

Harnessing the wind and the sea

Coexistence between commercial fisheries and offshore wind

7th June 2023

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Contents

1. Potential interactions
2. Managing interactions
3. Marine spatial squeeze and coexistence



Potential interactions



Potential interactions



Physical & Technology

- Collision
- Entanglement
- Dropped objects
- Snagging
- Hazard of infrastructure failure
- Post decommissioning risk

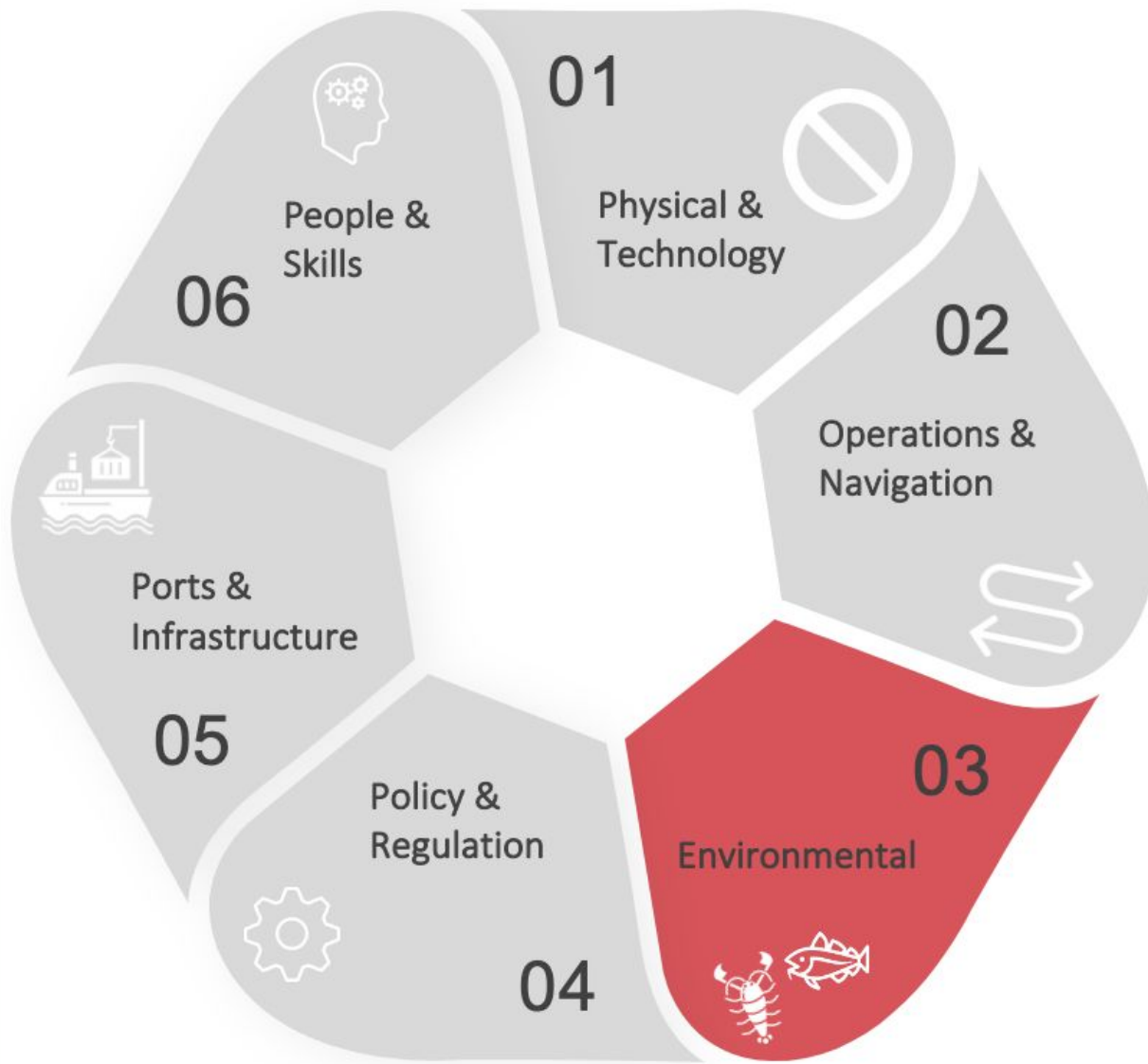
Potential interactions



Operations & Navigation

- Loss of access
- Displacement
- Additional steaming
- Obstruction
- Wet storage
- Maintenance movements
- Safety zones

Potential interactions



Environmental

- Electromagnetic fields (EMF)
- Change in species ecology
- Noise and vibration
- Fish aggregation device effect
- Benthic recovery

Potential interactions



Regulation and Policy

Restricts fishing activities within an offshore wind farm

Potential interactions



Ports & Infrastructure

Competition for facilities
But also new revenue streams

Potential interactions



A teal rectangular box containing a white icon of a head profile with three gears inside. Below the icon is a horizontal white line. Underneath the line, the text 'People & Skills' is written in a bold white font. Below that, the text 'Employment opportunities' is written in a regular white font.



Managing interactions

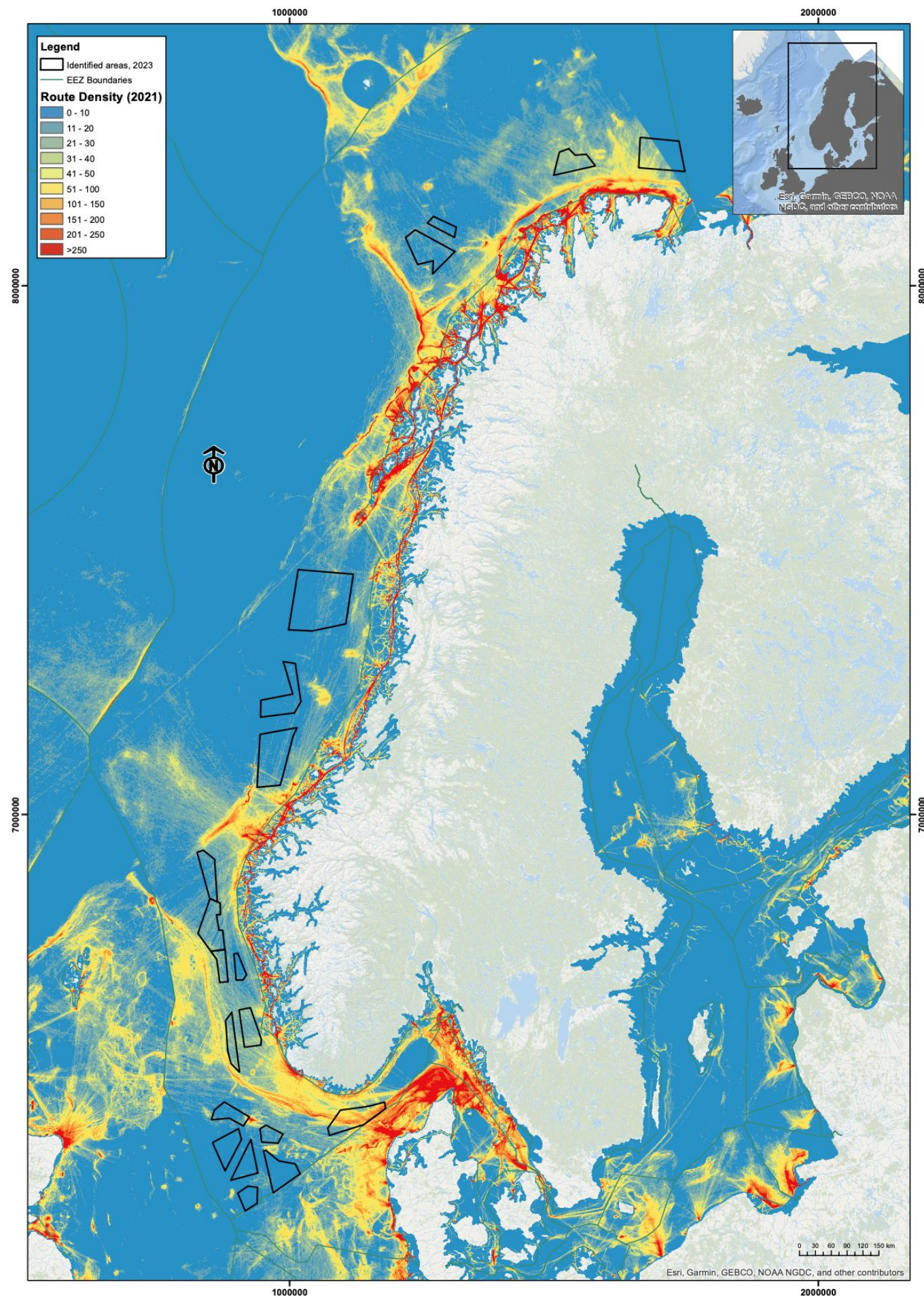
Site selection

- Offshore wind farm site selection and boundary refinement
- Considering fishing activity as a constraint to development
- Generate heat mapping of key fisheries areas for Norway and EU fisheries across all active gear types
- Categorise fisheries constraints areas based on:
 - Knock out
 - Major
 - Moderate
 - Minor
 - Negligible

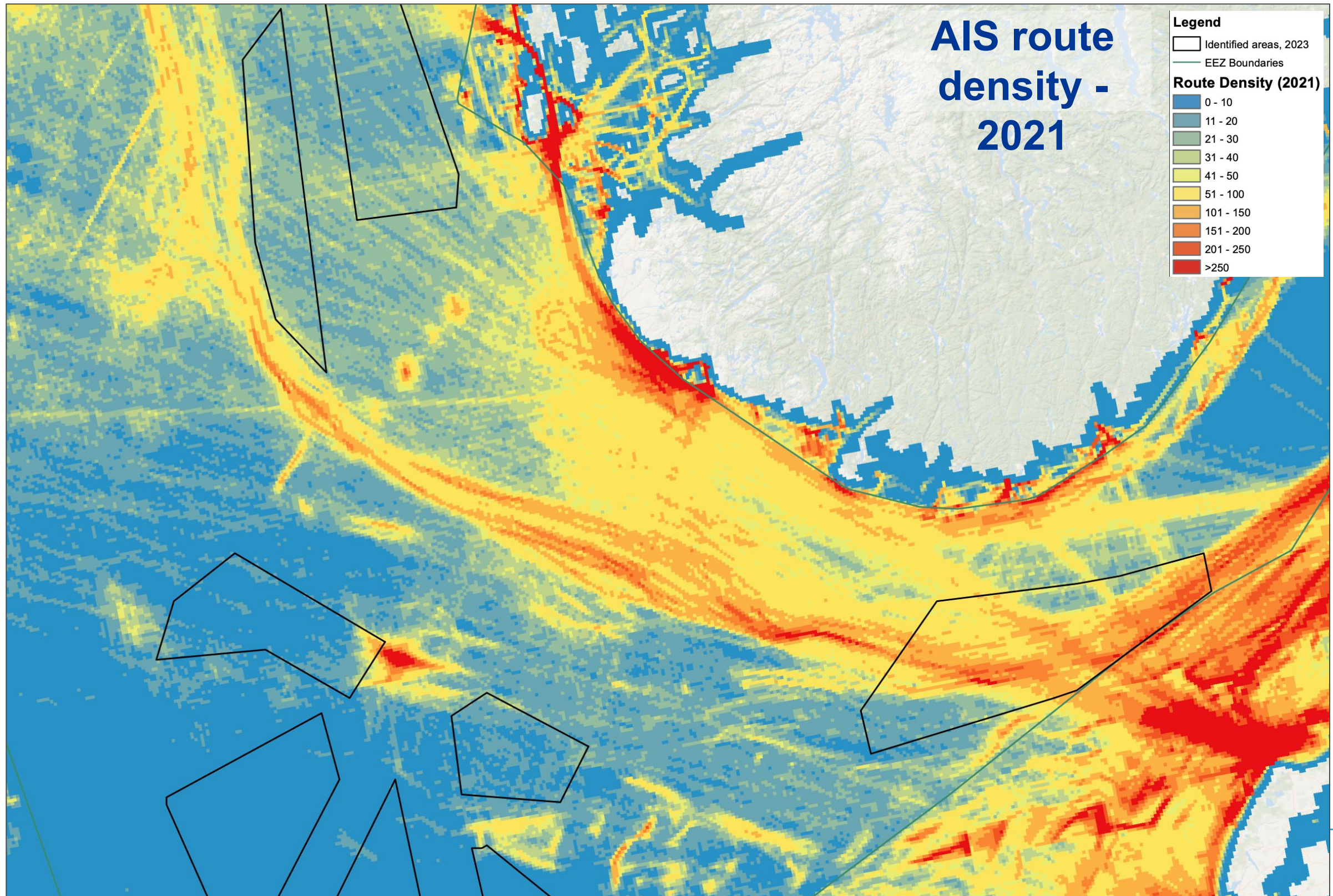


Site selection

- Utilise different data sources to establish baseline
- Automatic Identification System (AIS)
- Route density mapping for fishing vessels
- Number of routes per km² per year

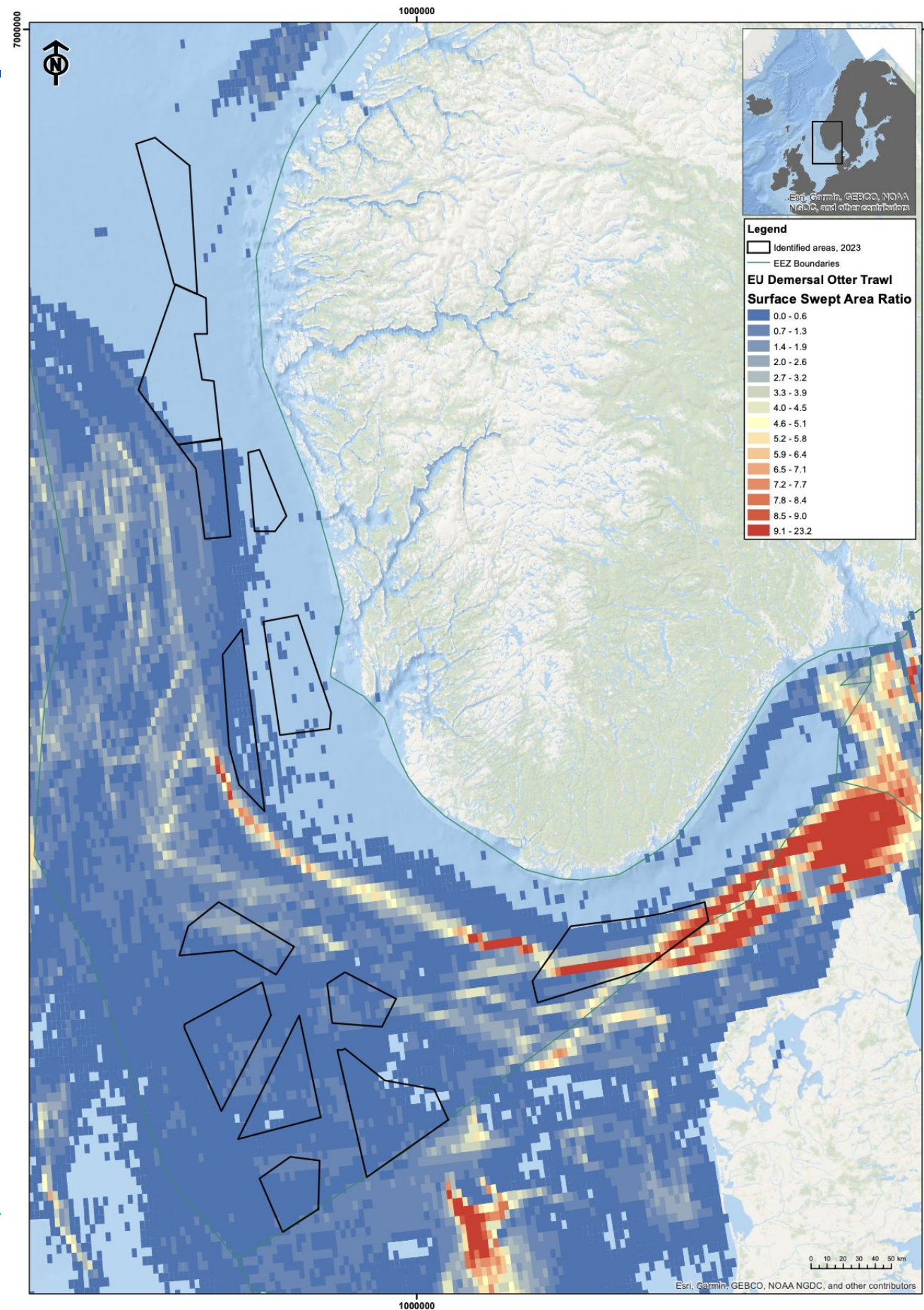


Site selection

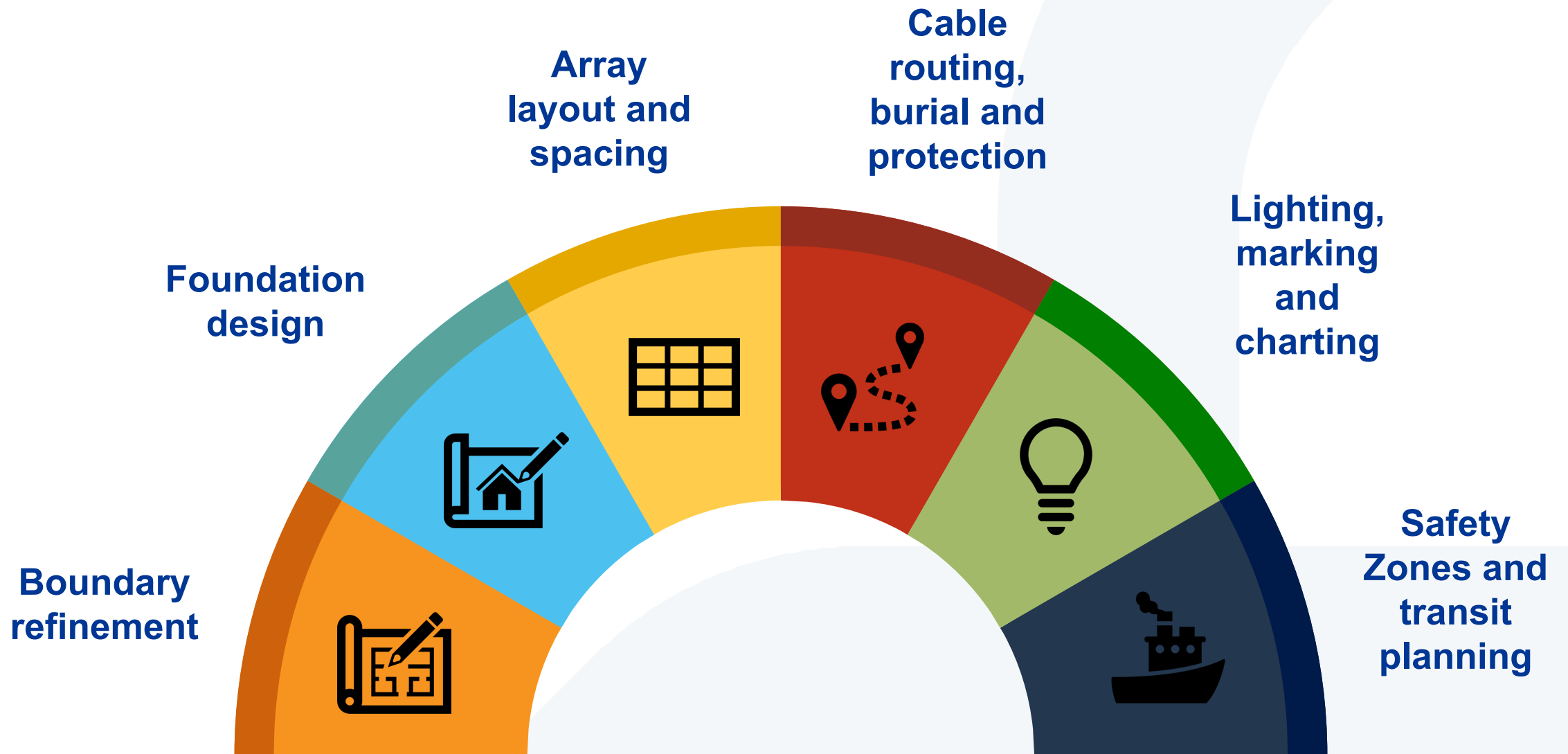


Site selection

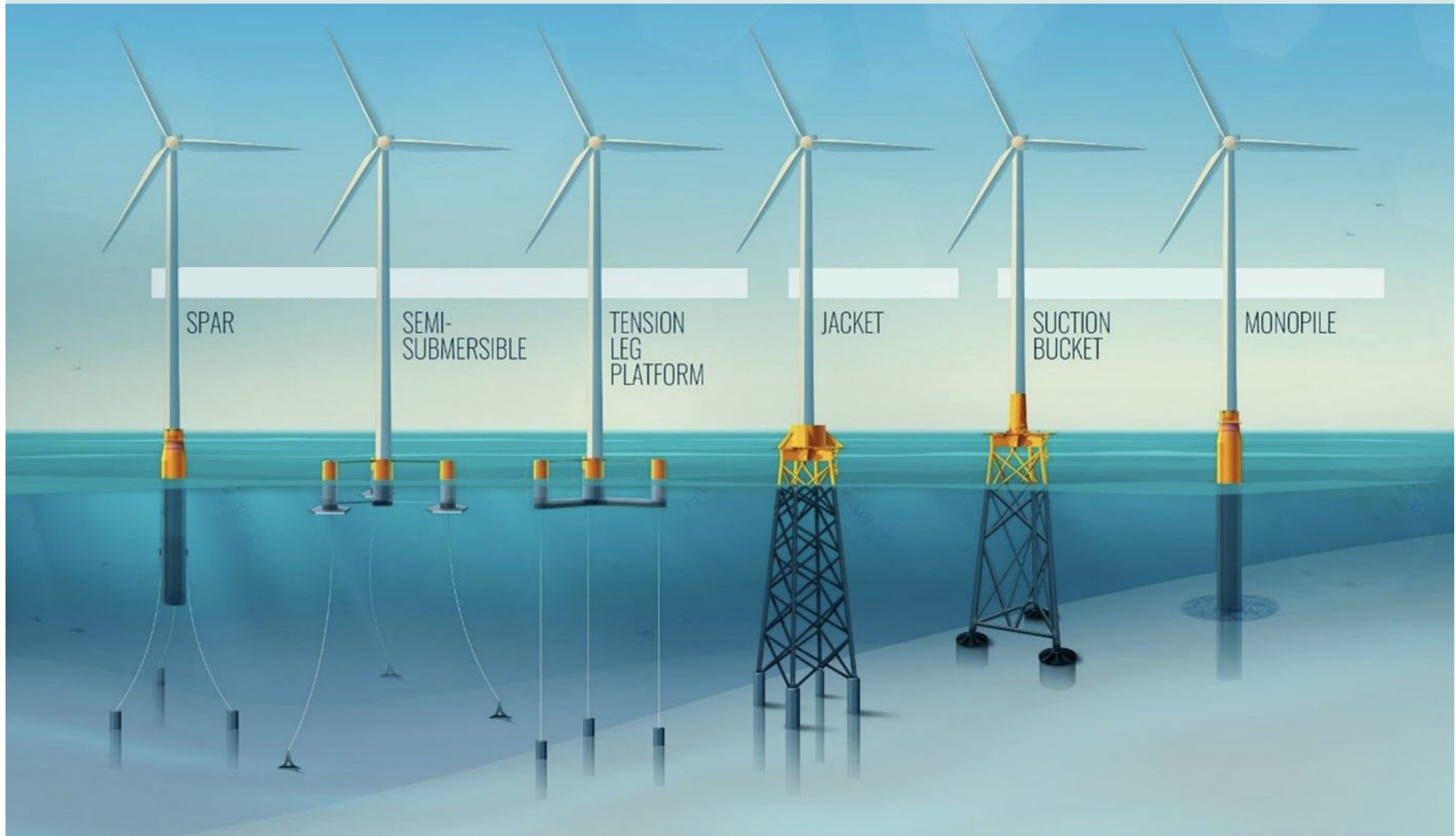
- Vessel Monitoring System (VMS)
 - Demersal Otter Trawl
- Surface Swept Area Ratio
- Proxy for fishing intensity
- EU vessels including Norway and UK
- Vessels 12m and over



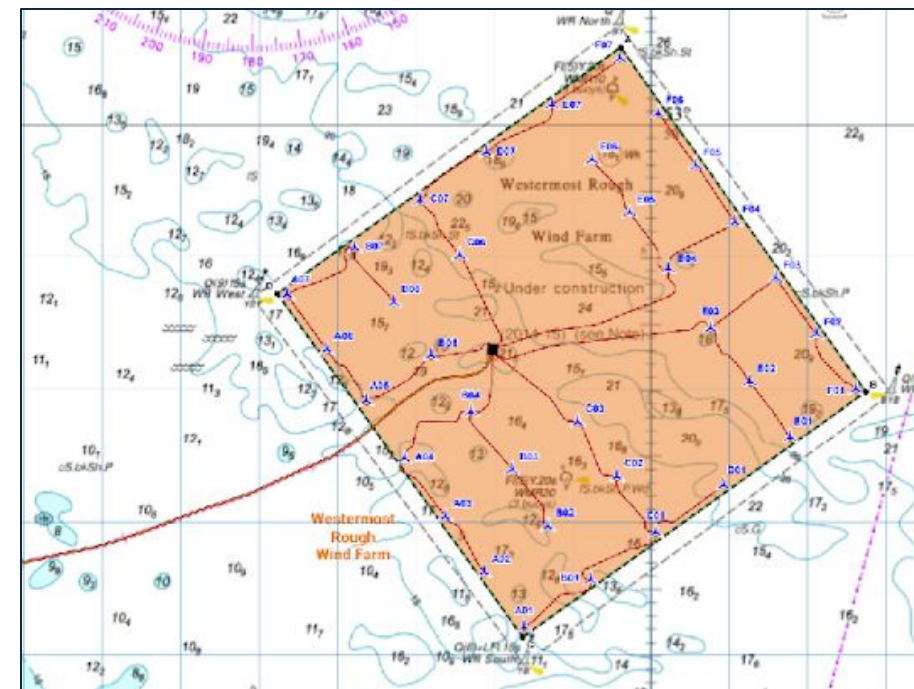
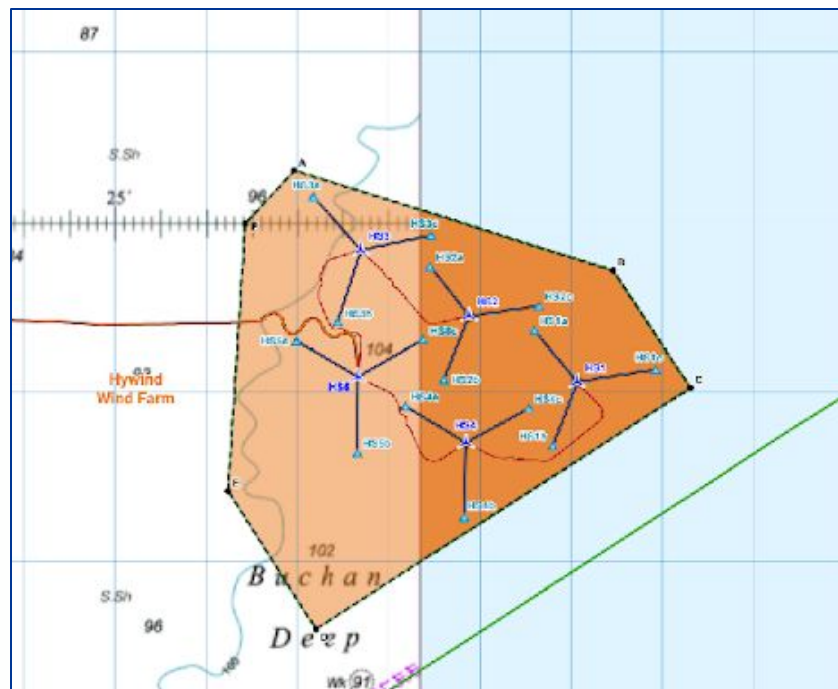
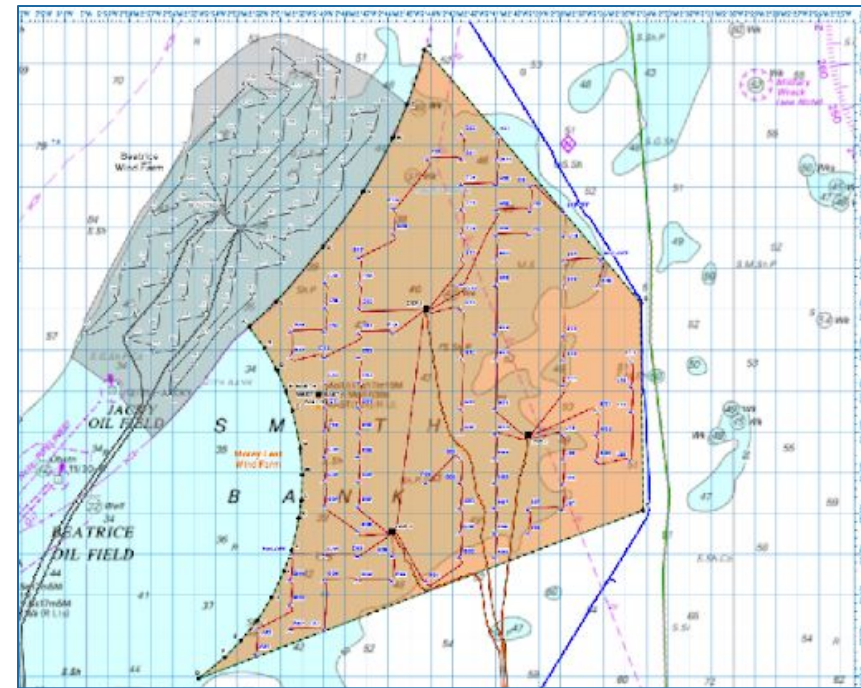
Wind Farm Design



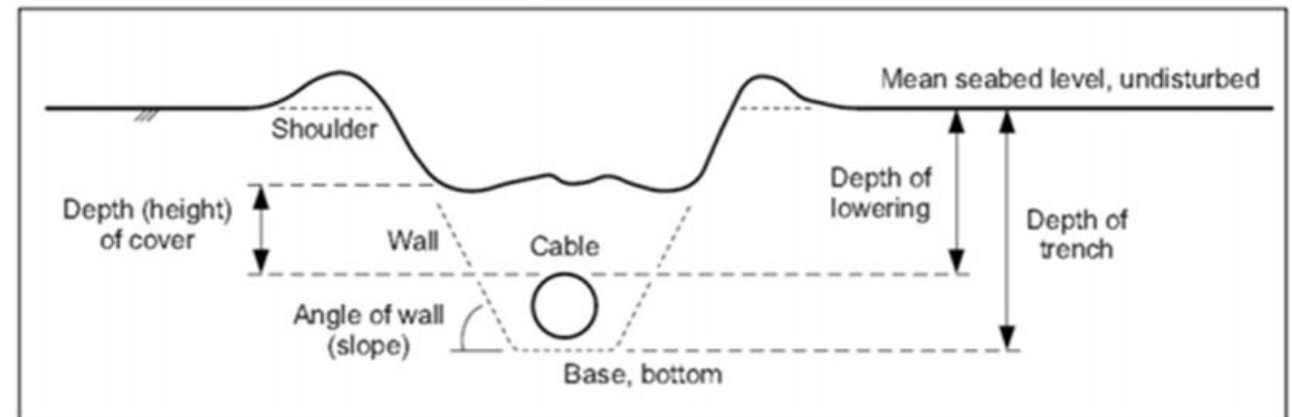
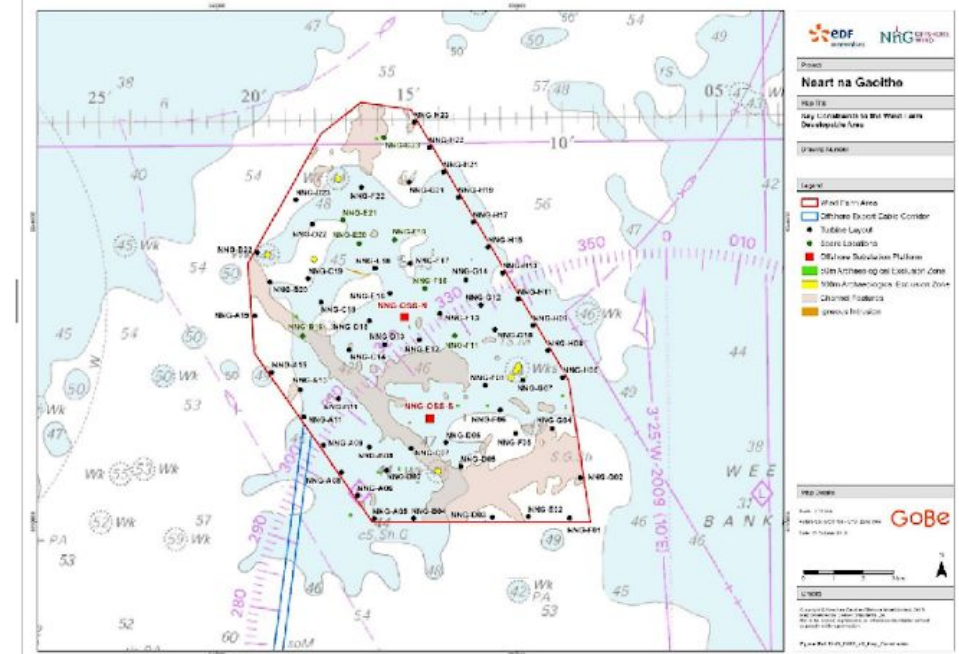
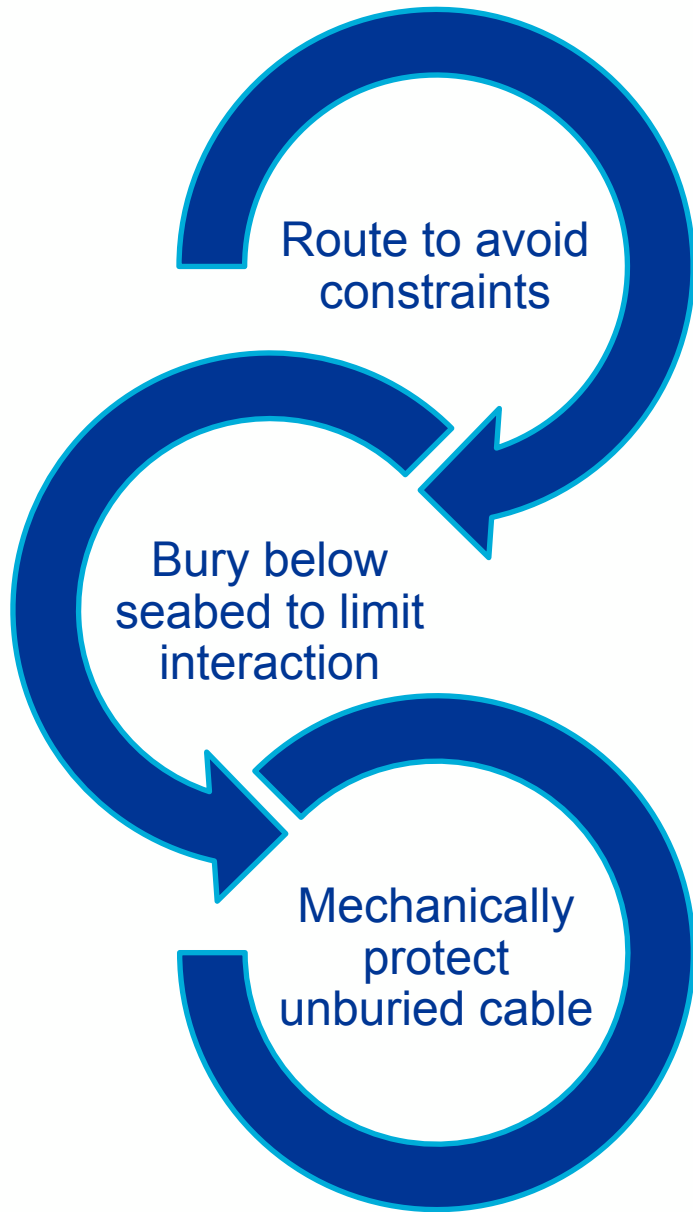
Foundation types



Array layout



Cable routing and burial



Navigational safety considerations

- Vessel transit routes
 - Routes for wind farm traffic
 - Routes for other marine traffic
- Lighting and marking standards
- Safety Zones
- Charting of infrastructure

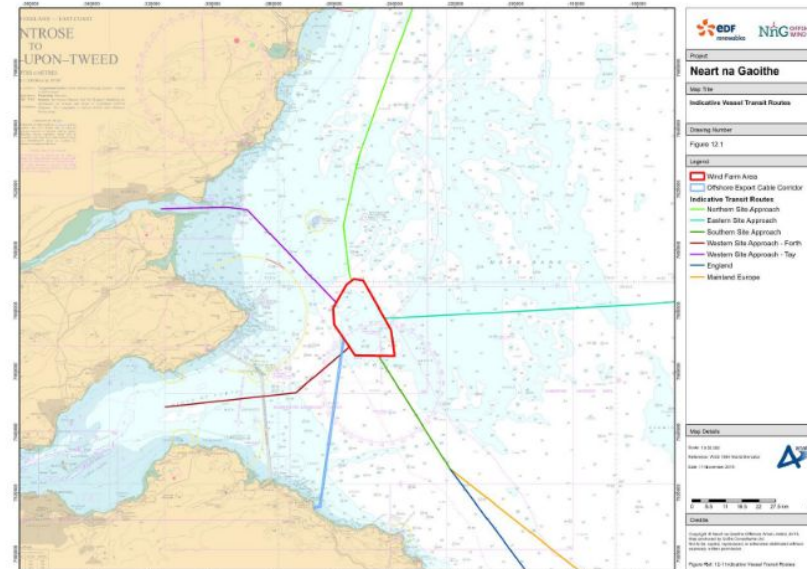
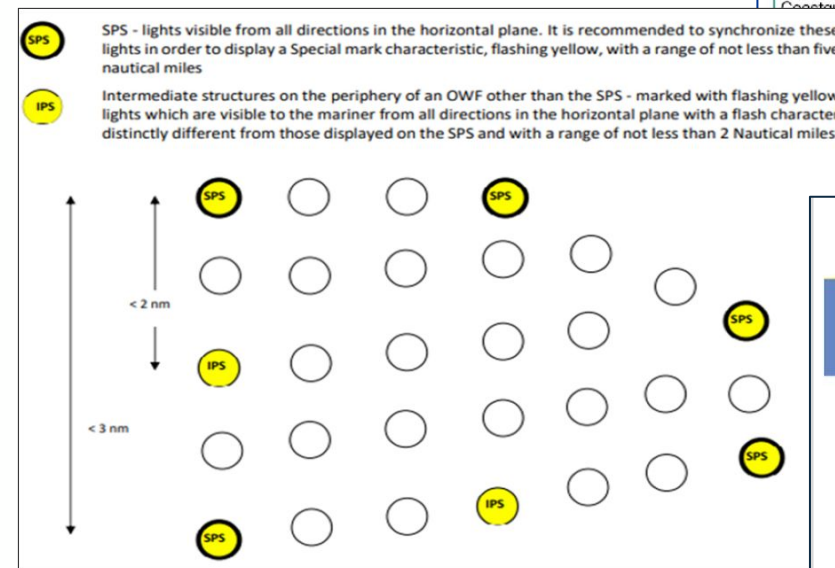


Figure 12-1: Indicative Vessel Transit Routes



MARINE GUIDANCE NOTE
MGN 654 (M+F)

Maritime & Coastguard Agency

Investigation: Offshore Renewable Energy (IREs) - Guidance on UK Navigational Safety and Emergency Response.

Approved Departments: Offshore Renewable Energy Developments, Designs, Port Authorities, Shipowners, Masters, Skippers, Officers, and Sailors.

This Guidance Note 654 should be read in conjunction with the following publications: Maritime Notice (MNF) 1000/11.

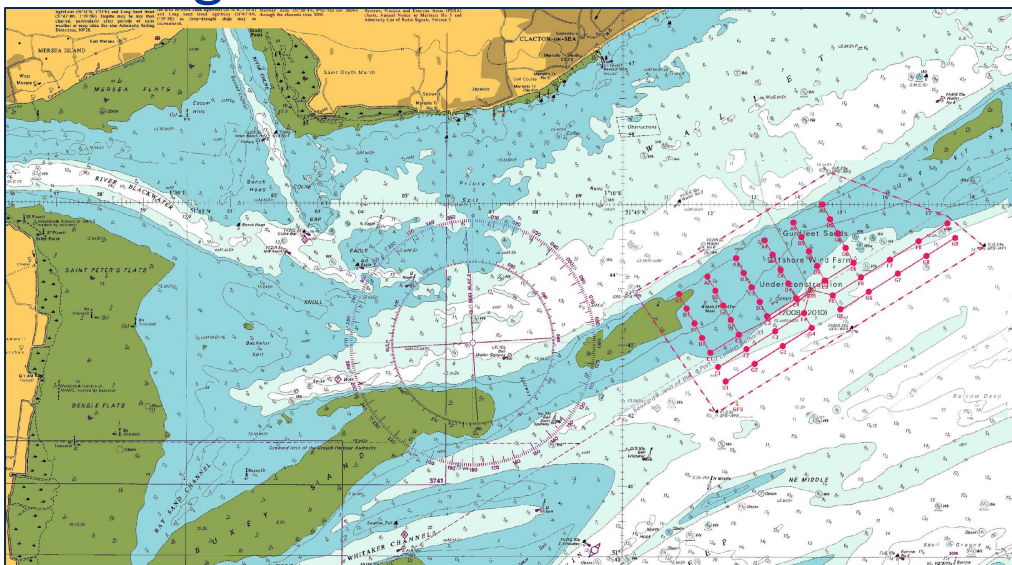
IALA

IALA GUIDELINE

G1162
THE MARKING OF OFFSHORE MAN-MADE STRUCTURES

Edition 1.1
December 2021

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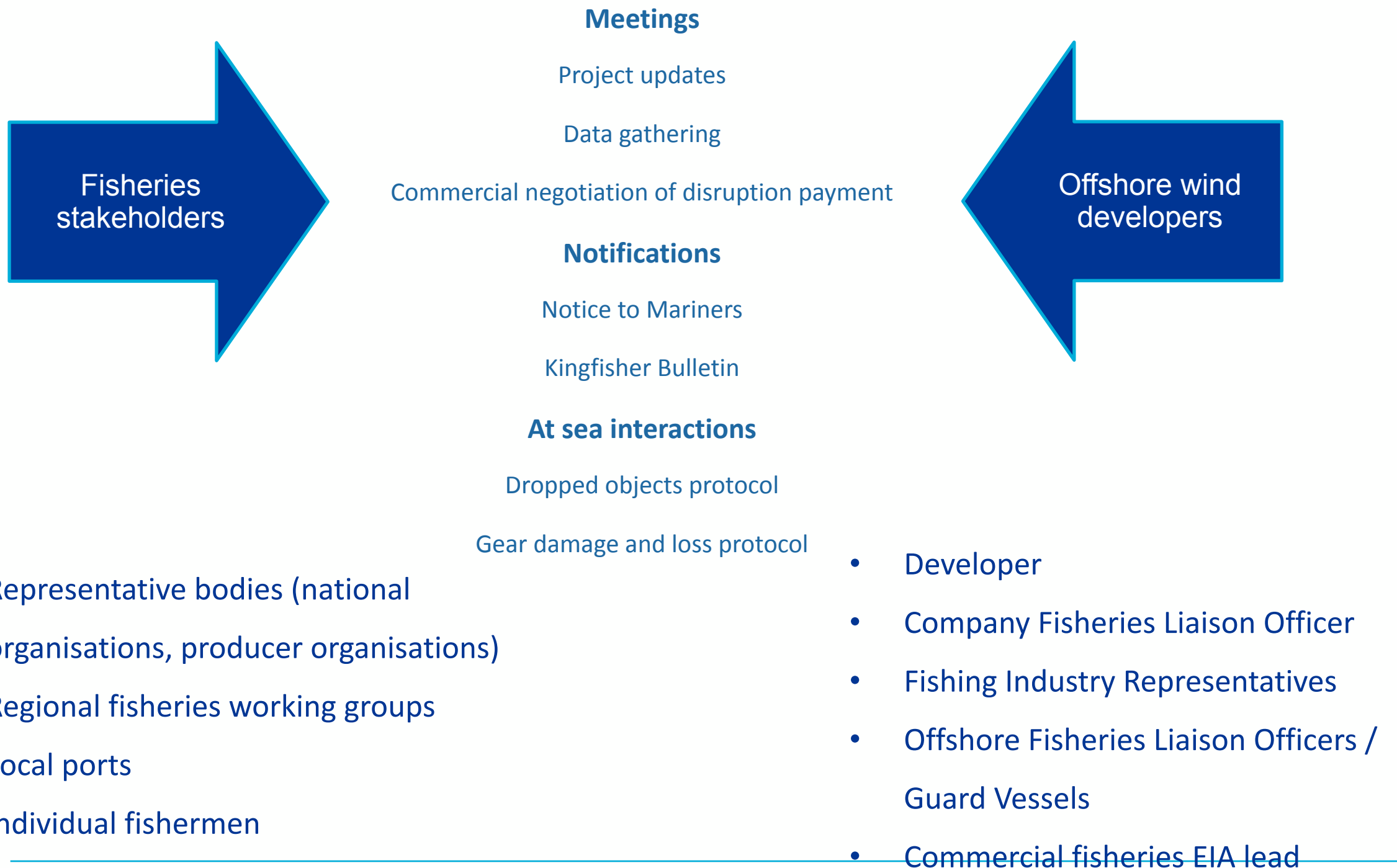
Fisheries liaison – when and why?



- Early engagement is key
- Long-term relationships to be formed
- Importance of an objective approach and tone

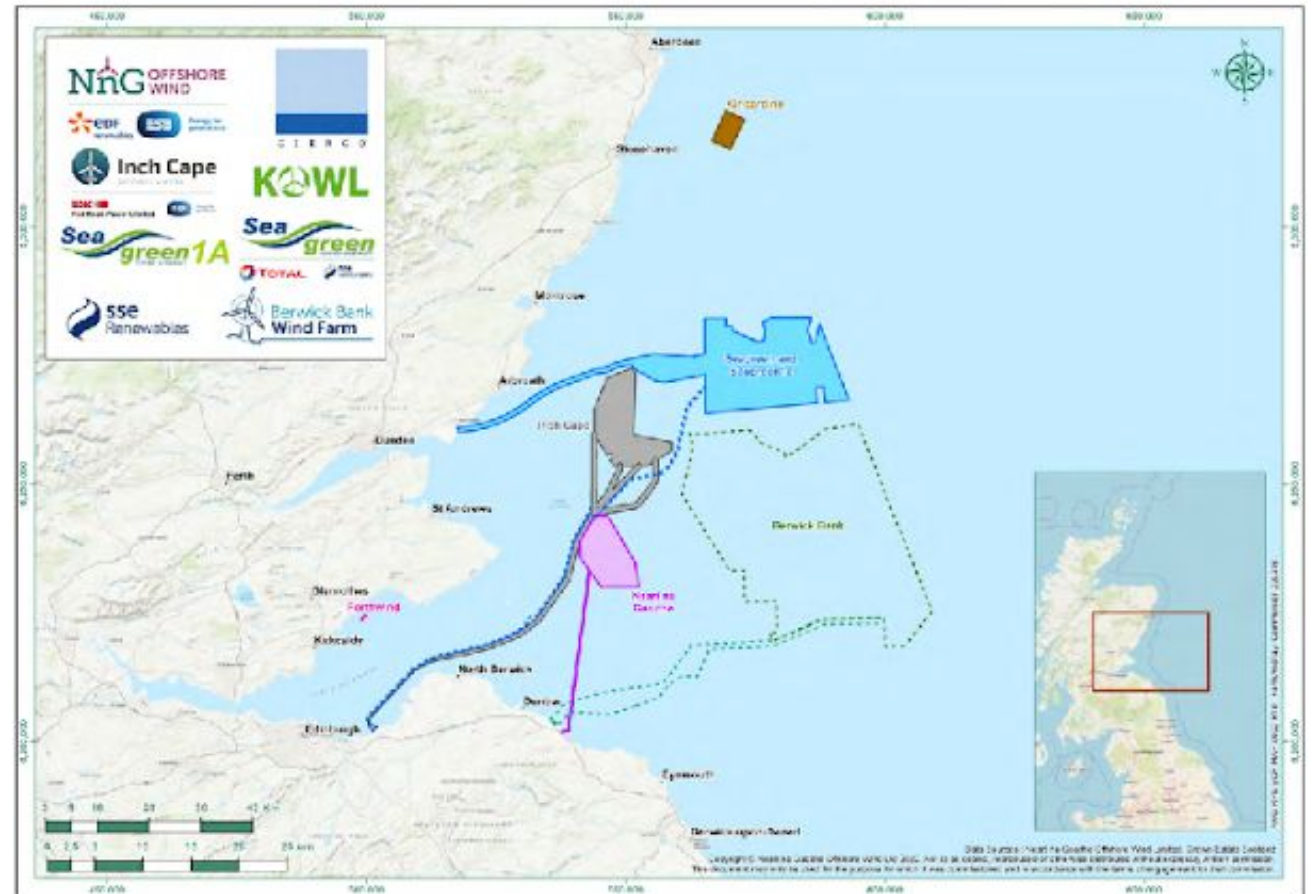


Fisheries liaison – who and how?



Fisheries liaison – who and how?

- Regional Commercial Fisheries Working Groups (CFWGs)
- Forth and Tay / Moray Firth developers, company Fisheries Liaison Officers, CFWG Fishing Industry Representatives, national and regional Associations, Marine Scotland, Marine Scotland Science, Crown Estate Scotland
- Strategic approach, efficient use of resource, transfer of lessons learnt
- Project ethos can differ, not all fisheries stakeholder interests represented



Mitigation mechanisms

How to encourage co-existence?

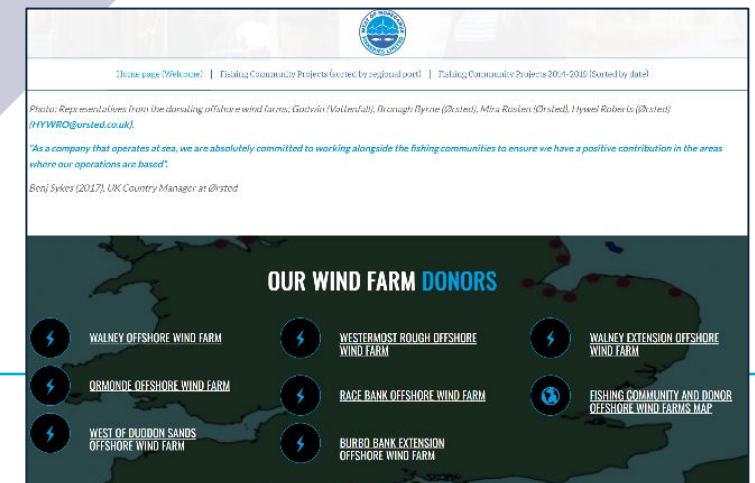
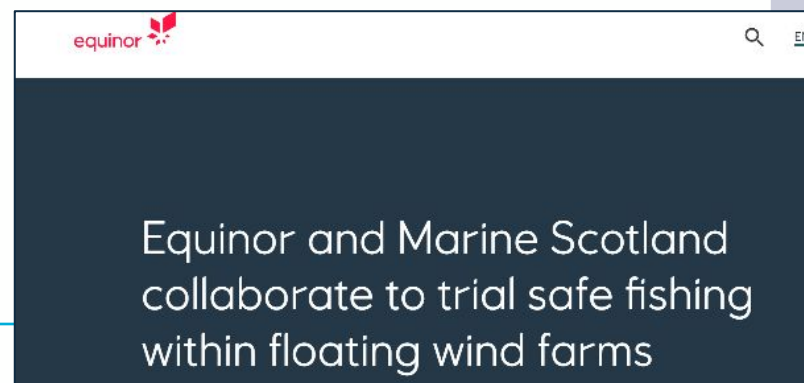
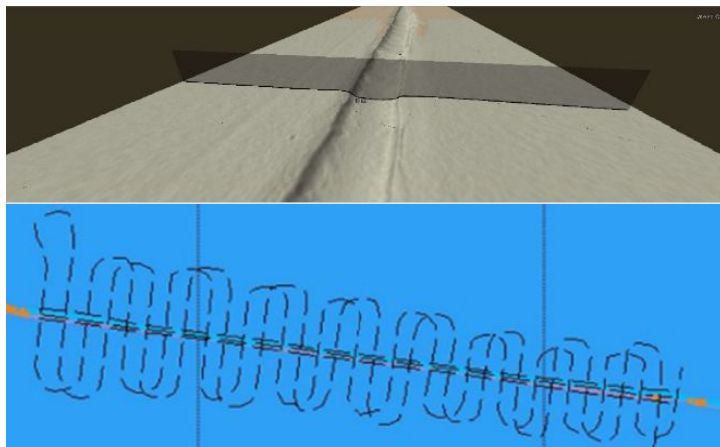
Embedded design measures and liaison

Additional mitigation

Cooperation agreements and payments

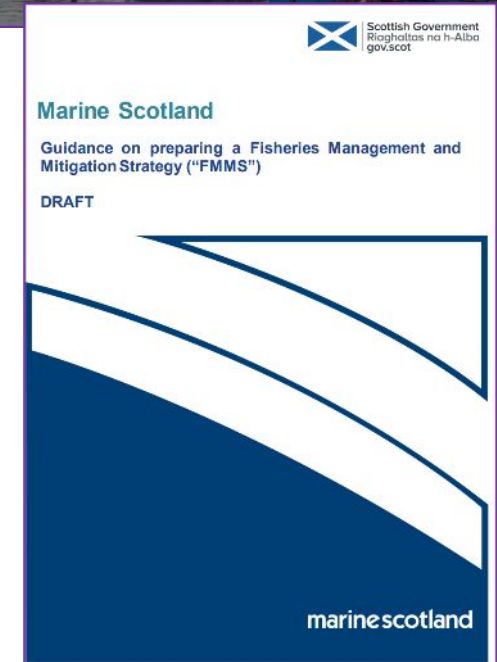
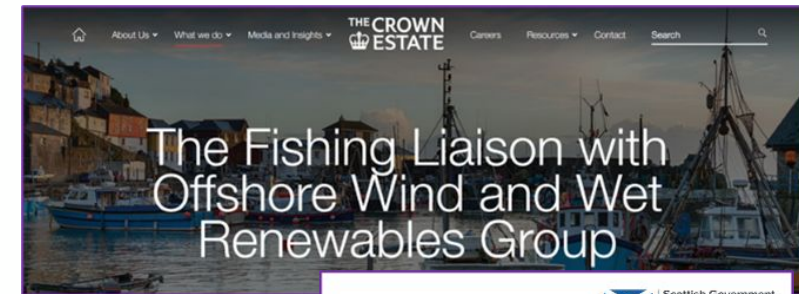
Other considerations

- Overtrawl studies
- Gear/vessel/fishing method modification support
- Use of fishing vessels by projects
- Community funds
- Fisheries and commercial stock monitoring programmes

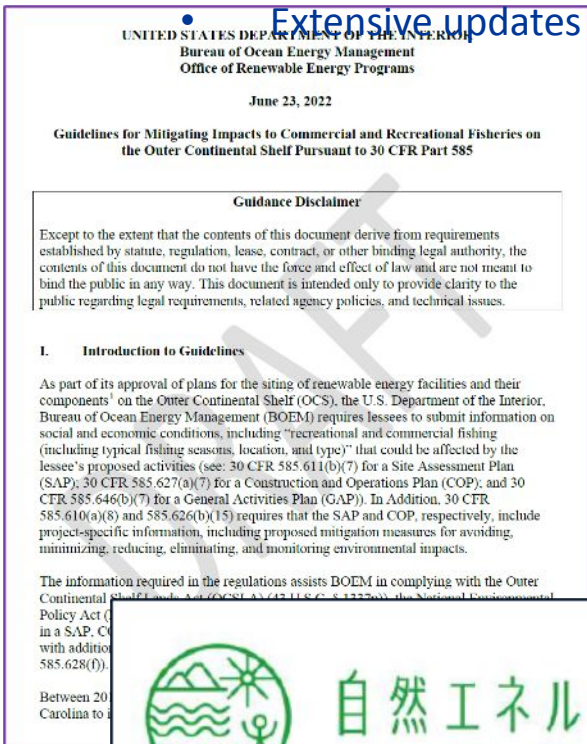


Good practice

- Offshore Norge Recommended practice for fisheries and offshore wind coexistence.
- UK-wide FLOWW guidelines:
 - FLOWW Best Practice Guidance for Offshore Renewables Developments: Recommendations for Fisheries Disruption Settlements and Community Funds (2015)
 - FLOWW Best Practice Guidance for Offshore Renewables Developments: Recommendations for Fisheries Liaison (2014)



- Extensive updates expected 2023



- Scottish Fisheries Management and Mitigation Strategy guidance (2020)
- US BOEM guidance:
 - Guidelines for Mitigating Impacts to Commercial and Recreational Fisheries (2022)
- Japanese Renewable Energy Institute guidance:
 - Proposals for the Coexistence of Offshore Wind with Local Communities and the

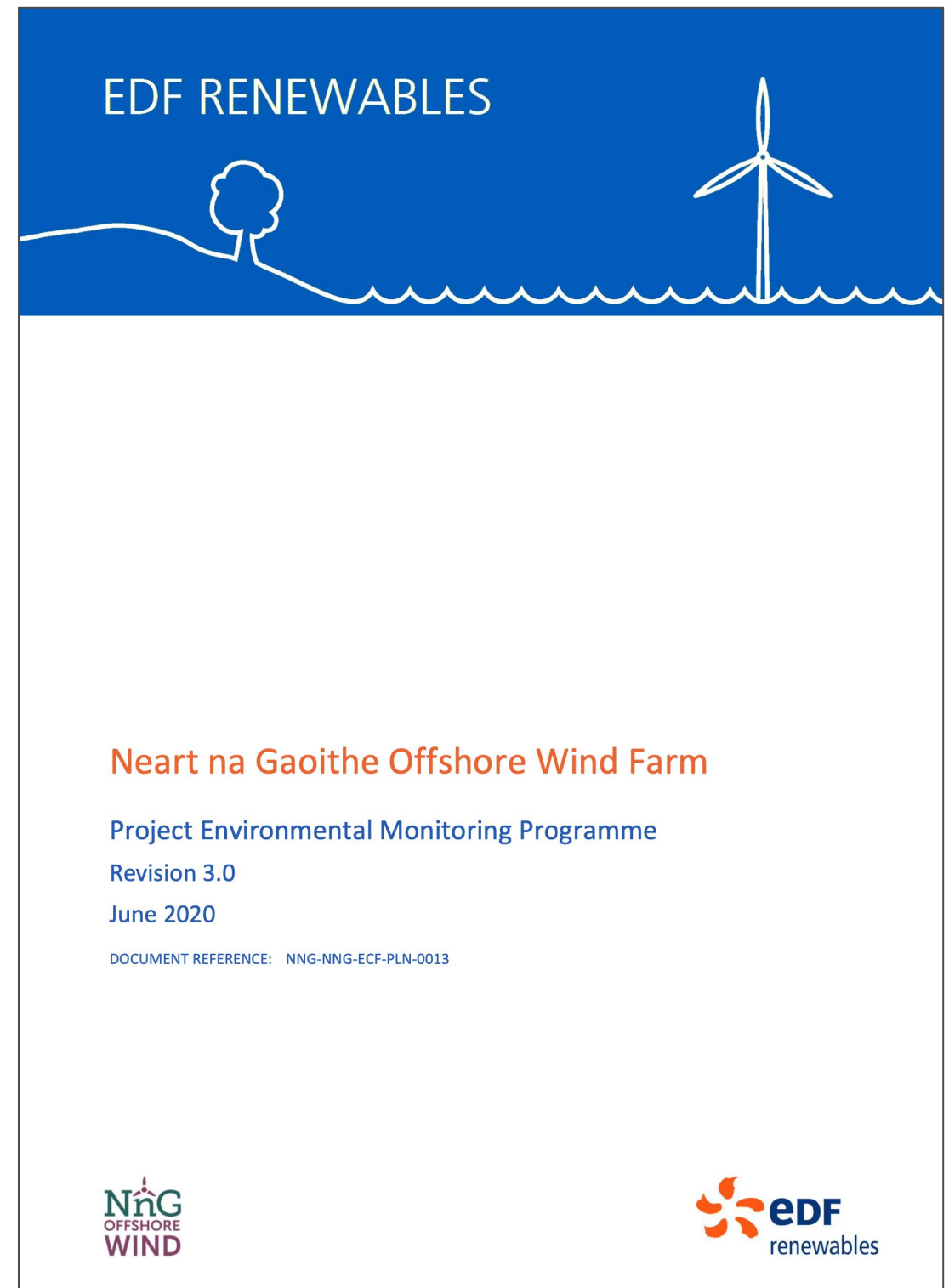




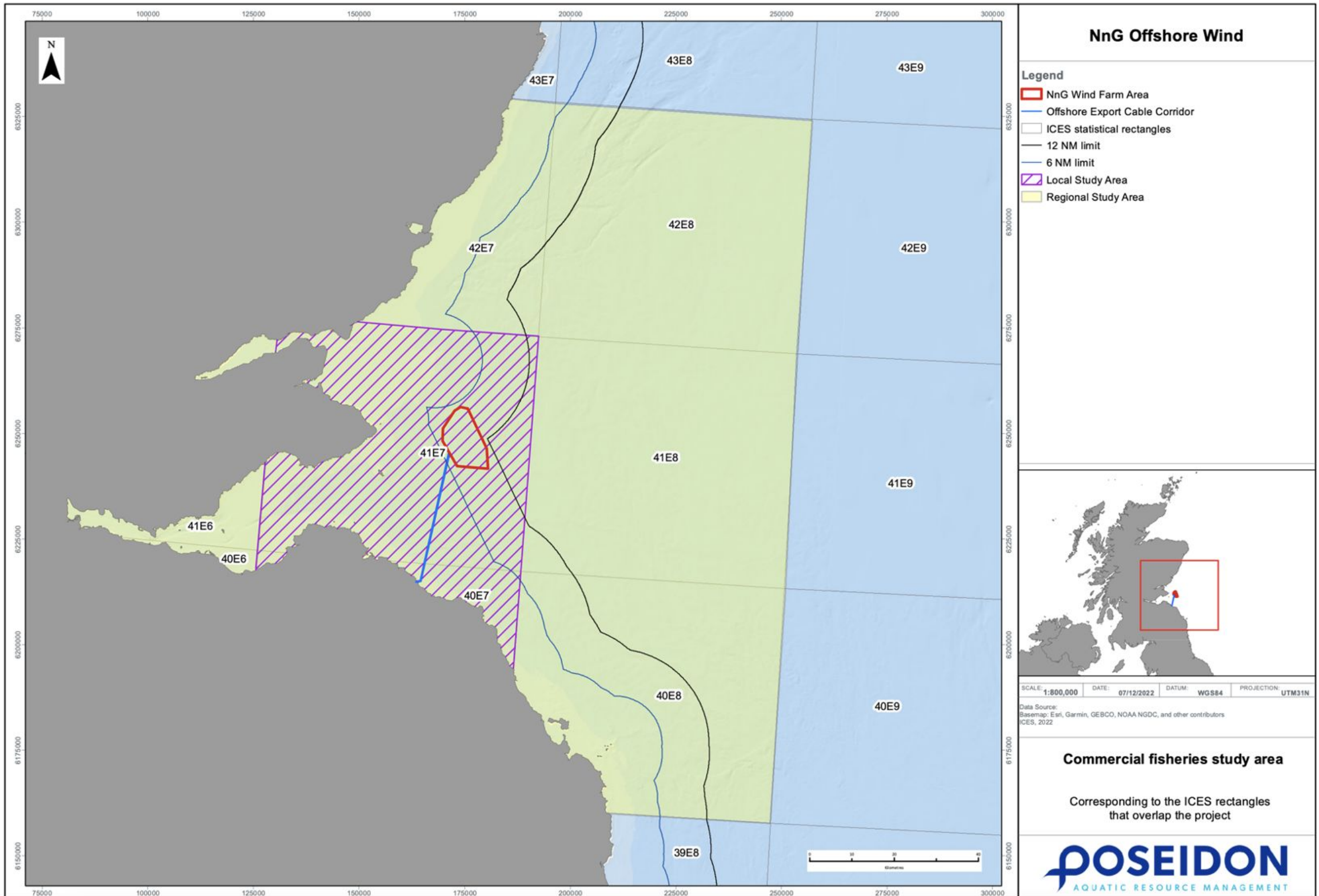
Monitoring, marine squeeze & co-existence

Monitoring effects

- Neart na Gaoithe Offshore Wind Farm Preliminary Environmental Monitoring Report
 - Commercial fisheries monitoring existing data sources
- Time intervals that compliment key project milestones
 - Pre- construction
 - During construction (every 6 months)
 - Post construction



Monitoring effects



Monitoring effects - lobster

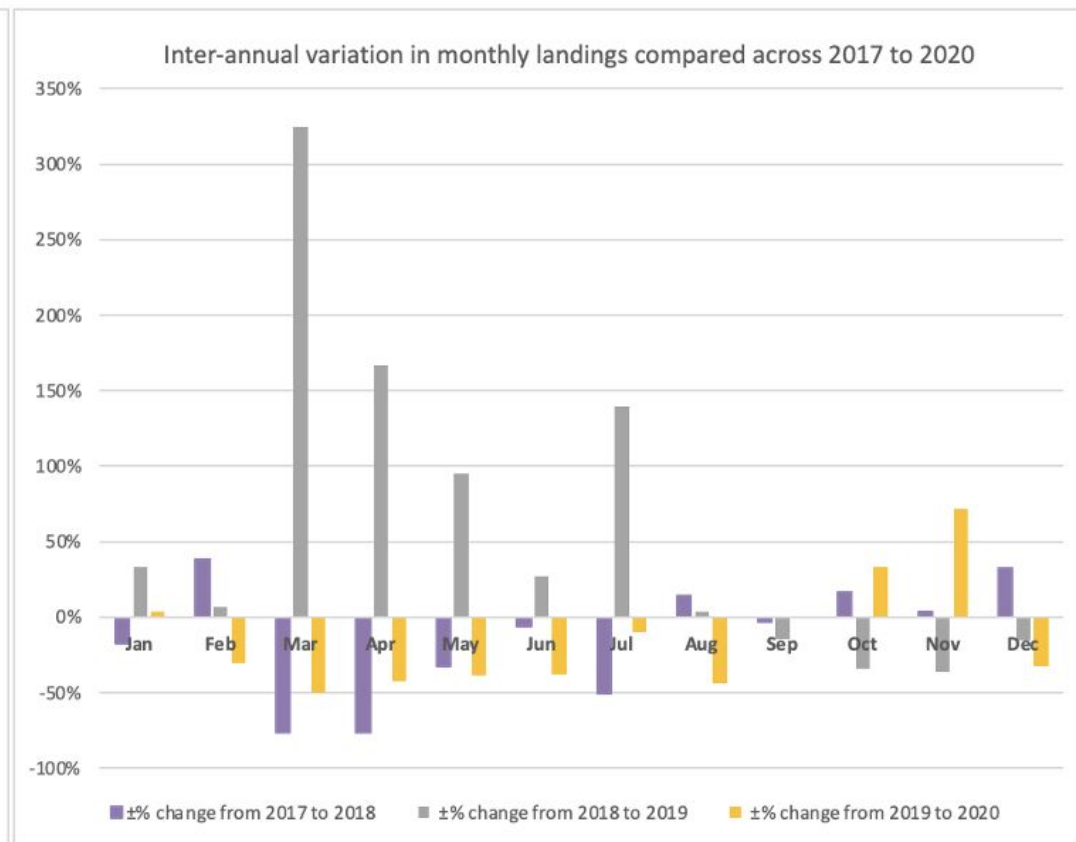
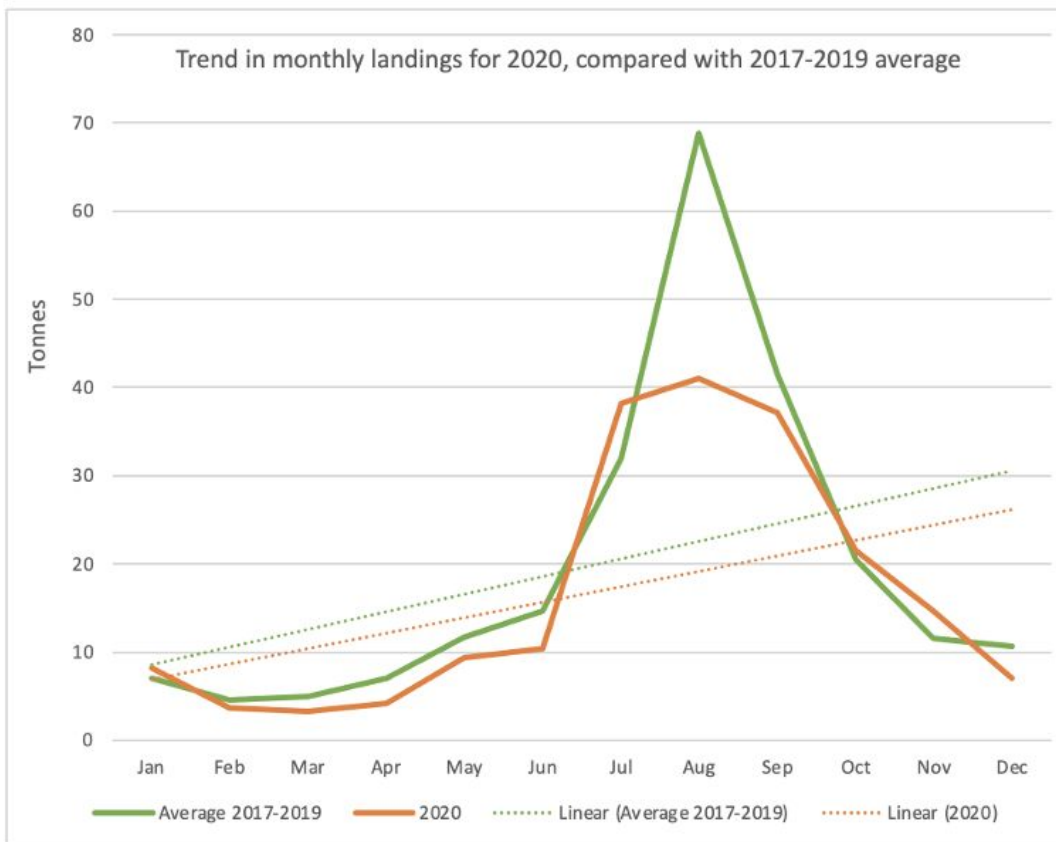
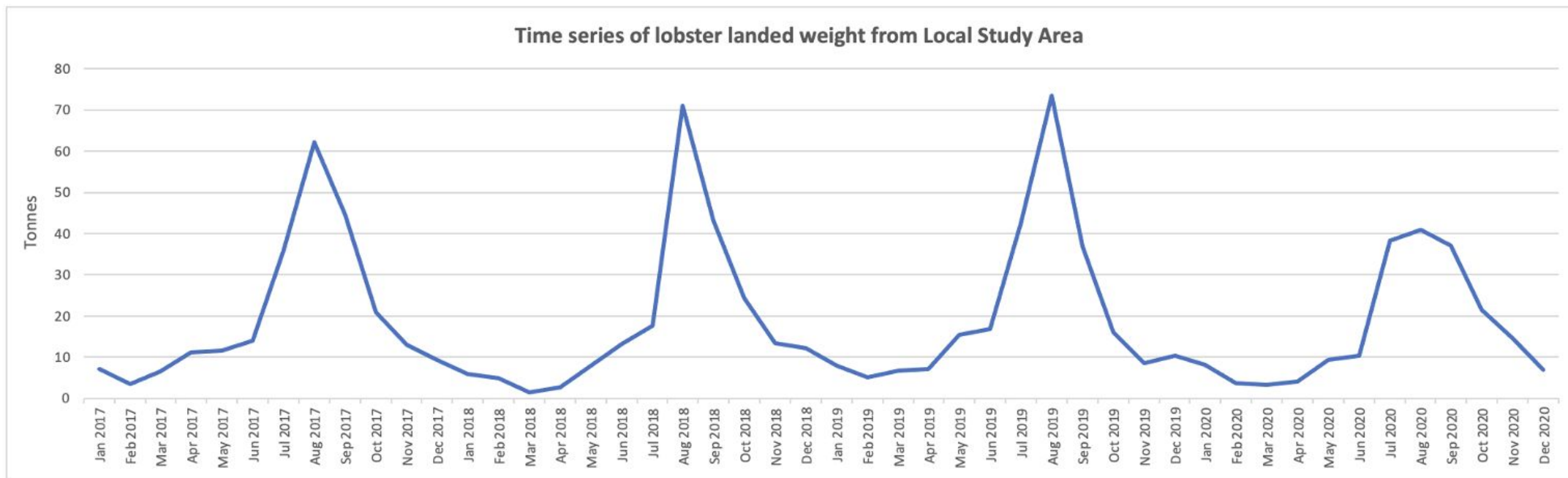
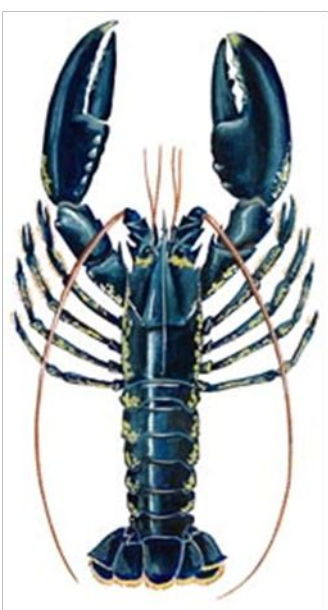


Figure 3.6. Time series, trendlines and inter-annual variation of landed weight (tonnes) of lobster from the local study area (ICES rectangles 40E7 and 41E7) (data source: MMO, 2021)

Monitoring effects - lobster

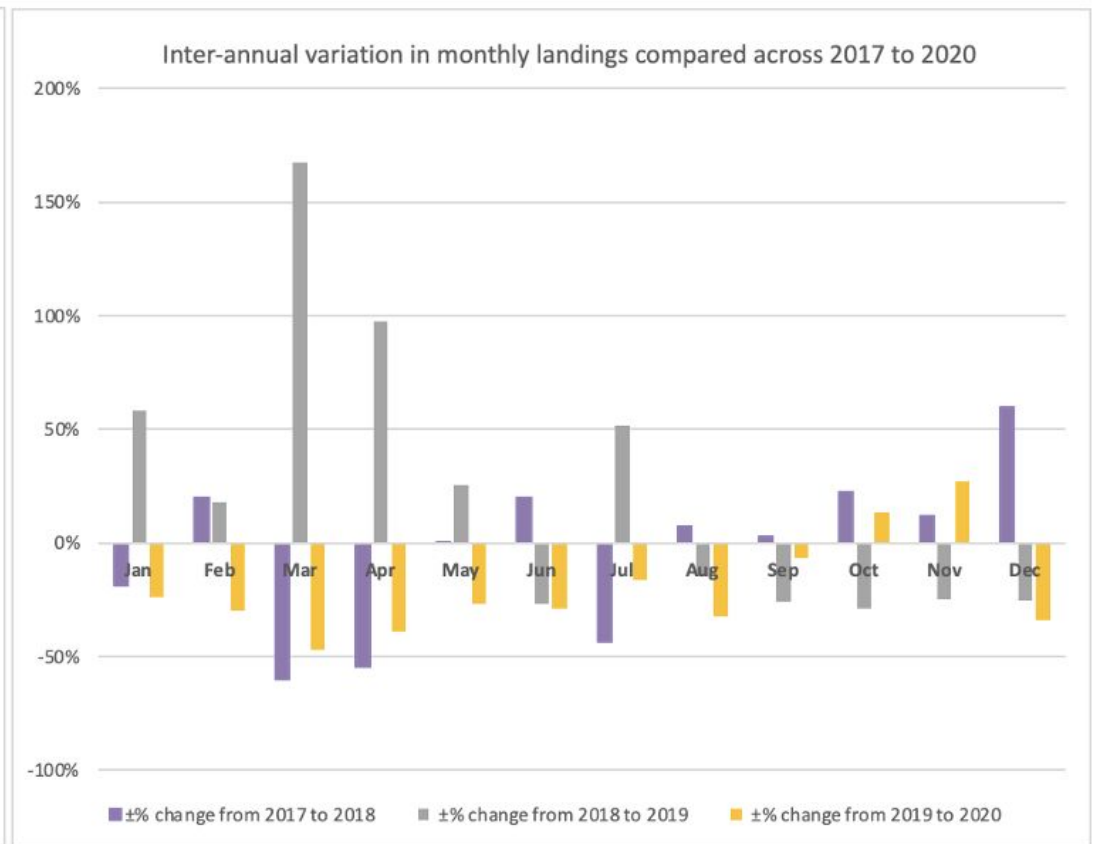
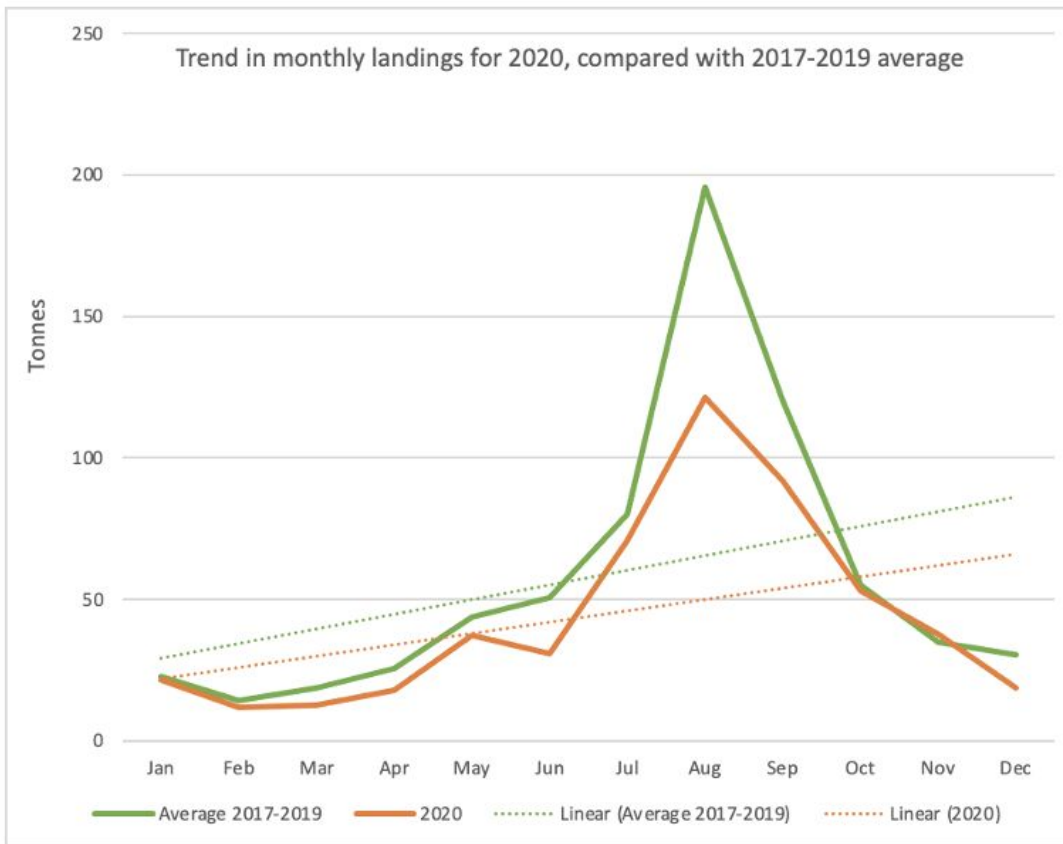
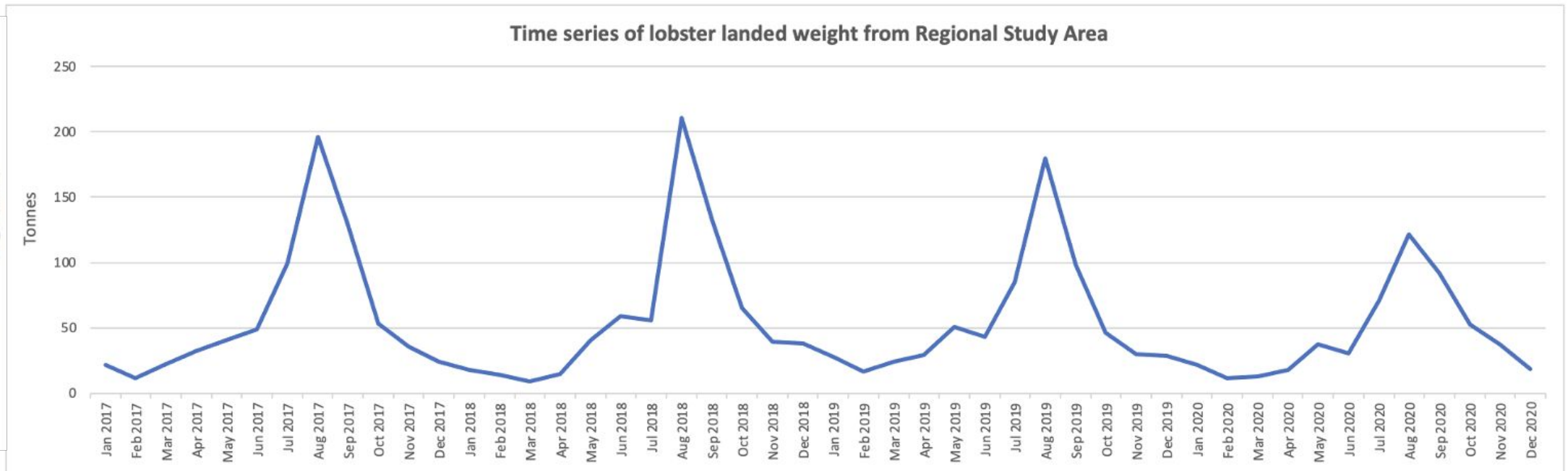
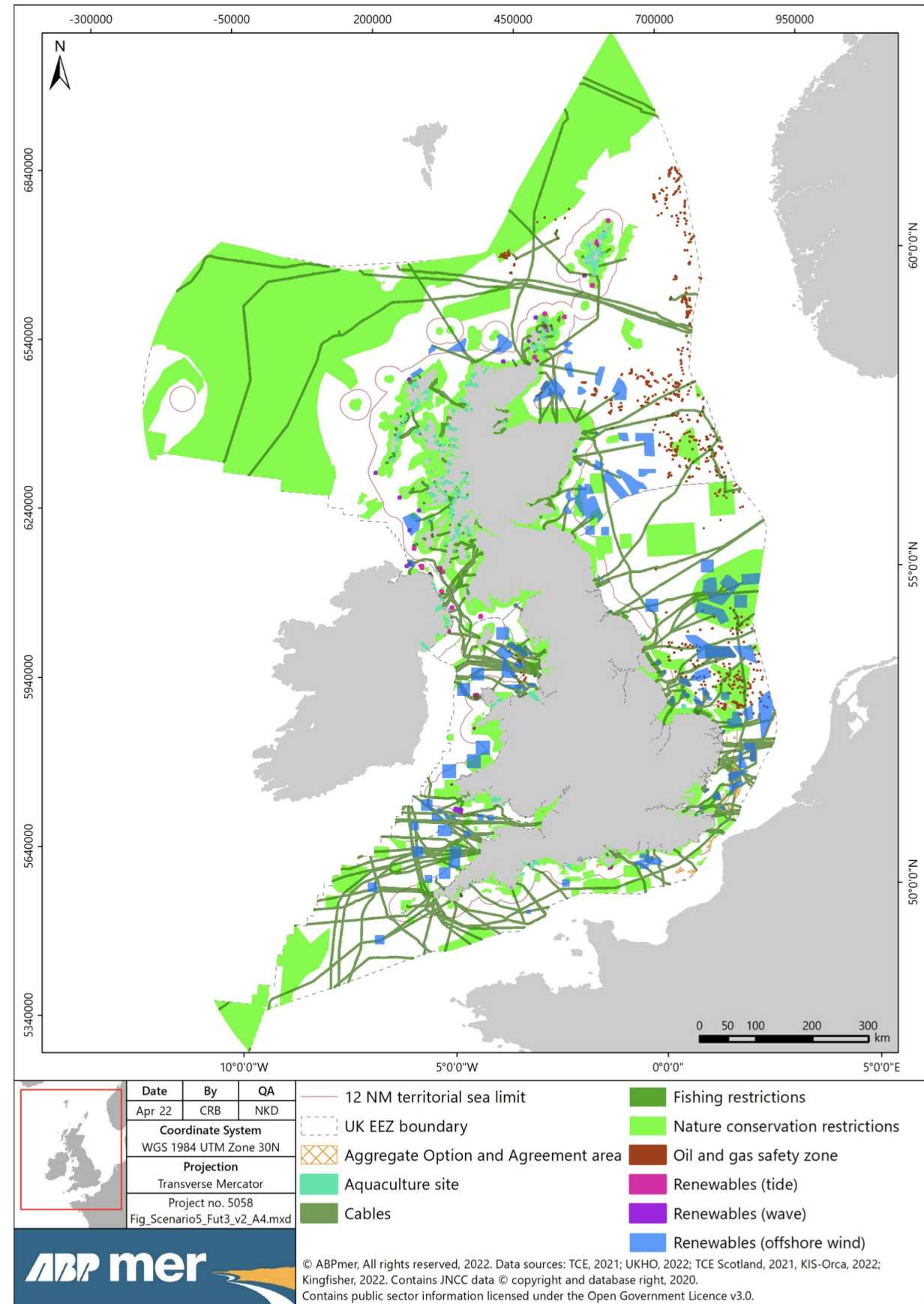
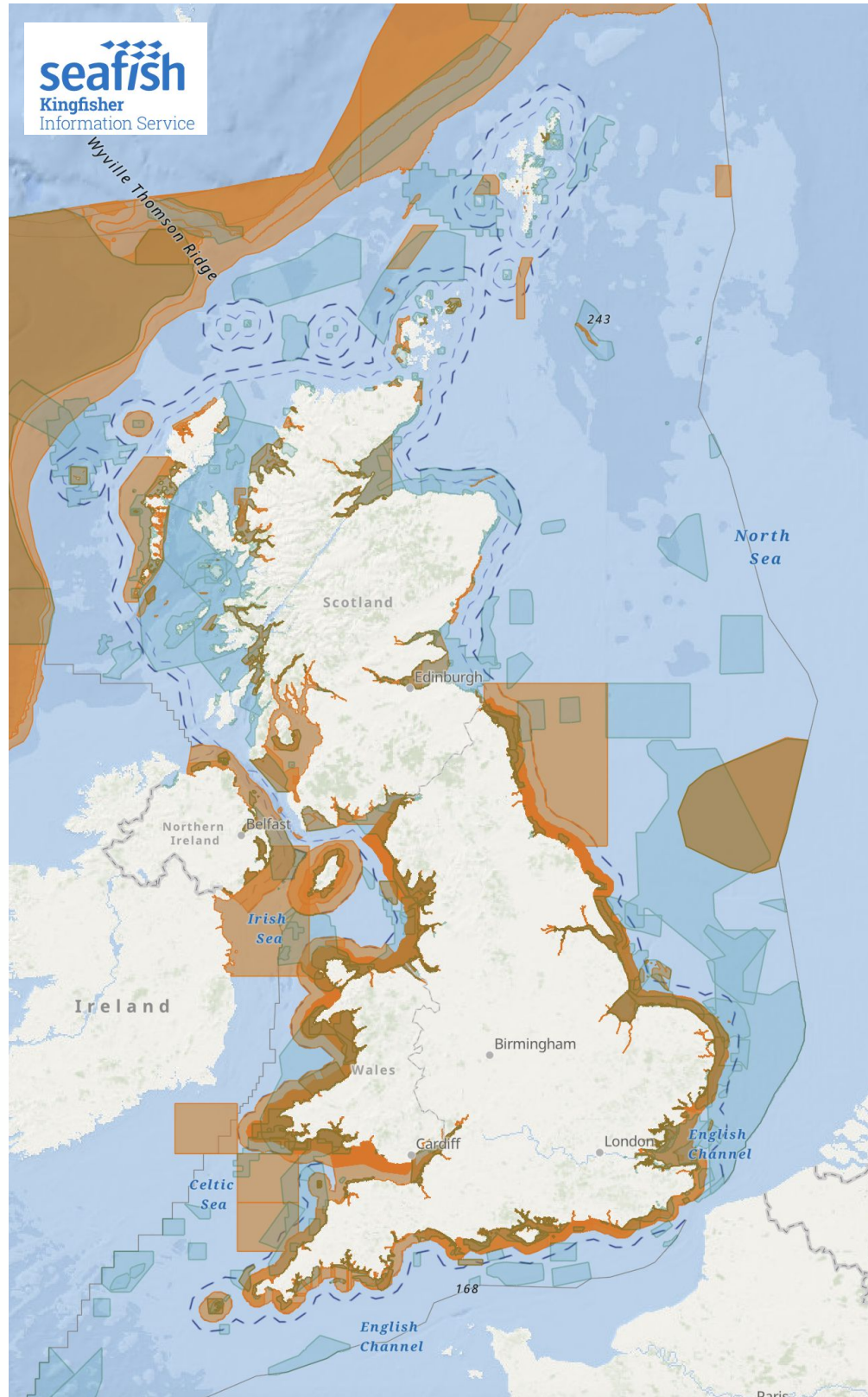


 Figure 3.8. Time series, trendlines and inter-annual variation of landed weight (tonnes) of lobster from the regional study area (ICES rectangles 42E7-E8, 41E6-E8 and 40E6-E8) (data source: MMO, 2021)

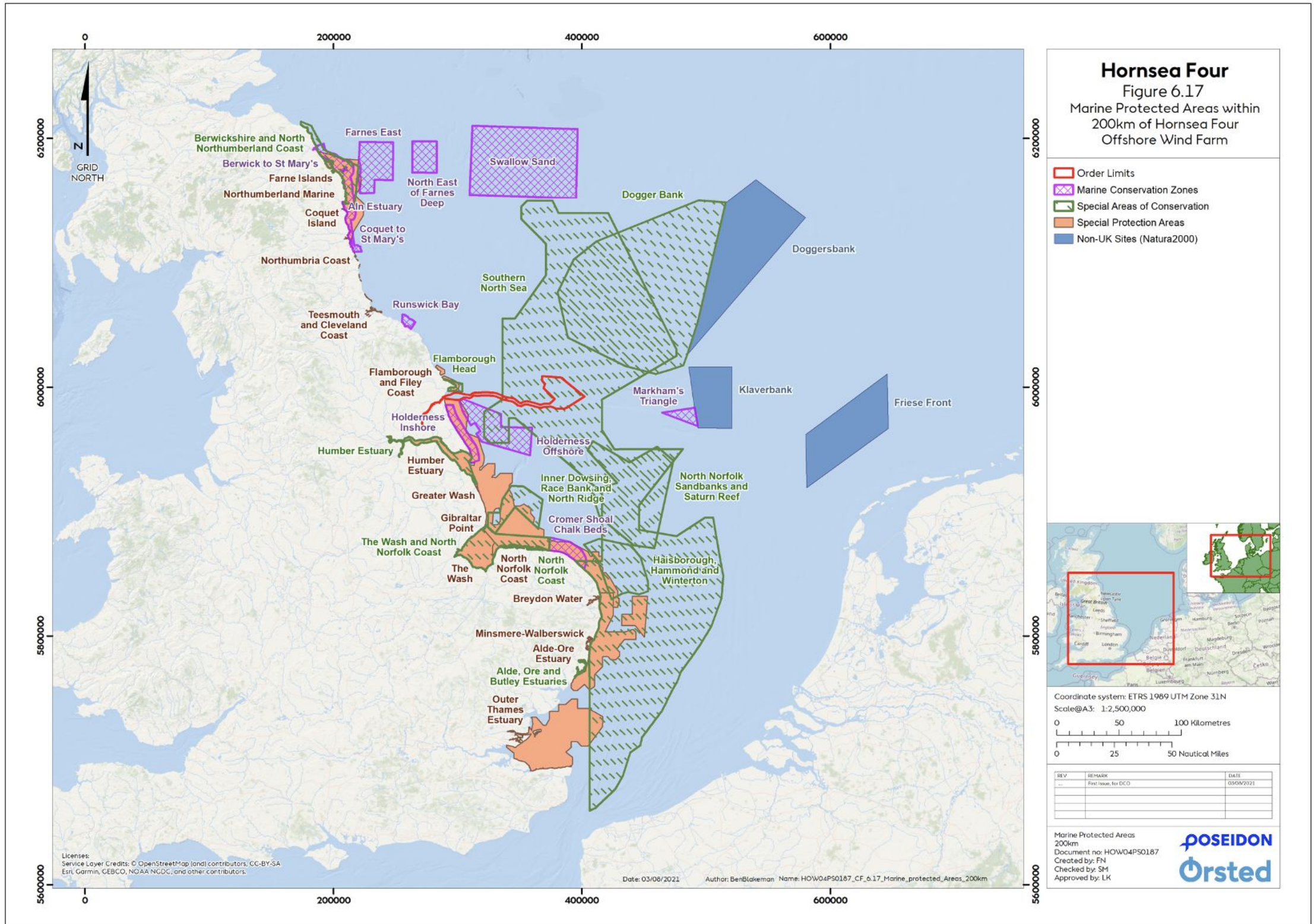
Marine spatial squeeze



Note: Does not include spatial representation of HPMA in Scotland, or new aquaculture sites

Figure ES2. Future 3 scenario, all sectors

Marine spatial squeeze



Co-existence

- Fishing trials within floating offshore wind farm - Hywind
 - 3 gear types
- Co-location with other projects where feasible
 - Aquaculture
 - Protected areas
- Communication, liaison and collaboration.
- Safeguarding key fishing areas.



Thank you

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