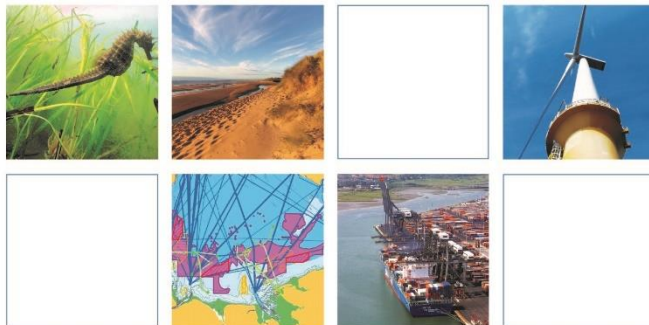


Adaptations to offshore wind farms and fishing methods to enable co-location in UK waters

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Introduction to the Project

- Project aim:
 - To determine if there are **potential technical or methodological adaptations** to better enable co-location of OWFs (fixed and floating) with fishing activities, and
 - To evaluate the **real-world feasibility and viability** of implementing such adaptations
- Legal situation vs reality
- Focus on adaptations employed during consenting phase, which could facilitate continued fishing within arrays during the operational lifespan of an OWF

Co-location was defined as
two (or more) activities being actively managed together, whilst sharing (or occupying) the same spatial area

Scope

Array areas only
(not cable routes)

Lease areas already defined
(focus on consenting phase,
not site-selection)

Methodology and Approach

Literature Review

- OWF technologies
- Fishing methods
- Potential interactions
- Adaptations (OWF and Fisheries)

Stakeholder Engagement

- Interviews
- Fisheries and OWF workshops
- Explore interactions and adaptations in more detail
- Feasibility and viability of options

Analysis and Synthesis

- Semi-quantitative, qualitative and thematic assessments
- Overall confidence for feasibility and viability
- Scoring (low/med/high) for supporting info, risks/benefits, level of support

Interactions and Adaptations

Principal interactions between OWFs and fishing activities

Entanglement of fishing gear (mobile and static) with OWF installations

Collision of fishing vessel with a wind turbine, or associated equipment

Restrictions on movement and **manoeuvrability** of fishing vessels

Transit route alterations of fishing vessels



OWF adaptation categories

- Wind turbine layout
- Inter-array cables
- Floating offshore wind and miscellaneous (e.g., lighting and navigation)

Fisheries adaptation categories

- Fishing gear types
- Fishing practices

Examples of co-location

Evidence and data gaps may indirectly impact the approach to co-location within EIAs

Since fishing is legally permitted within OWFs post-construction, and there is minimal empirical data to comprehensively inform the impact of an OWF on fishing activities post-construction, EIAs are likely to conclude that fishing activities will not be significantly impeded within the locality of the OWF. This may not always be the case.

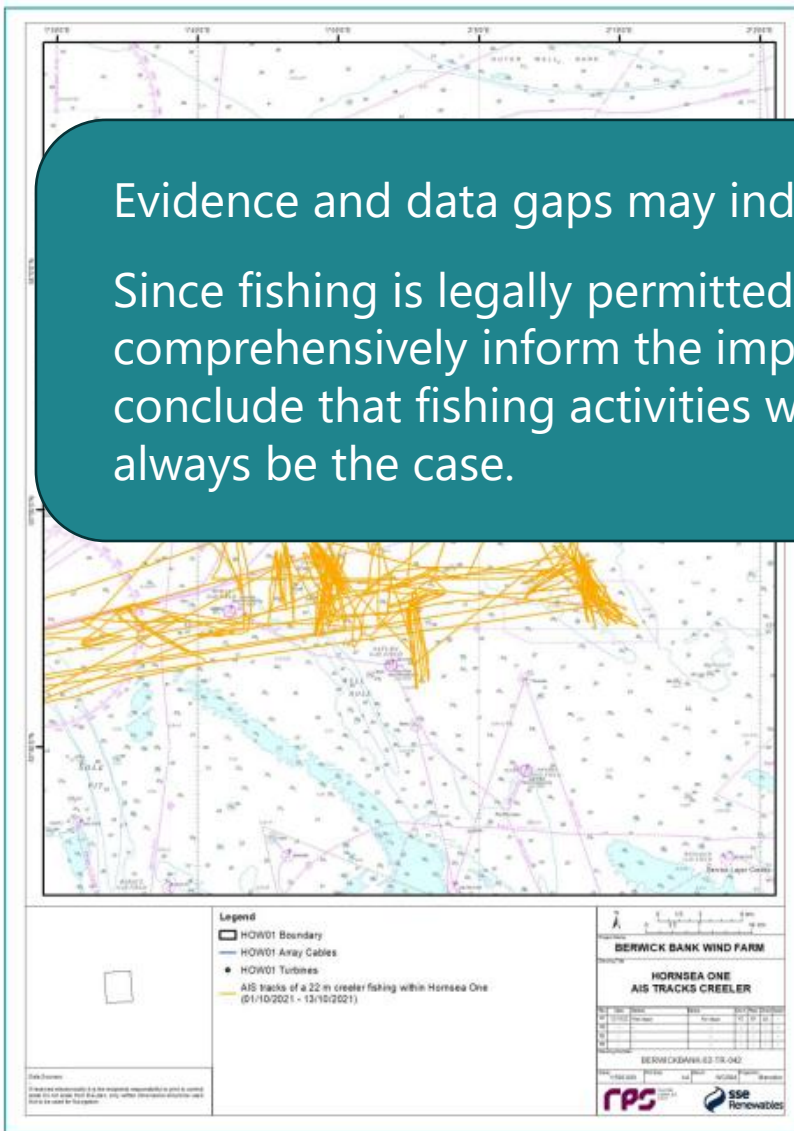


Figure 12.32: AIS Tracks of a 22 m Creeler Fishing within Hornsea One

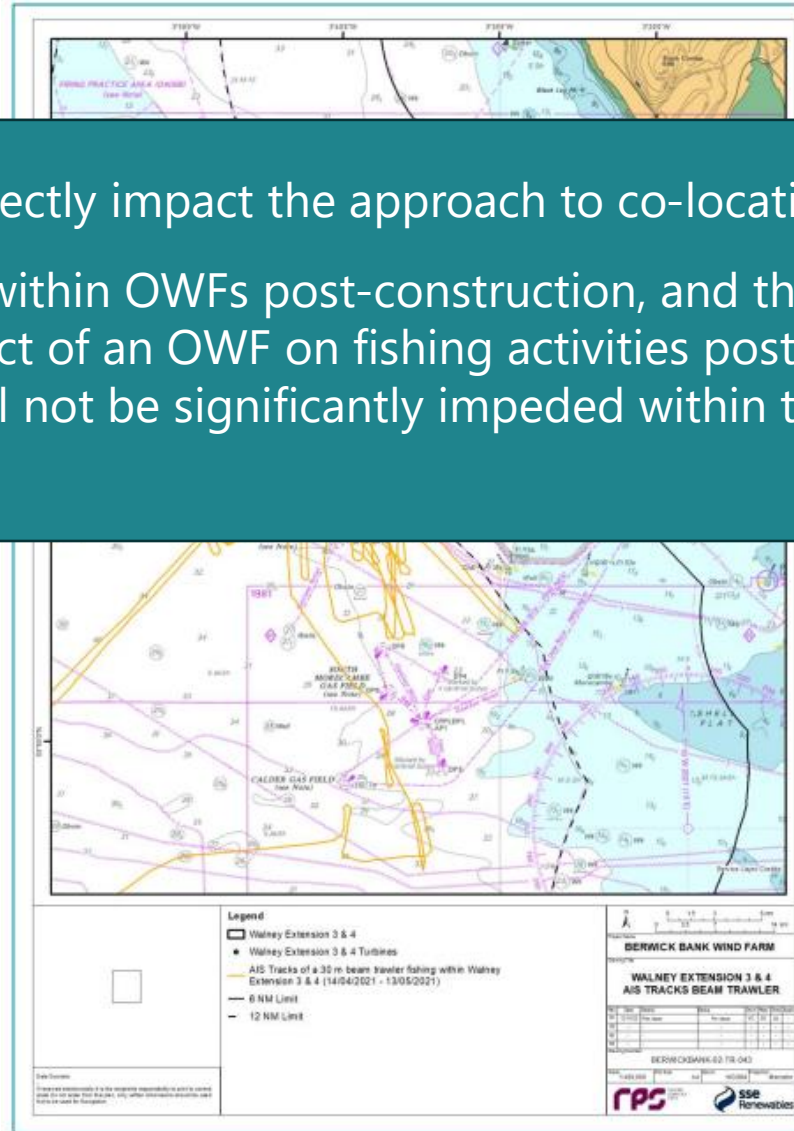


Figure 12.33: AIS Tracks of a 30 m Beam Trawler Fishing within Walney Extension

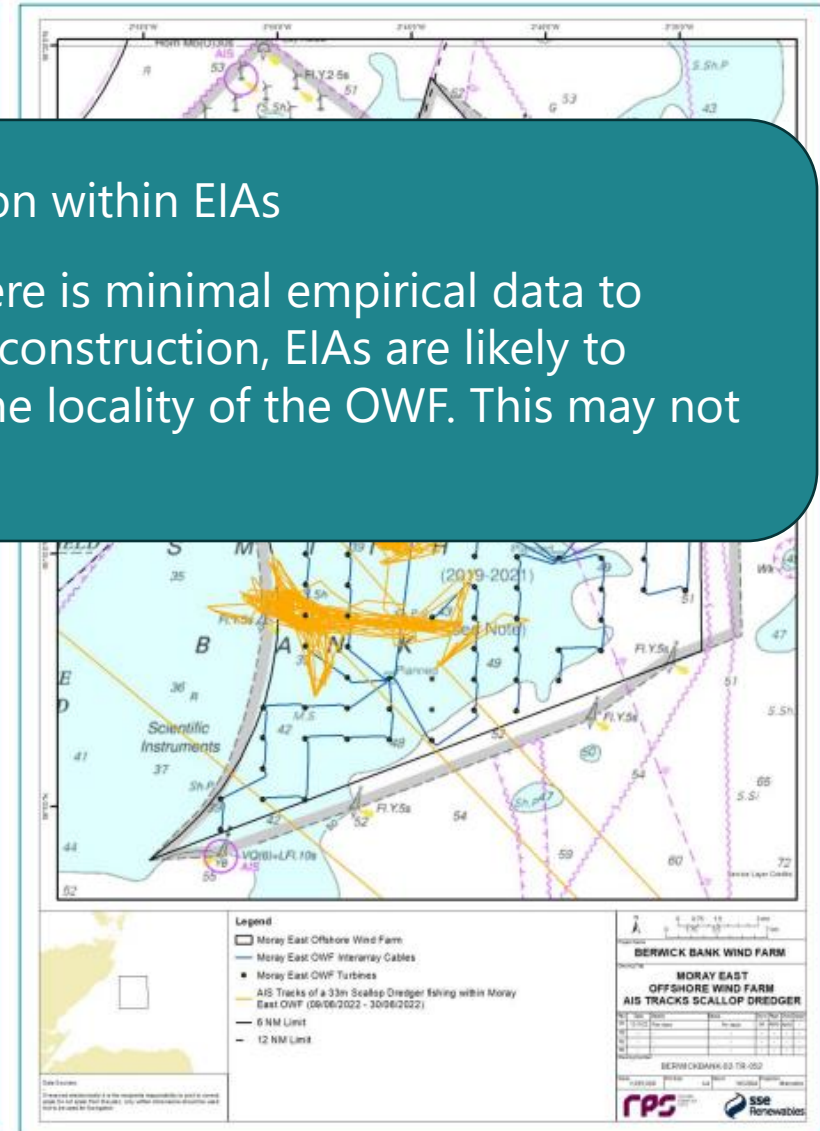
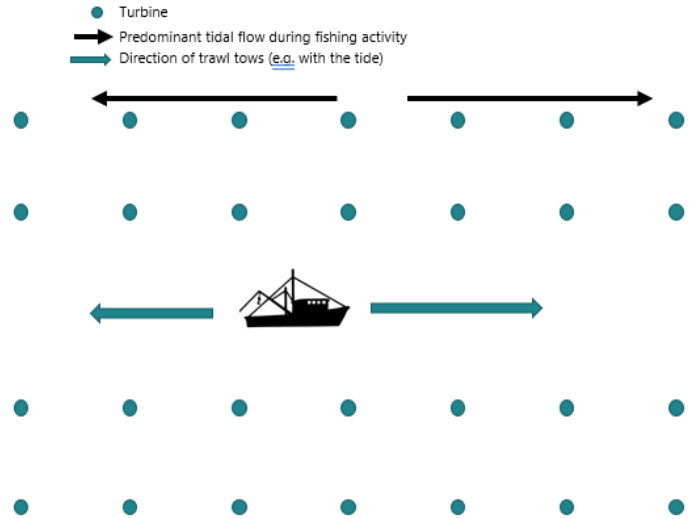
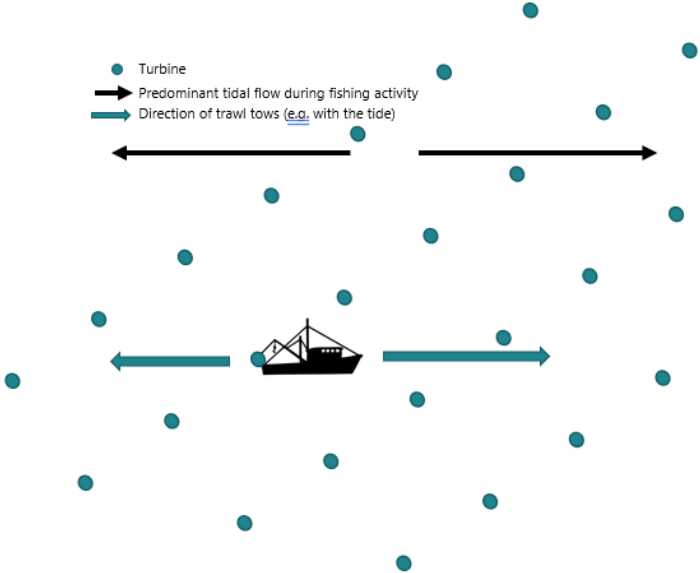
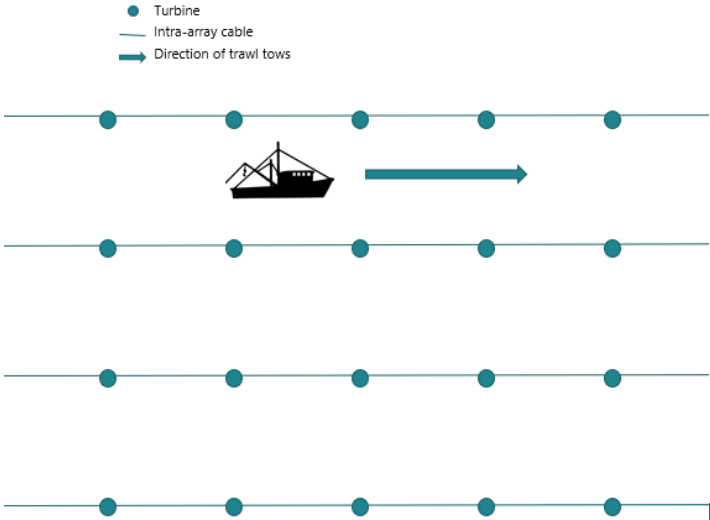
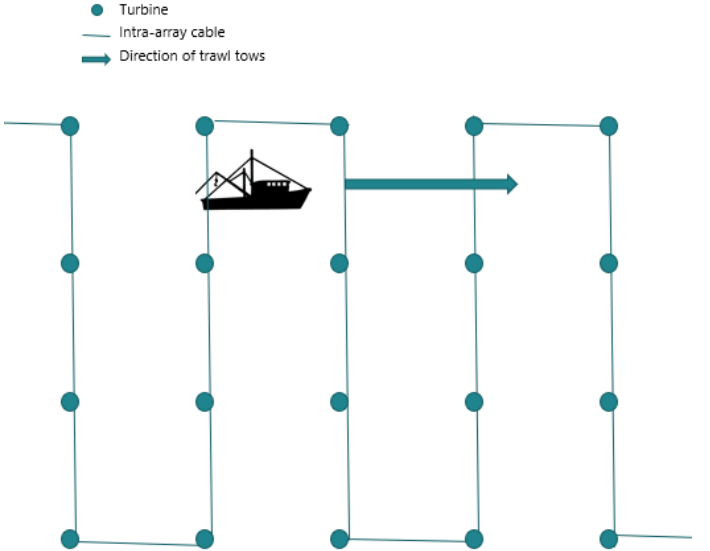


Figure 12.35: AIS Tracks of a 33 m Scallop Dredger Fishing within Moray East

Turbine layout options



Cable orientation options



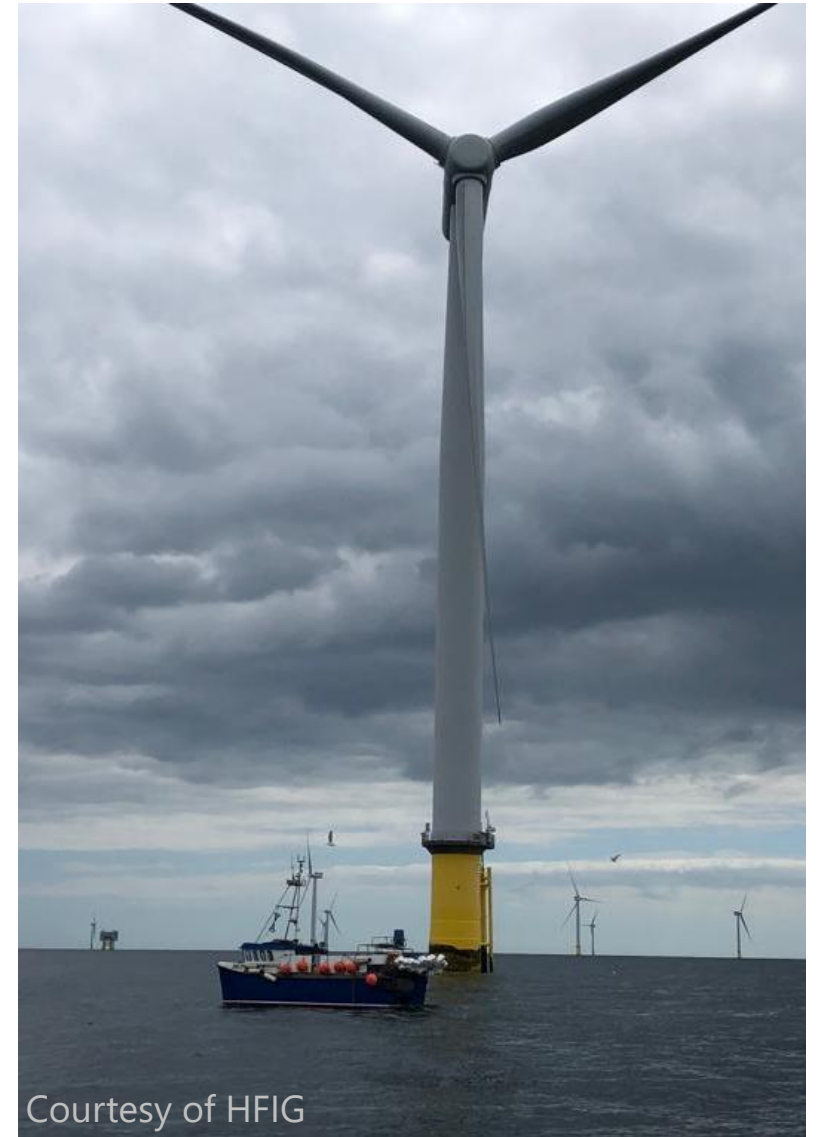
Results – Adaptations to OWFs

- Number of potential adaptations to OWFs identified; there were **differences between adaptations** considered **most likely to support** co-location, and those perceived as **most feasible and viable**
- Adaptations (in descending order) **most likely to support** co-location:

1. **Wind turbine array layout and orientation**
2. **Clear corridors**
3. **Improved cable mapping (and associated measures such as sufficient cable burial, monitoring for exposure)**

- Adaptations (in descending order) **most feasible and viable (in real world):**

1. **Regular monitoring for cable exposure**
2. **Improved cable mapping**
3. **Fishing-friendly external cable protection**
4. **Improved lighting, navigation, and alarm technology on wind turbines**



Courtesy of HFIG

Results – Adaptations to Fishing Activities

- 57% of interviewed **fishers willing to modify fishing activities** to help achieve co-location. Some already trialled changes to fishing activities
 - Adaptations (to gear type and practices) found to be of **limited feasibility and viability**
 - Fishers already consider their operations to be **fully optimised**, subsequent adaptations may detrimentally impact viability of such operations
 - Adaptations do not address **principal concern of potential physical interaction** with OWF infrastructure, that can have **liability, and health and safety, implications** for fishers
- If (and when) **fishing can safely take place** within OWFs, will provide **opportunities to trial new adaptations** to fishing practices
 - Keen interest in **establishing collaborative working relationships** with offshore wind sector, to support development of co-location



Photo: S.Walmsley

Conclusions

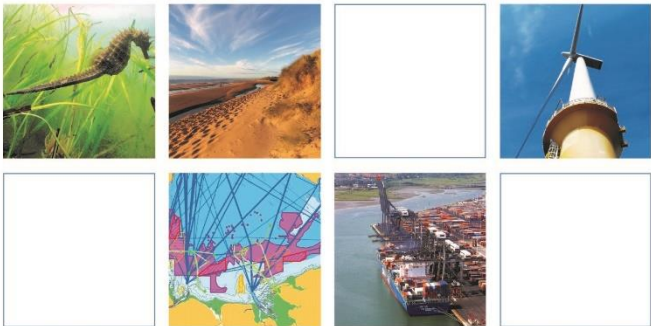
- **Site selection** of OWFs is key to minimising OWF and fisheries interactions
- Co-location is complex and highly **site-specific, not one-size-fits-all**
- Early and meaningful **engagement**, constructive dialogue and co-operation between sectors is crucial
- Most feasible and viable adaptations: improved **lighting and navigational aids**, and making **cables** safer and fishing-friendly
- Adaptations to wind turbine layout and orientation are **potentially costly** due to effects on OWF efficiency
- **Limited scope for adaptation of fishing operations** which are optimised for local conditions. Future developments and future generations may create new approaches to successfully fish within OWFs
- **Health and safety risks** associated with fishing within the OWF arrays (collision and snagging) are a key concern
- Need for improved knowledge and data exchange between the two sectors

Recommendations

- Early, effective and continuous engagement, including data and knowledge exchange
- Accurate, timely, and up-to-date dissemination of OWF-related activities to fisheries sector
- Need for up-to-date, and approved, best practice guidelines
- Cables – minimise interactions, engage, clarify position on fishing over cables, mapping and monitoring, communicate exposures
- Policy steer may be required to promote co-location adaptations
- Funding – more robust evidence, innovation of fishing methods/gears

Thank you for your attention

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Defra

Adaptations to Offshore Wind Farms and Fishing Methods to Enable Co-location

Final Report

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Innovative Thinking - Sustainable Solutions

