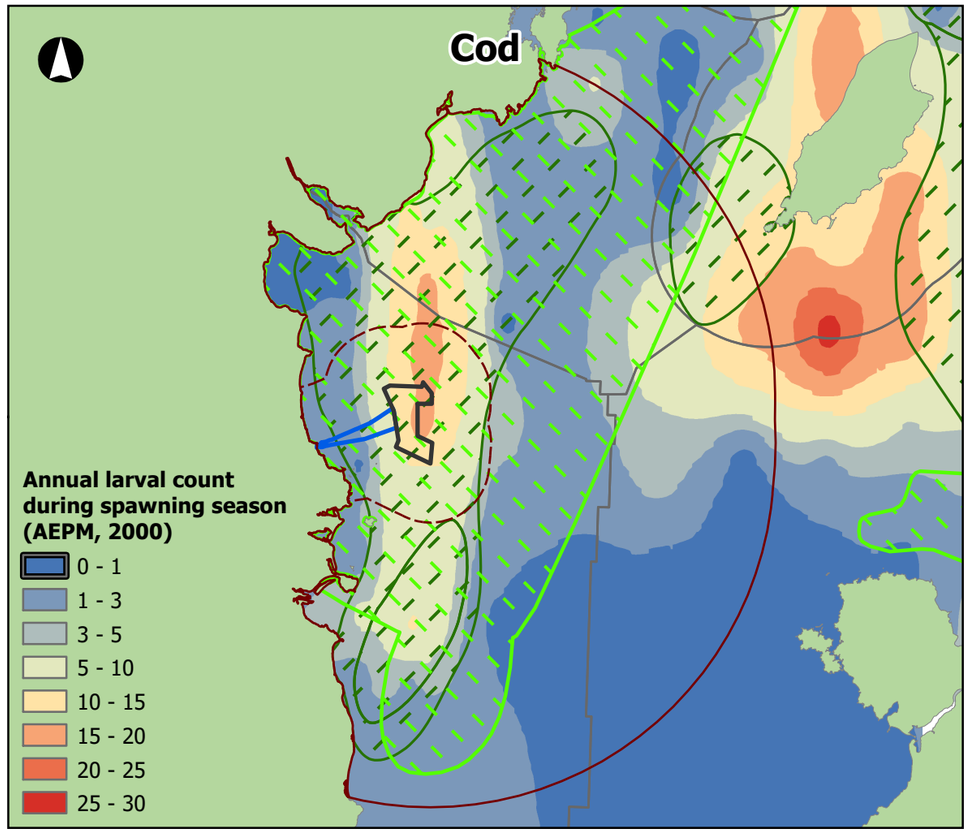
Project

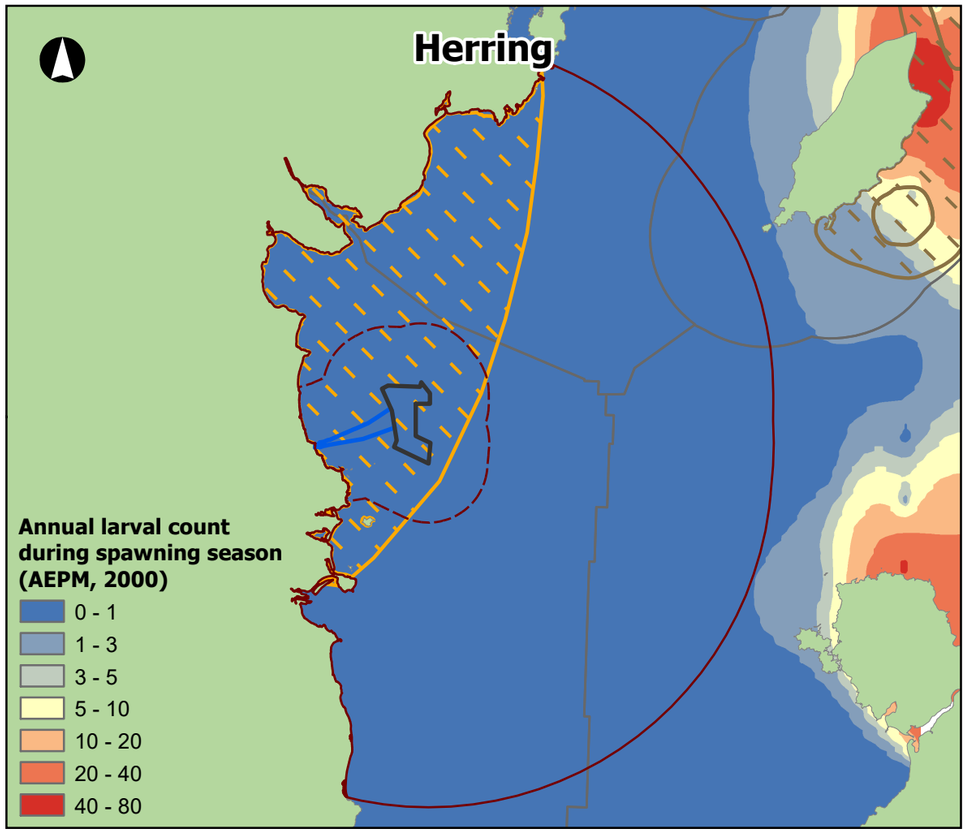
North Irish Sea Array Offshore Wind Farm

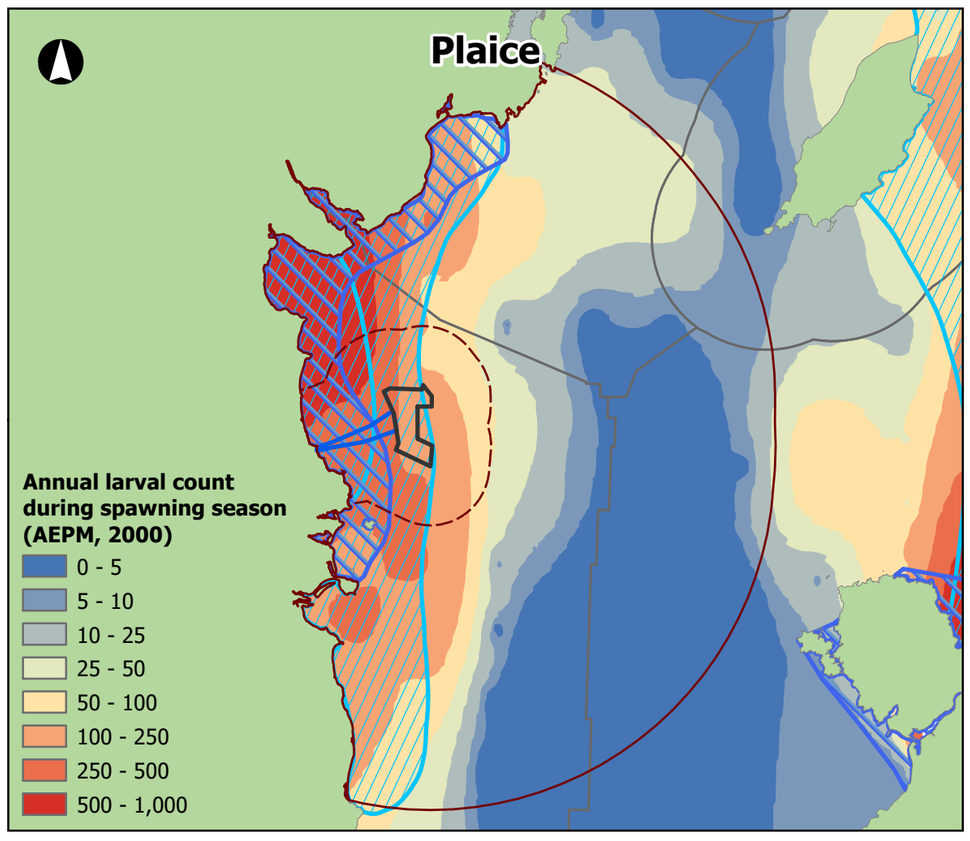
Figure Title

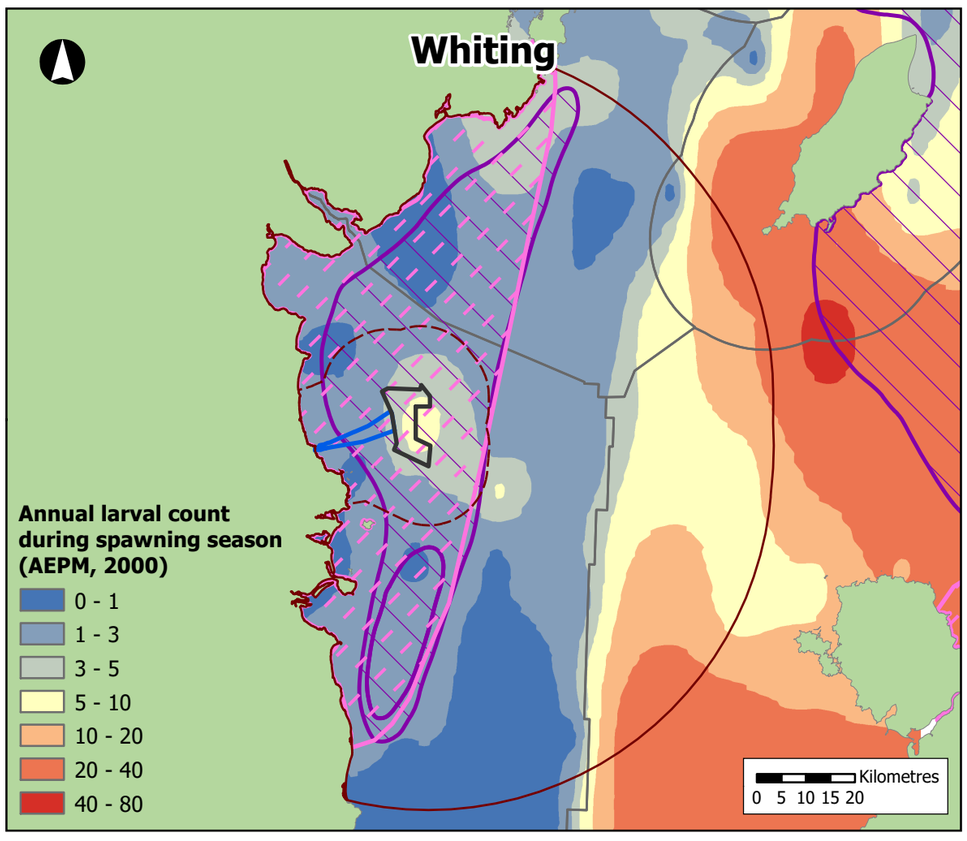
Sandeel and Herring Spawning Grounds (Coull et al., 1998; Ellis et al., 2012)

Job No: 281240	**Datum:** WGS84 **Projection:** UTM30N
Date: May 2024	**Figure No:**
Scale: 1:750,000 @A3	**13.5**
Status: Issue	









Array Area
Offshore Export Cable Corridor
Underwater Noise ZoI - 70km
Sedimentary ZoI - 12km
EEZ Boundary

Spawning Grounds - Species (Coull et al., 1998)

Cod
Whiting
Plaice
Herring

Nursery Grounds - Species (Coull et al., 1998)

Cod
Whiting
Plaice
Herring

NISA
North Irish Sea Array

ARUP GoBe

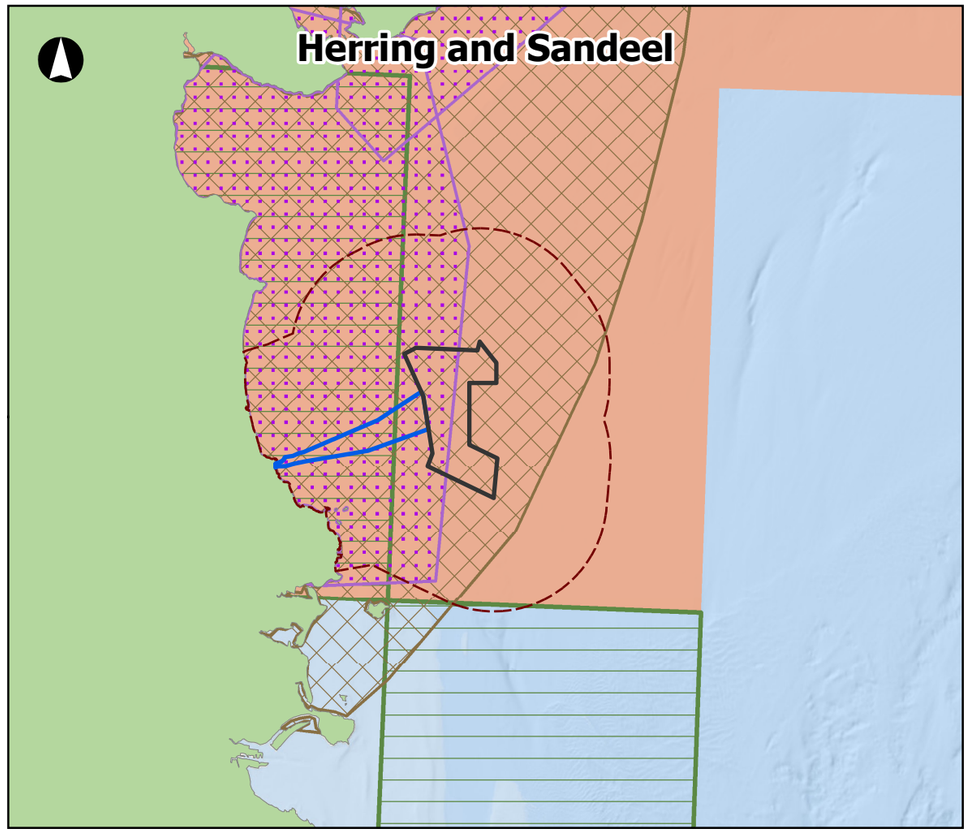
Project

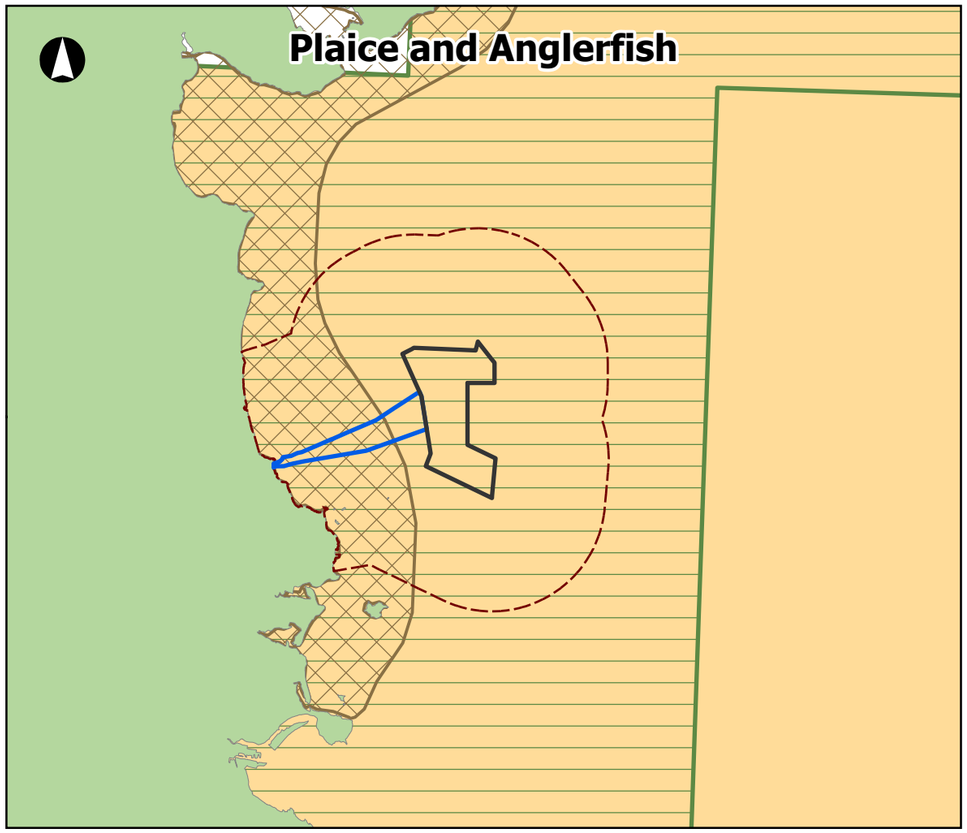
North Irish Sea Array Offshore Wind Farm

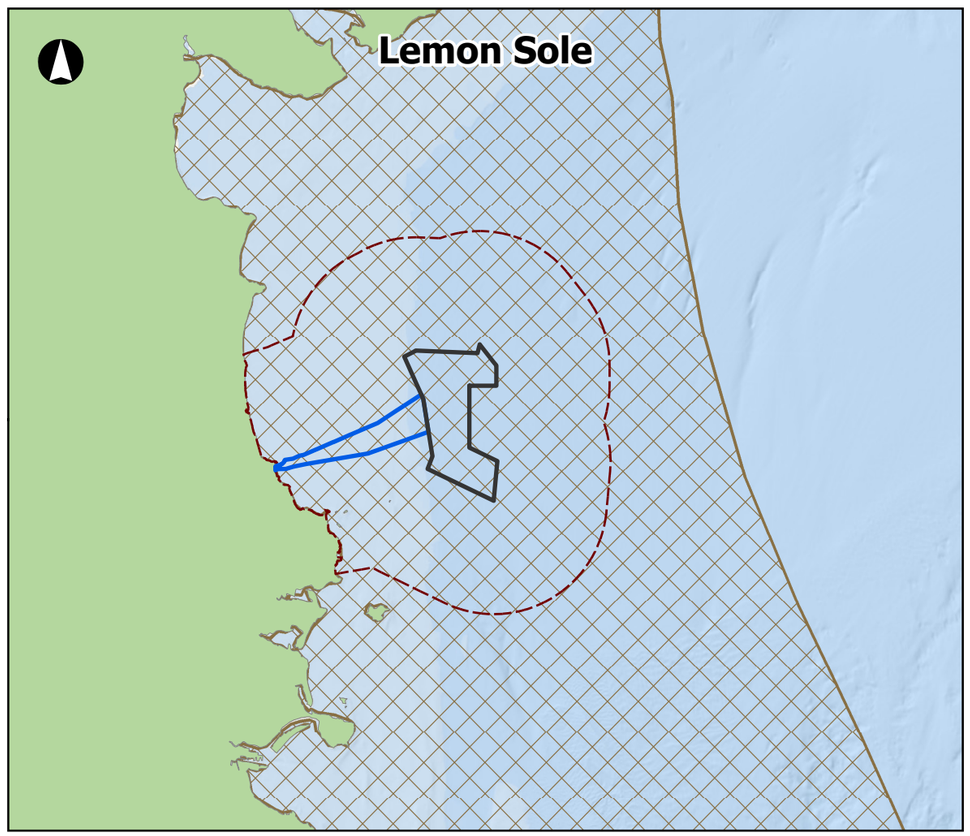
Figure Title

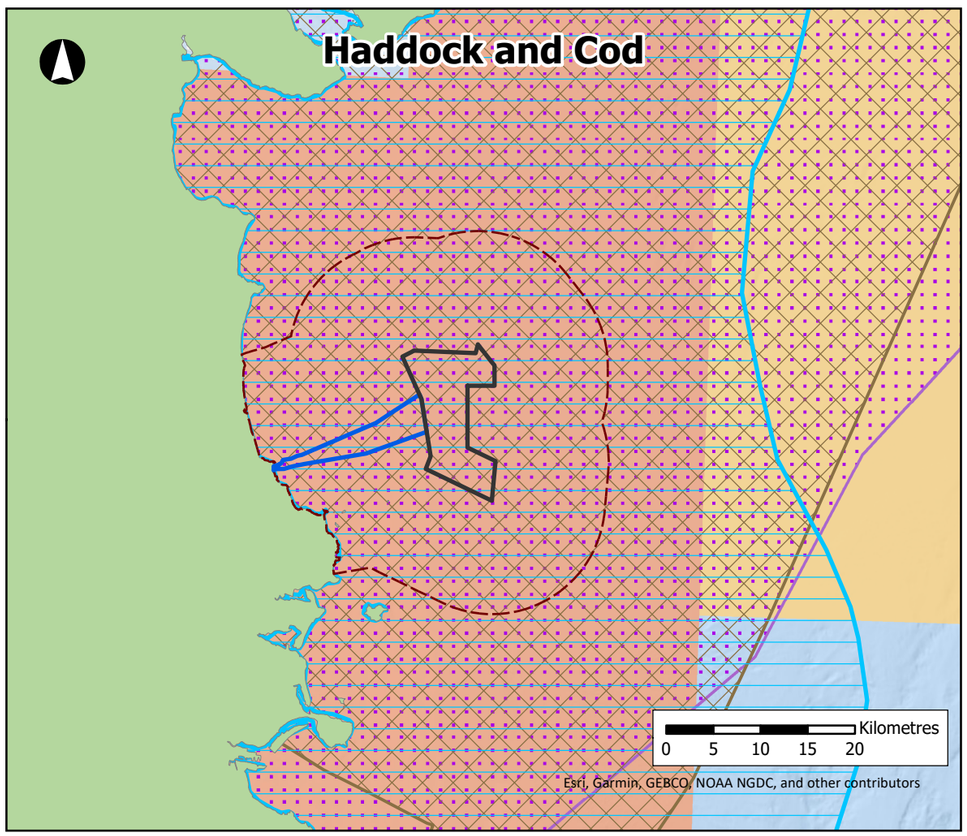
Larval Data (AEPM, 2000) with Spawning and Nursery Grounds (Coull et al., 1998)

Job No: 281240	**Datum:** WGS84 **Projection:** UTM30N
Date: May 2024	**Figure No:** 13.6
Scale: 1:1,250,000 @A3	
Status: Issue	









Array Area
Offshore Export Cable Corridor
Sedimentary ZoI - 12km

Nursery Grounds (MI, 2016)
Herring and Haddock

Nursery Grounds (Coull et al., 1998)
Herring, Plaice, Lemon Sole, Cod
Haddock

Nursery Grounds (Ellis et al., 2012)
High Intensity (Herring, Cod)
Low Intensity (Anglerfish, Cod)
Low Intensity (Sandeel, Plaice)

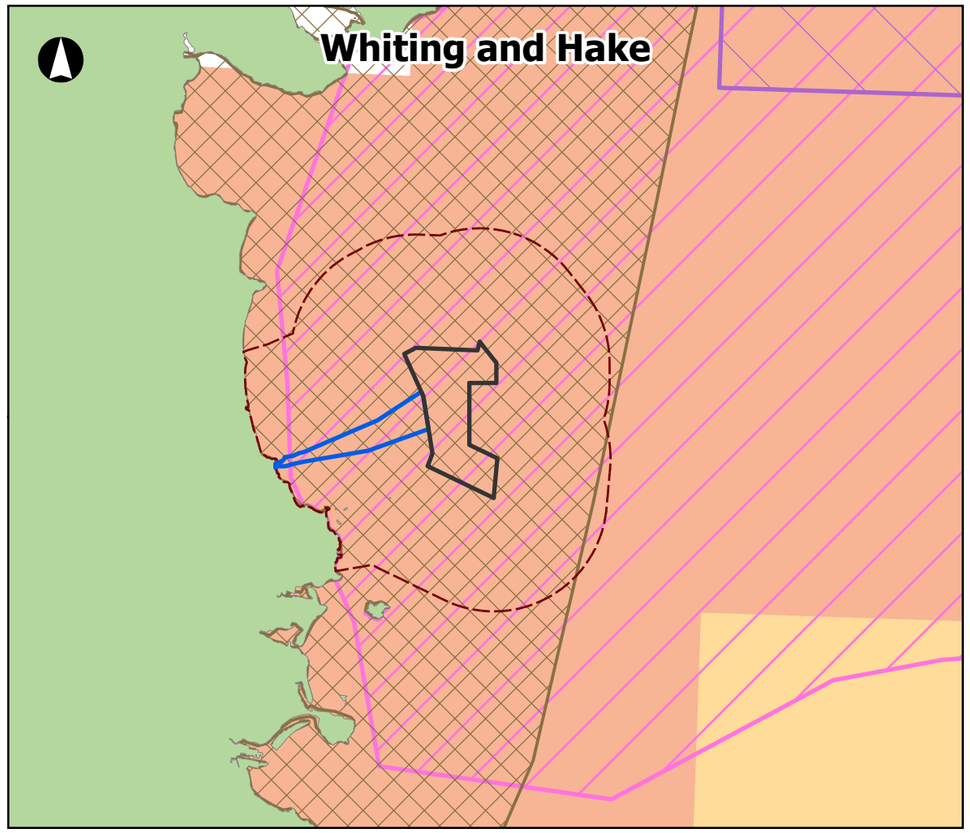
NISA
North Irish Sea Array

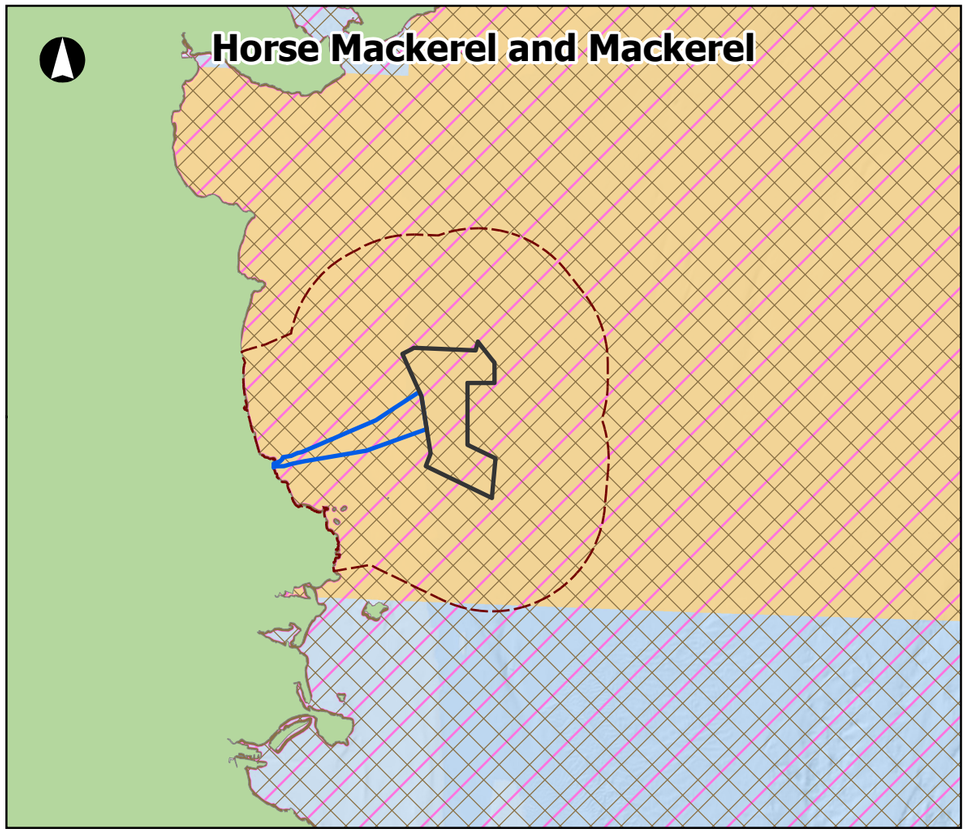
ARUP GoBe

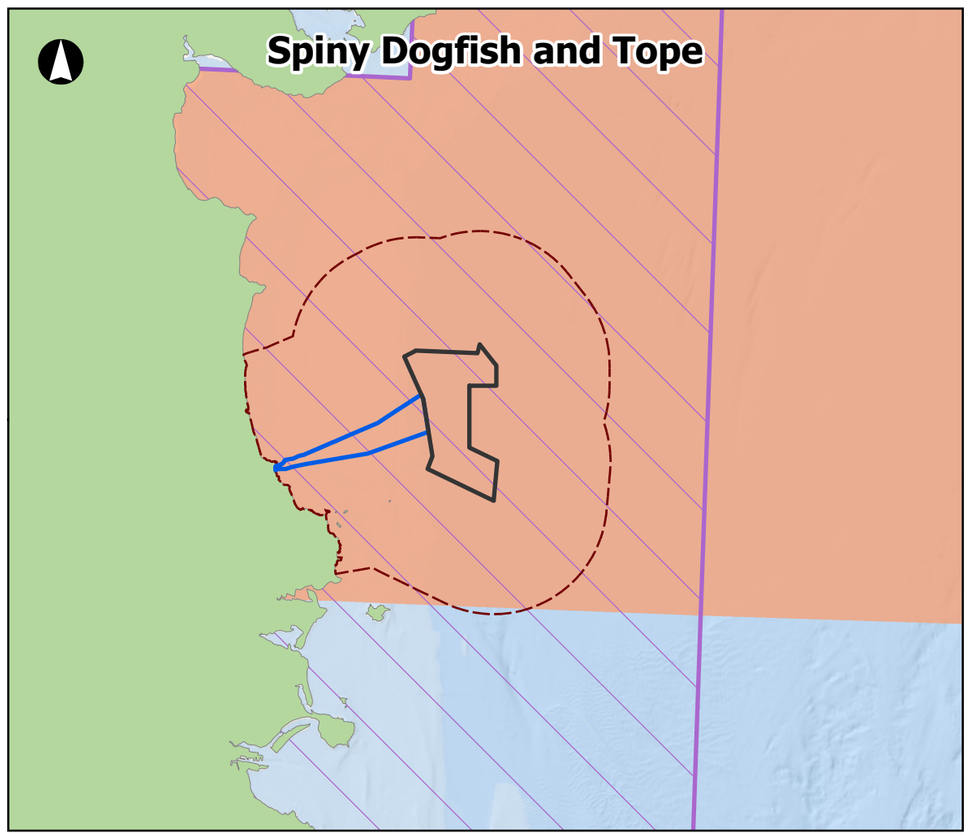
Project
North Irish Sea Array Offshore Wind Farm

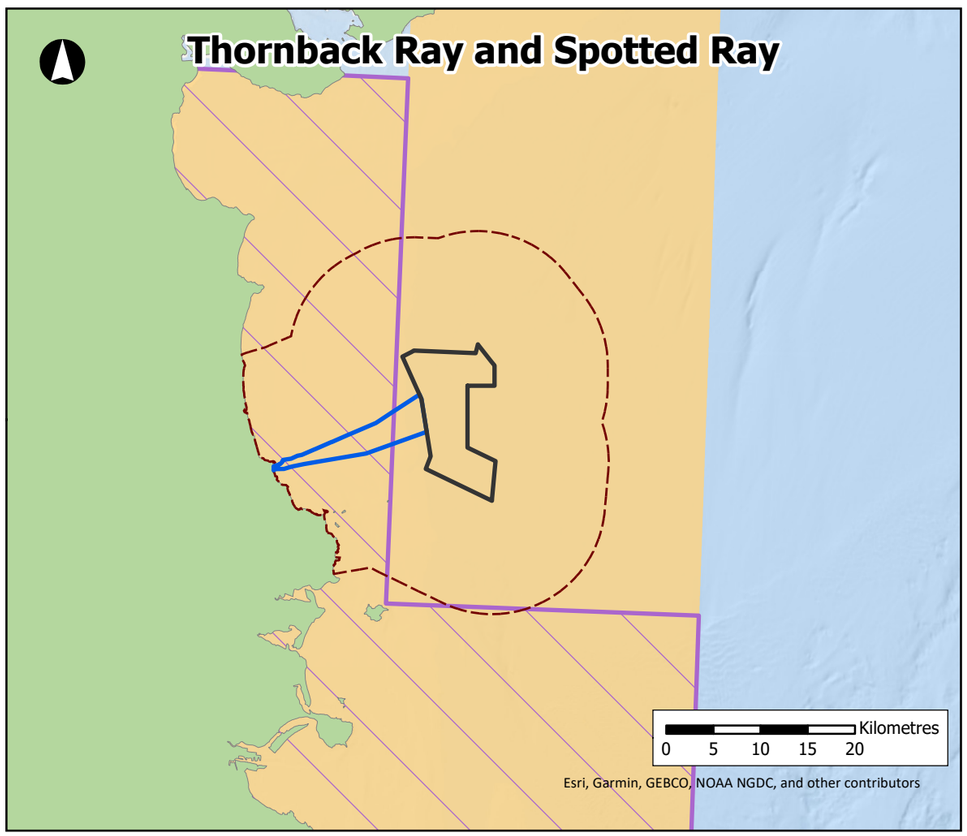
Figure Title
Nursery Grounds for Herring, Sandeel, Plaice, Anglerfish, Lemon Sole, Cod and Haddock (Coull et al., 1998; Ellis et al., 2012; Marine Institute, 2016)

Job No: 281240	**Datum:** WGS84 **Projection:** UTM30N
Date: May 2024	**Figure No:** 13.7
Scale: 1:650,000 @A3	
Status: Issue	









- Array Area
- Offshore Export Cable Corridor
- Sedimentary ZoI - 12km

Nursery Grounds (MI, 2016)

- Whiting, Mackerel
- Horse Mackerel

Nursery Grounds (Coull et al., 1998)

- Whiting

Nursery Grounds (Ellis et al., 2012)

- High Intensity (Whiting, Spiny Dogfish)
- Low Intensity (Whiting, Mackerel, Thornback Ray)
- Low Intensity (Hake, Tope, Spotted Ray)

NISA

North Irish Sea Array

ARUP GoBe

Project

North Irish Sea Array Offshore Wind Farm

Figure Title

Nursery Grounds for Whiting, Hake, Horse Mackerel, Mackerel, Spiny Dogfish, Tope, Thornback Ray and Spotted Ray (Coull et al., 1998; Ellis et al., 2012; Marine Institute, 2016)

Job No: 281240	**Datum:** WGS84 **Projection:** UTM30N
Date: May 2024	**Figure No:** 13.8
Scale: 1:650,000 @A3	
Status: Issue	

Kilometres
0 2 4 6 8

Kilometres
0 10 20 30 40

Array Area
Offshore Export Cable Corridor
Underwater Noise ZoI - 70km
Sedimentary ZoI - 12km

Data Sources
INFOMAR (2022)
Natural Power (2022, 2023)

Sandeel Habitat Suitability (Latto et al., 2013)
Prime, Preferred
Sub-Prime, Preferred
Suitable, Marginal
Unsuitable

Spawning Grounds (Ellis et al., 2012)
Sandeel, Low Intensity

Seabed Substrate (EUSeaMap2021)
Fine mud
Muddy sand
Sandy mud
Sand
Sediment
Mixed sediment
Coarse substrate
Rock or other hard substrata
Mussel beds
Seabed

NISA
North Irish Sea Array

ARUP GoBe

Project
North Irish Sea Array Offshore Wind Farm

Figure Title
Seabed Substrate and Sandeel Habitat Suitability. Based on EUSeaMap Broadscale Habitats and Sediment Data sourced from INFOMAR and Site-Specific Grab Sampling

Job No: 281240	**Datum:** WGS84 **Projection:** UTM30N
Date: May 2024	**Figure No:** 13.9
Scale: 1:650,000 @A3	
Status: Issue	

Kilometres
0 2 4 6 8

Kilometres
0 10 20 30 40

Array Area
Offshore Export Cable Corridor
Underwater Noise ZoI - 70km
Sedimentary ZoI - 12km
Traditional Mourne Herring Spawning Area (Dickey-Collas et al., 2001)

Data Sources
INFOMAR (2022)
Natural Power (2022, 2023)

Herring Habitat Suitability (Reach et al., 2013)
Prime, Preferred
Sub-Prime, Preferred
Suitable, Marginal
Unsuitable

Seabed Substrate (EUSeaMap2021)
Fine mud
Muddy sand
Sandy mud
Sand
Sediment
Mixed sediment
Coarse substrate
Rock or other hard substrata
Mussel beds
Seabed

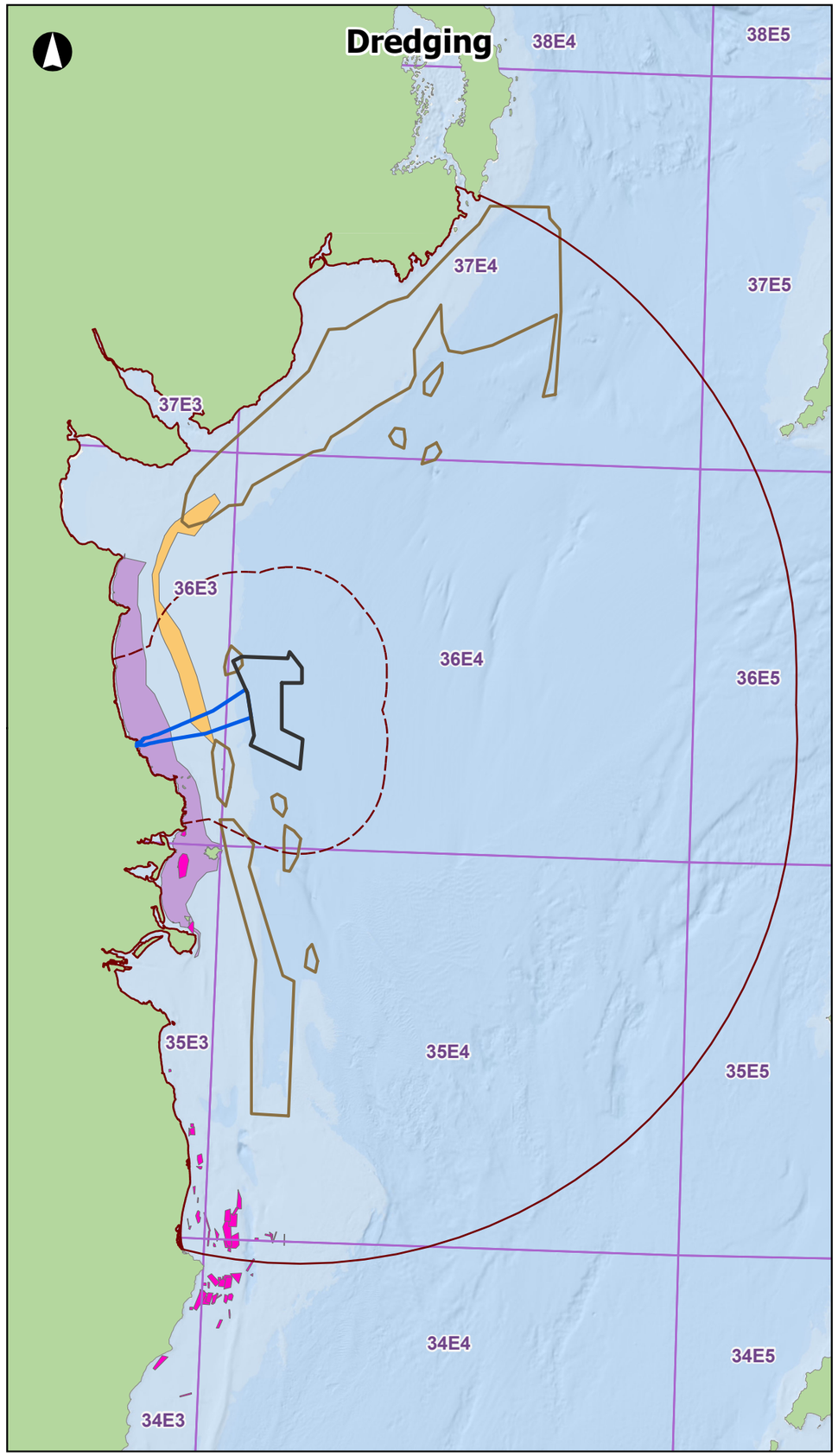
NISA
North Irish Sea Array

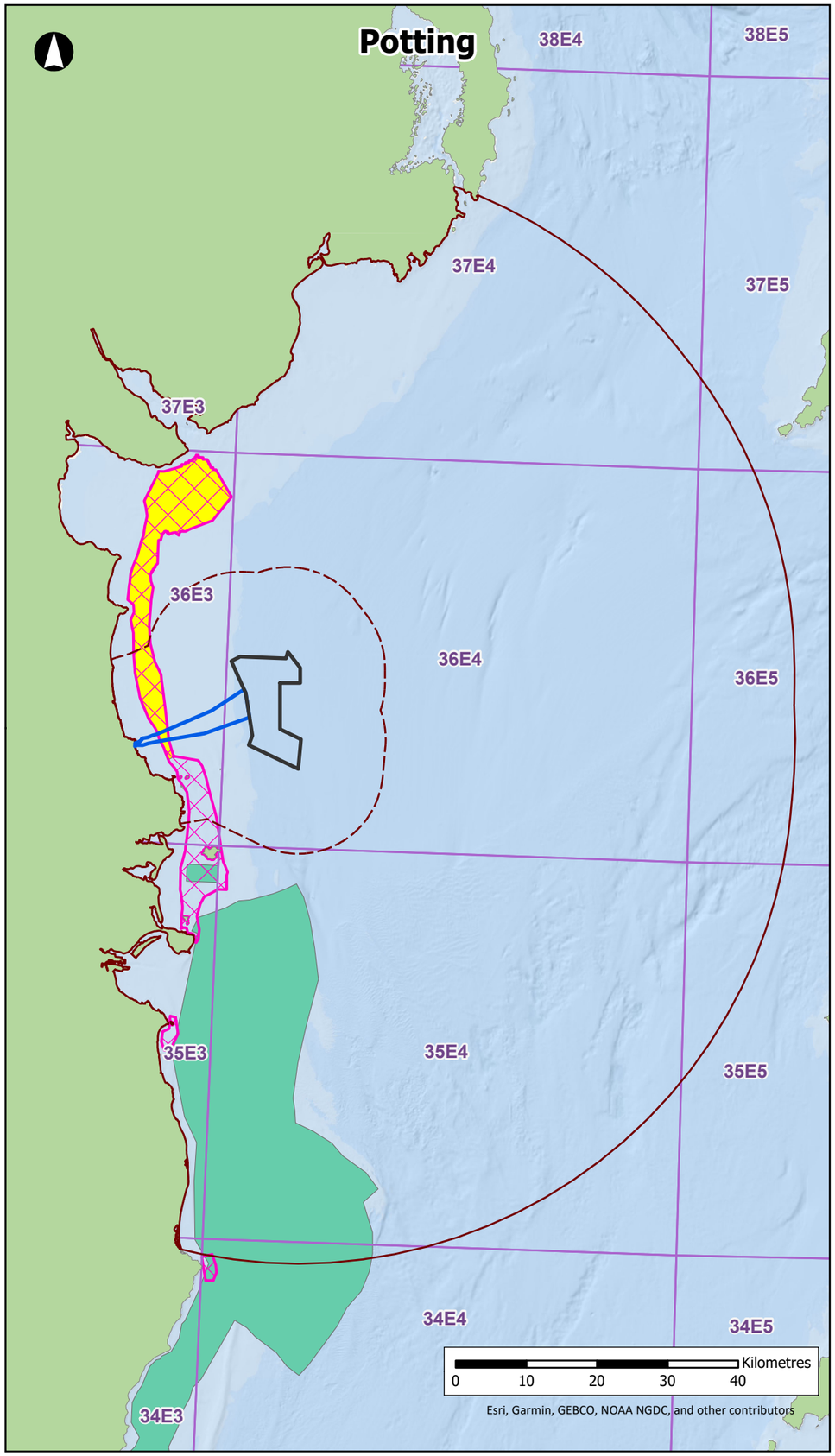
ARUP GoBe

Project
North Irish Sea Array Offshore Wind Farm

Figure Title
Seabed Substrate and Herring Habitat Suitability. Based on EUSeaMap Broadscale Habitats and Sediment Data sourced from INFOMAR and Site-Specific Grab Sampling

Job No: 281240	**Datum:** WGS84 **Projection:** UTM30N
Date: May 2024	**Figure No:** 13.10
Scale: 1:650,000 @A3	
Status: Issue	





- Array Area
- Offshore Export Cable Corridor
- Sedimentary ZoI - 12km
- Underwater Noise ZoI - 70km
- ICES Statistical Rectangles
- Historical King Scallop Fishing Grounds (ICES, 2020)

Inshore Dredge Fishing

Target Species

- Razor Clam
- Scallop
- Seed Mussel

Inshore Pot Fishing

Target Species

- Lobster & Crab
- Shrimp
- Whelk

NISA

North Irish Sea Array

ARUP GoBe

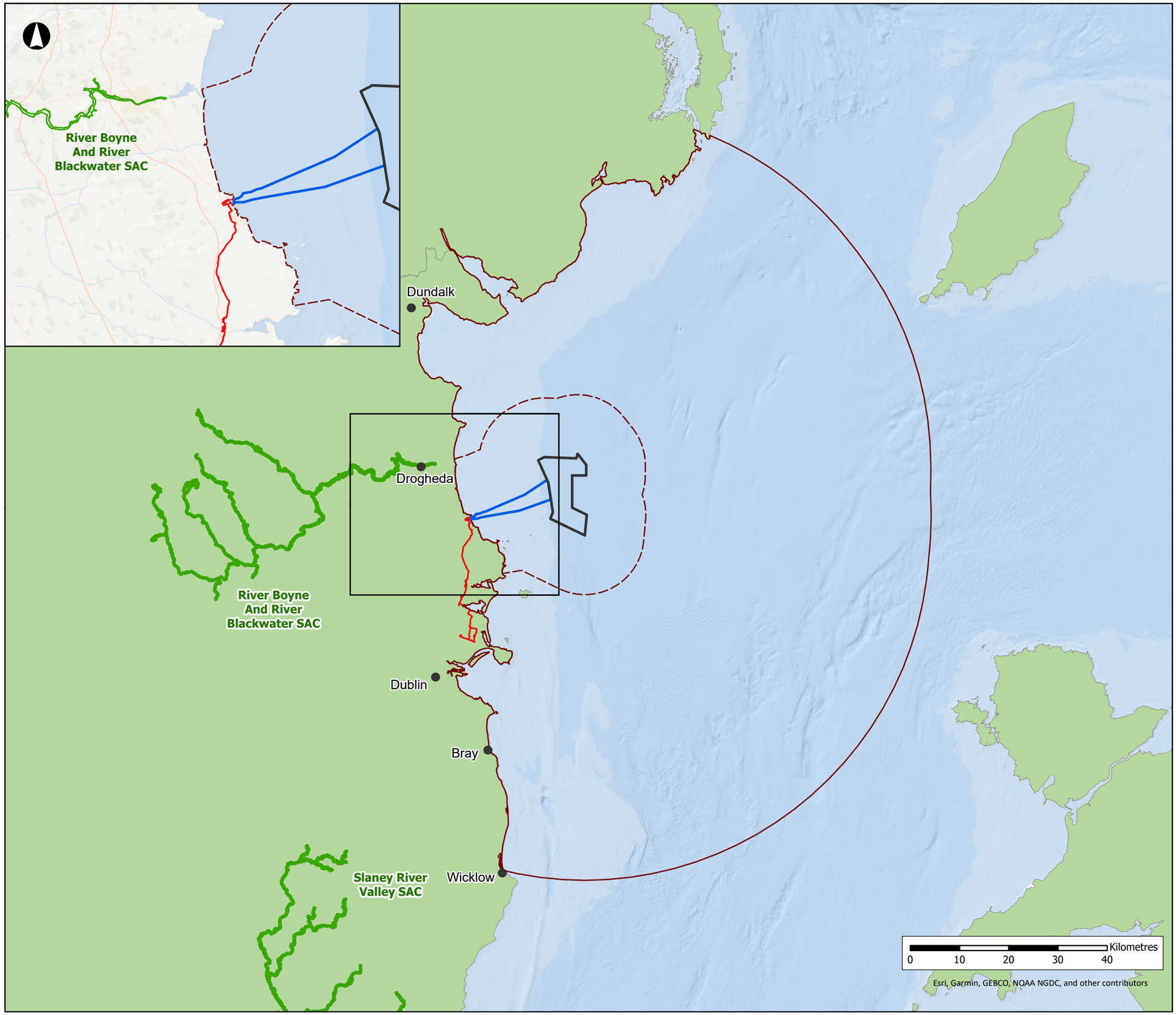
Project

North Irish Sea Array Offshore Wind Farm

Figure Title

Inshore Fishing Grounds Targeted by Dredging and Potting (Marine Institute, 2016)

Job No: 281240	**Datum:** WGS84 **Projection:** UTM30N
Date: May 2024	**Figure No:**
Scale: 1:750,000 @A3	**13.11**
Status: Issue	



Proposed Development Boundary (Onshore)
Array Area
Offshore Export Cable Corridor
Underwater Noise ZoI - 70km
Sedimentary ZoI - 12km
Special Areas of Conservation

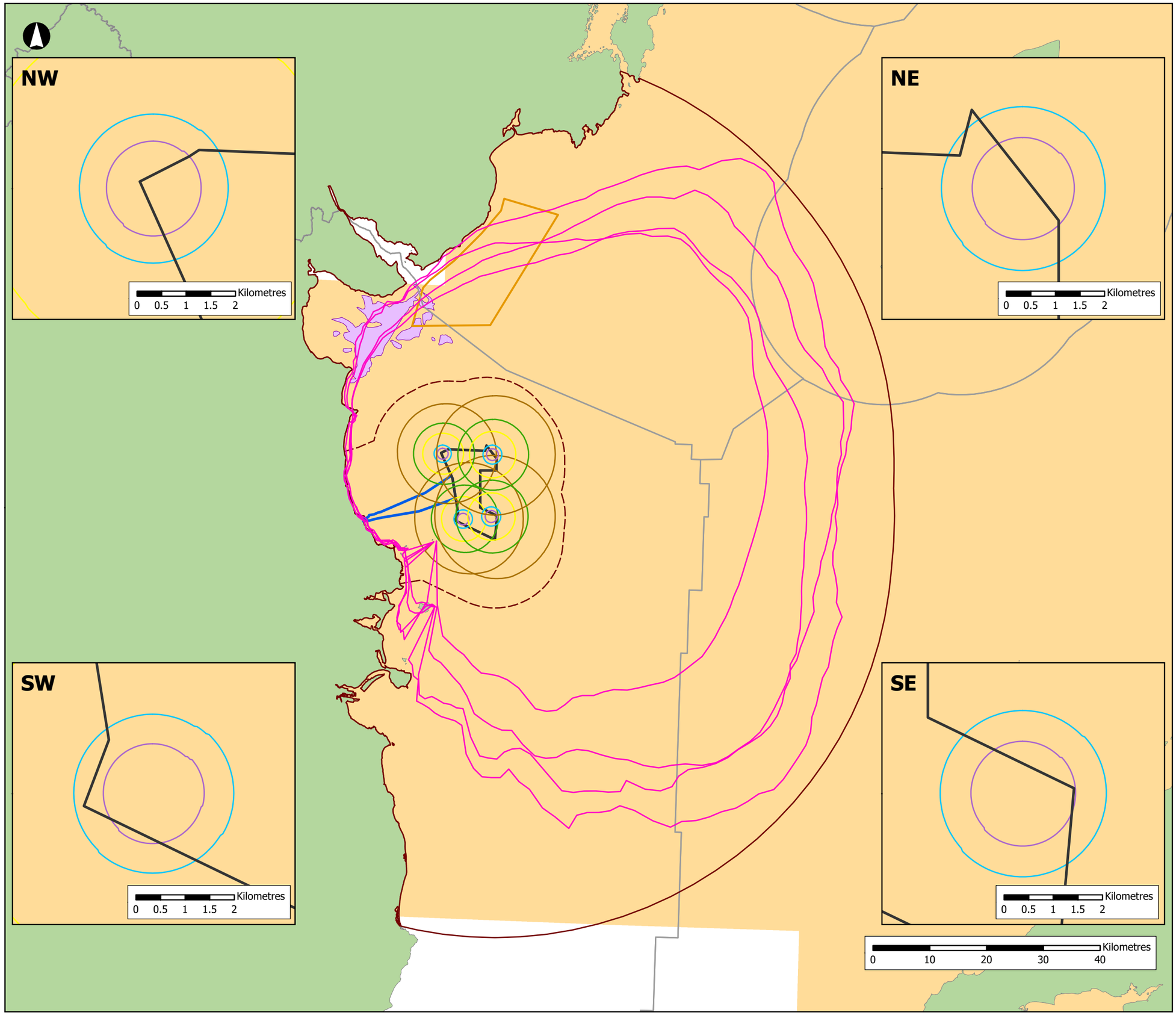
NISA
North Irish Sea Array

ARUP GoBe

Project
North Irish Sea Array Offshore Wind Farm

Figure Title
Designated Natura Sites for Migratory Fish Relative to the Offshore Development Area

Job No: 281240	**Datum:** WGS84 **Projection:** UTM30N
Date: May 2024	**Figure No:** 13.12
Scale: 1:750,000 @A3	
Status: Issue	



Array Area
Offshore Export Cable Corridor
Underwater Noise ZoI - 70km
Sedimentary ZoI - 12km
EEZ Boundary
Potential Suitable Herring Spawning Ground (Dundalk Bay) (MPA Advisory Group, 2023)
Traditional Mourne Herring Spawning Area (Dickey-Collas et al., 2001)

Spawning Grounds (Intensity) (Ellis et al., 2012)

Sandeel, Low Intensity

Monopile SELcum Stationary (5500 kJ Hammer Energy)

186dB
203dB
207dB
210dB
216dB
219dB

NISA
North Irish Sea Array

ARUP GoBe

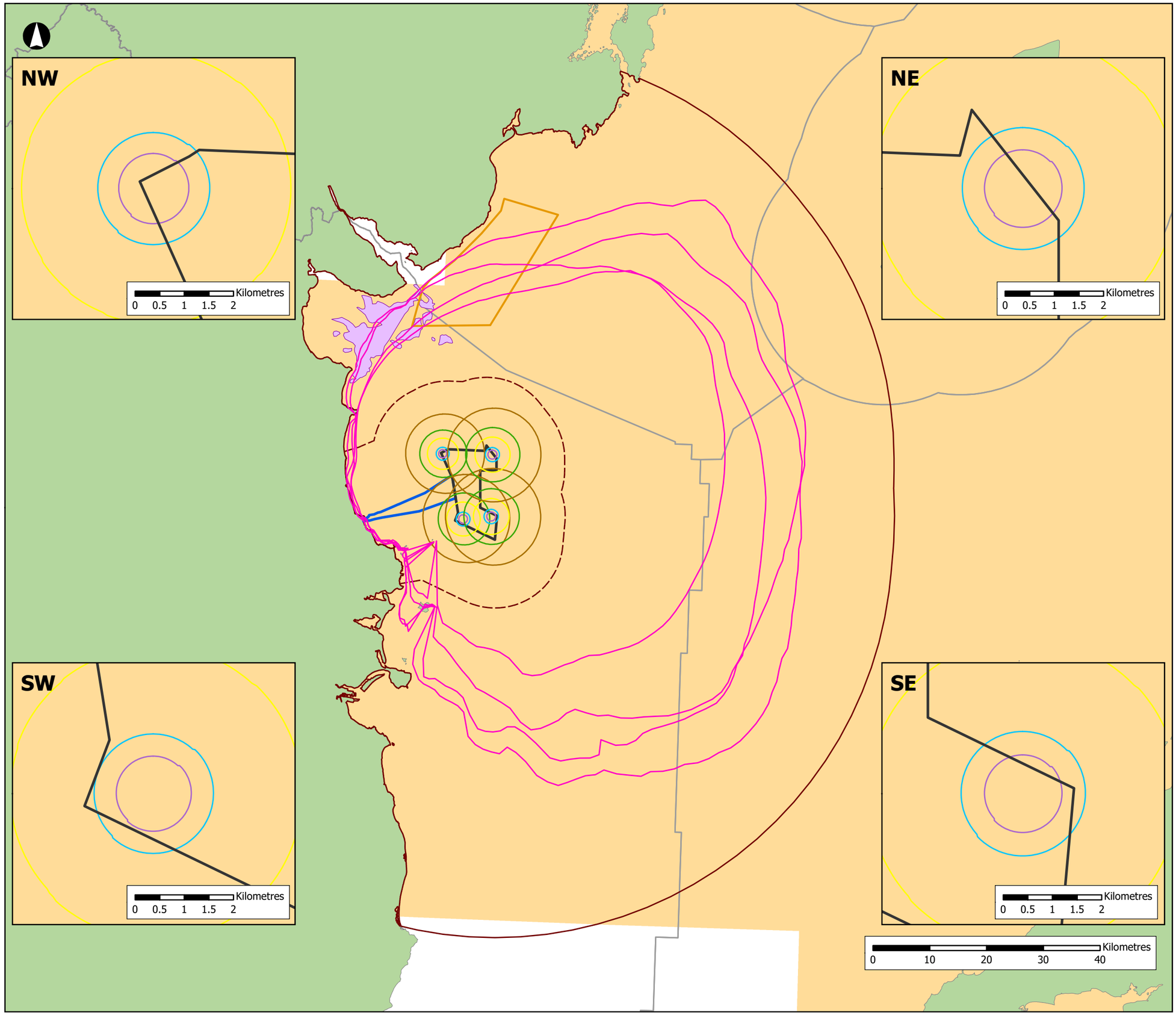
Project

North Irish Sea Array Offshore Wind Farm

Figure Title

Predicted maximum impact ranges for stationary receptors from piling of monopile foundations within the array area (5,500 kJ)

Job No: 281240	**Datum:** WGS84 **Projection:** UTM30N
Date: May 2024	**Figure No:**
Scale: 1:650,000 @A3	**13.13**
Status: Issue	



Array Area
Offshore Export Cable Corridor
Underwater Noise ZoI - 70km
Sedimentary ZoI - 12km
EEZ Boundary
Potential Suitable Herring Spawning Ground (Dundalk Bay) (MPA Advisory Group, 2023)
Traditional Mourne Herring Spawning Area (Dickey-Collas et al., 2001)

Spawning Grounds (Intensity) (Ellis et al., 2012)

Sandeel, Low Intensity

Pin Pile SELcum Stationary (3000 kJ Hammer Energy)

186dB
203dB
207dB
210dB
216dB
219dB

NISA
North Irish Sea Array

ARUP GoBe

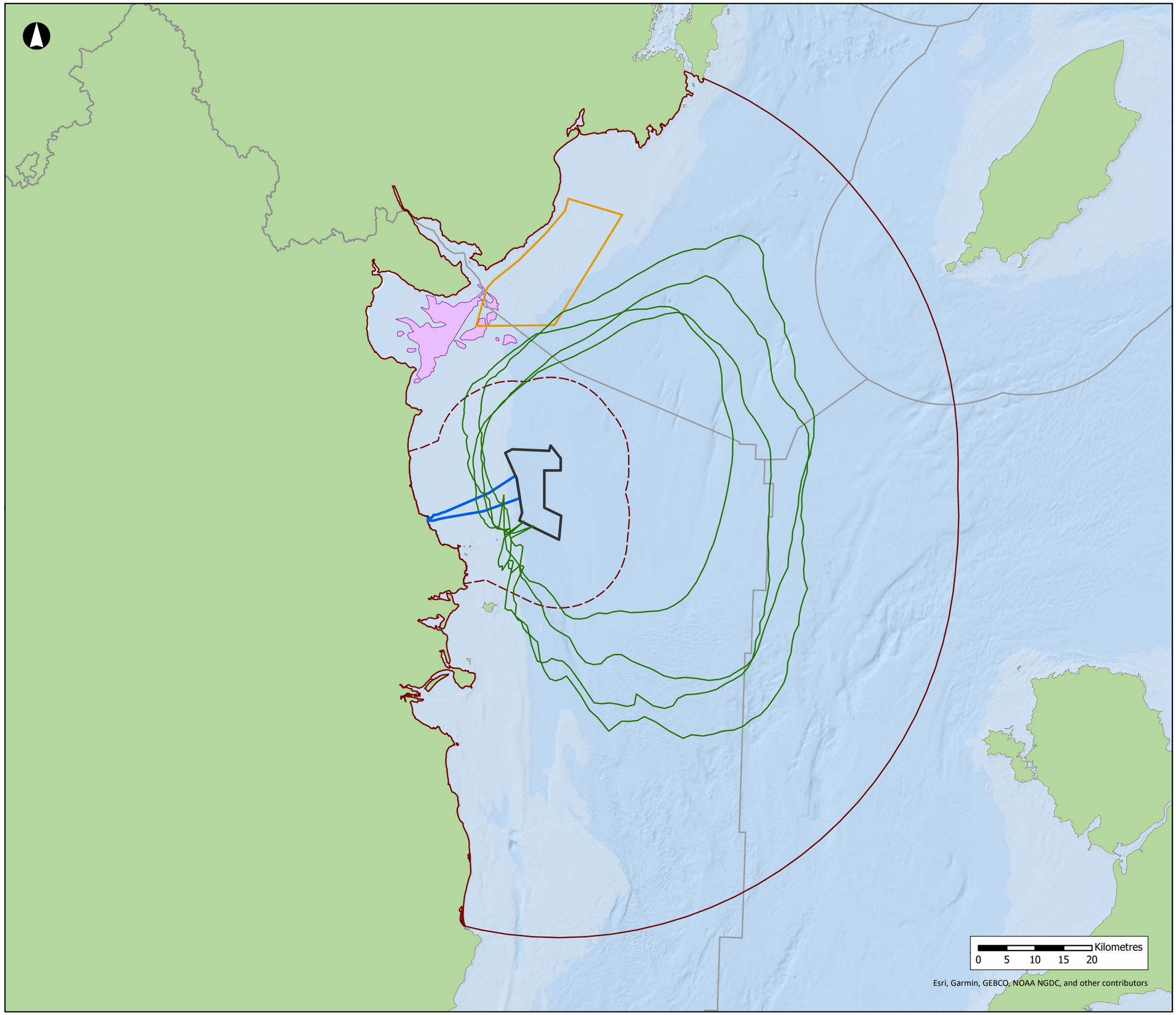
Project

North Irish Sea Array Offshore Wind Farm

Figure Title

Predicted maximum impact ranges for stationary receptors from sequential piling of jacket foundations within the array area (3,000 kJ)

Job No: 281240	**Datum:** WGS84 **Projection:** UTM30N
Date: May 2024	**Figure No:** 13.14
Scale: 1:650,000 @A3	
Status: Issue	



Array Area
Offshore Export Cable Corridor
Underwater Noise ZoI - 70km
Sedimentary ZoI - 12km
EEZ Boundary
Potential Suitable Herring Spawning Ground (Dundalk Bay) (MPA Advisory Group, 2023)
Traditional Mourne Herring Spawning Area (Dickey-Collas et al., 2001)

Monopile SELcum Fleeing (5500 kJ Hammer Energy)

186dB

NISA

North Irish Sea Array

ARUP GoBe

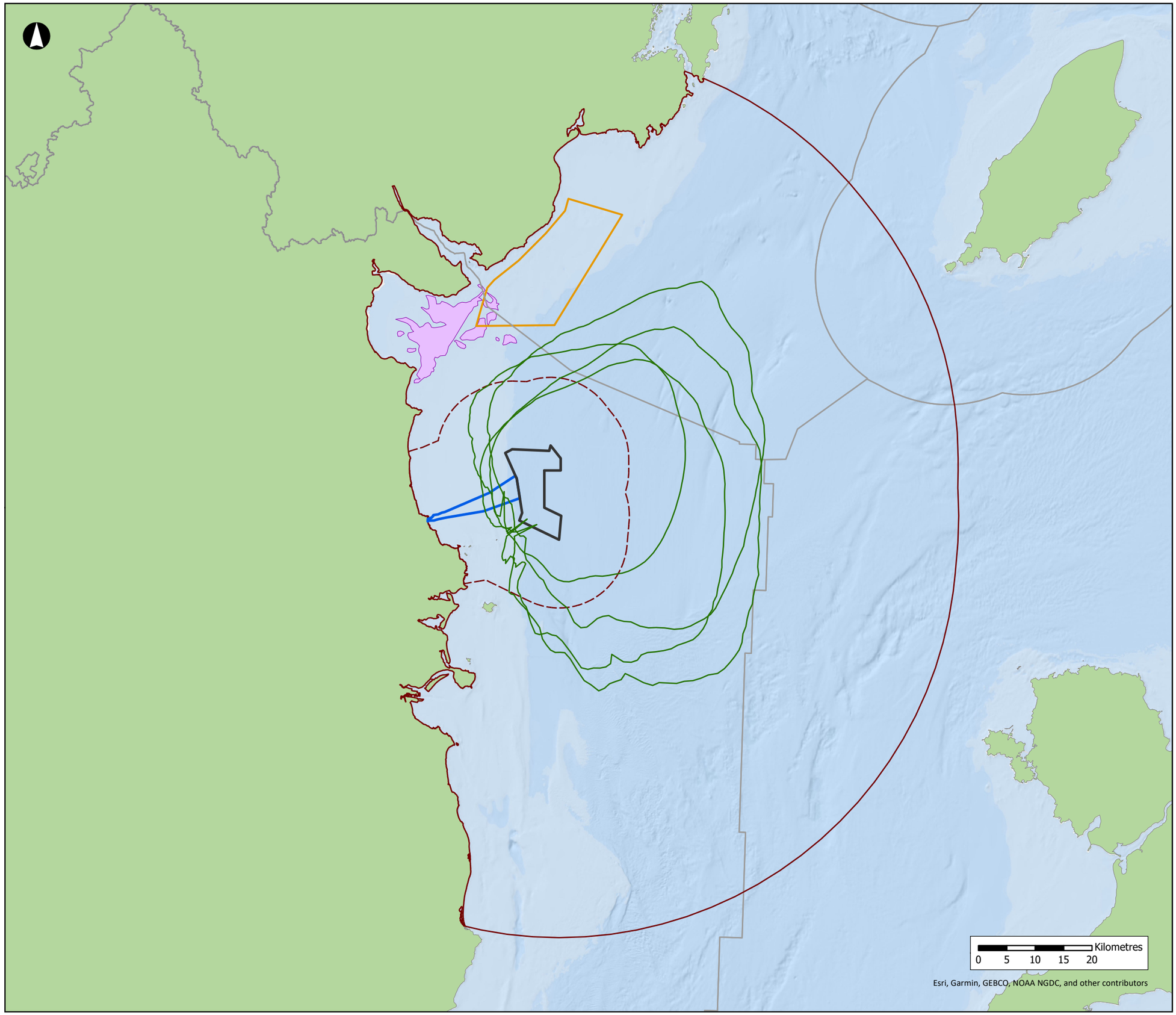
Project

North Irish Sea Array Offshore Wind Farm

Figure Title

Predicted maximum impact ranges for fleeing receptors from piling of monopile foundations within the array area (5,500 kJ)

Job No: 281240	**Datum:** WGS84 **Projection:** UTM30N
Date: May 2024	**Figure No:** 13.15
Scale: 1:650,000 @A3	
Status: Issue	



Array Area
Offshore Export Cable Corridor
Underwater Noise ZoI - 70km
Sedimentary ZoI - 12km
EEZ Boundary
Potential Suitable Herring Spawning Ground (Dundalk Bay) (MPA Advisory Group, 2023)
Traditional Mourne Herring Spawning Area (Dickey-Collas et al., 2001)

Pin Pile SELcum Fleeing
(3000 kJ Hammer Energy)
186dB

NISA
North Irish Sea Array

ARUP GoBe

Project
North Irish Sea Array Offshore Wind Farm

Figure Title
Predicted maximum impact ranges for fleeing receptors from sequential piling of jacket foundations within the array area (3,000 kJ)

Job No: 281240	**Datum:** WGS84 **Projection:** UTM30N
Date: May 2024	**Figure No:**
Scale: 1:650,000 @A3	**13.16**
Status: Issue	