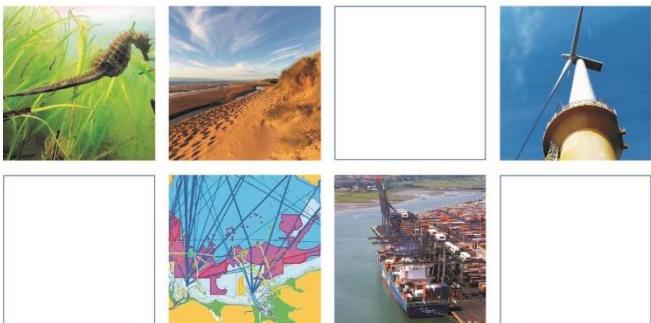


# Adaptations to offshore wind farms and fishing methods to enable co-location in UK waters

Suzannah Walmsley, Emma Wootton



# Introduction to the Project

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- 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



# Interactions and Adaptations

Principal interactions between OWFs and fishing activities			
<b>Entanglement</b> of fishing gear (mobile and static) with OWF installations	<b>Collision</b> of fishing vessel with a wind turbine, or associated equipment	Restrictions on movement and <b>manoeuvrability</b> of fishing vessels	<b>Transit route</b> alterations of fishing vessels



OWF adaptation categories
<ul style="list-style-type: none"><li>Wind turbine layout</li><li>Inter-array cables</li><li>Floating offshore wind and miscellaneous (e.g., lighting and navigation)</li></ul>

Fisheries adaptation categories
<ul style="list-style-type: none"><li>Fishing gear types</li><li>Fishing practices</li></ul>

# Examples of co-location

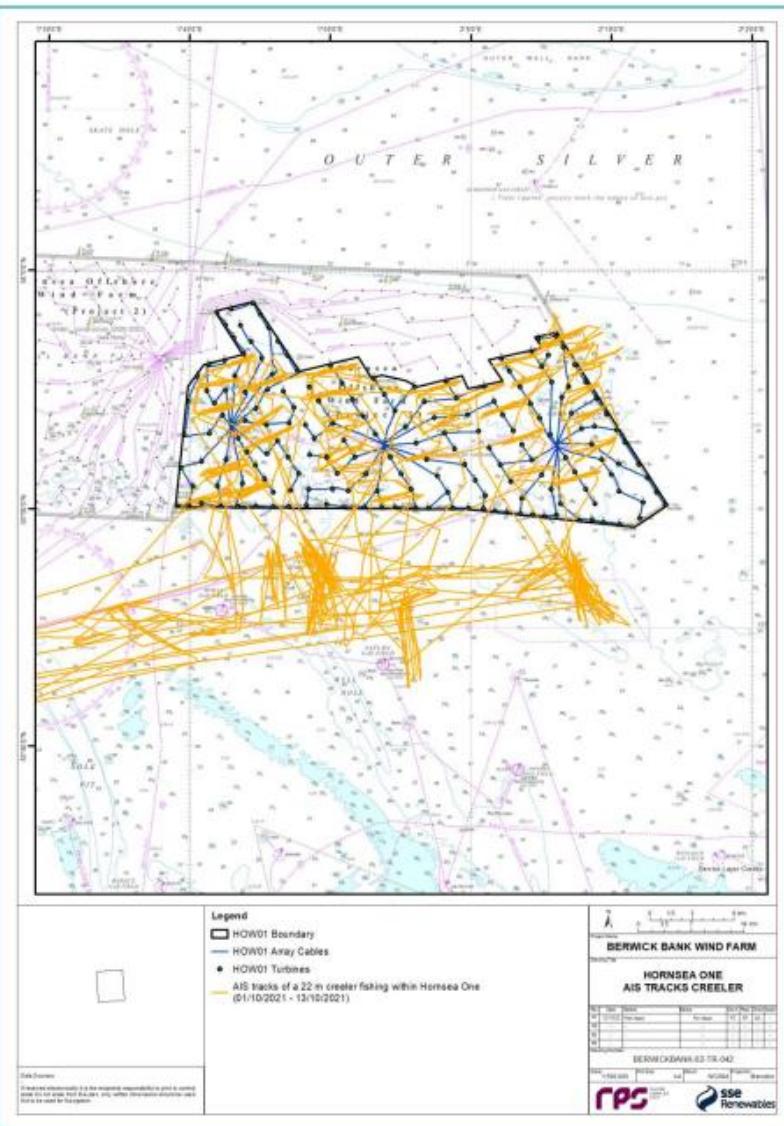


Figure 12.32: AIS Tracks of a 22 m Creeler Fishing within Hornsea One

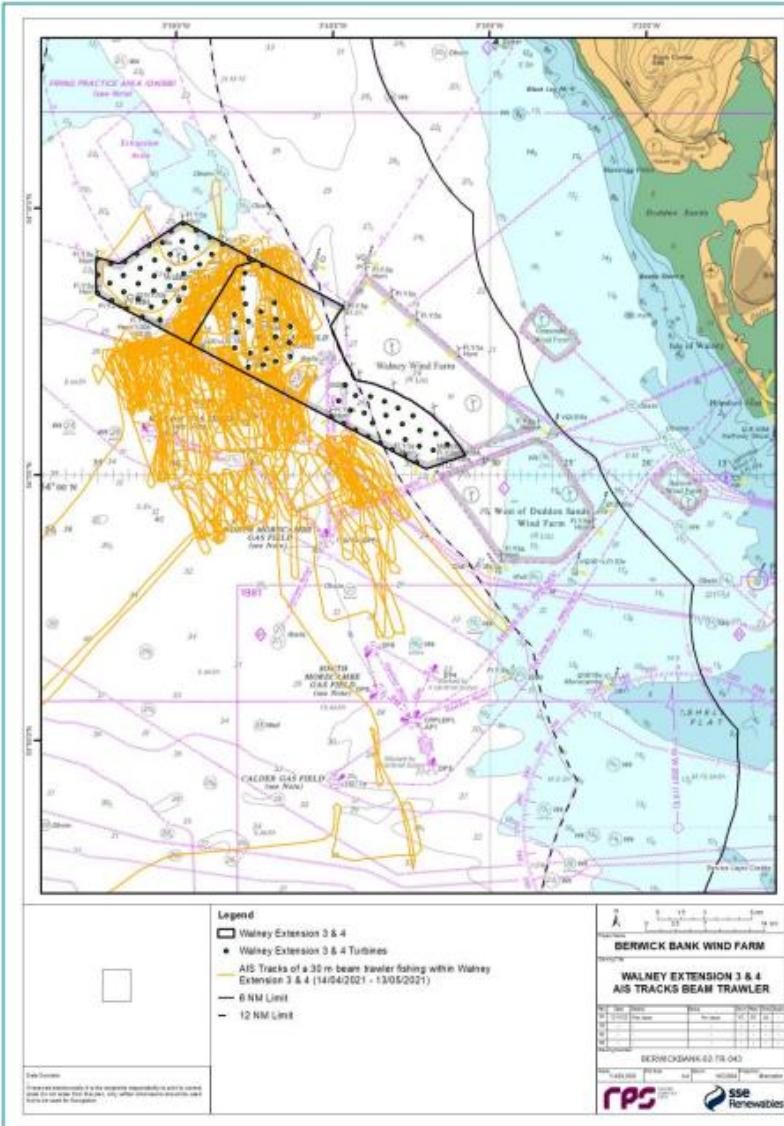


Figure 12.33: AIS Tracks of a 30 m Beam Trawler Fishing within Walney Extension

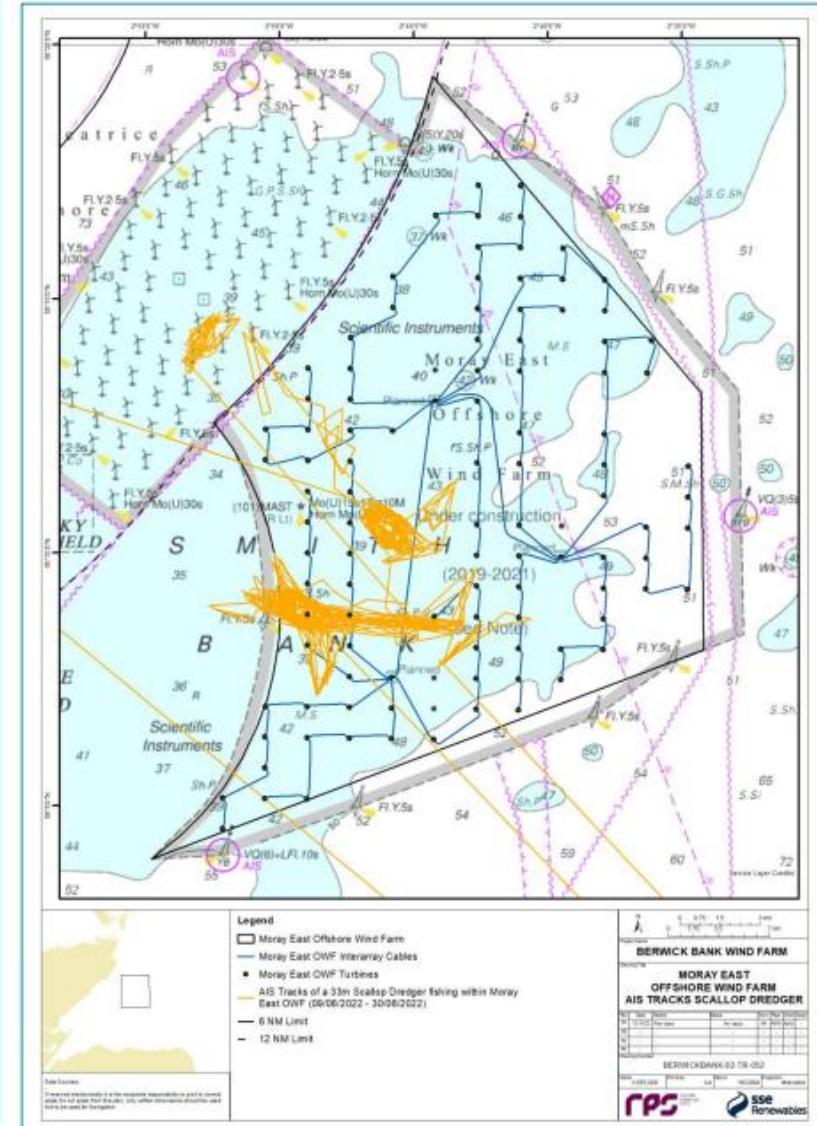


Figure 12.35: AIS Tracks of a 33 m Scallop Dredger Fishing within Moray East

# 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.

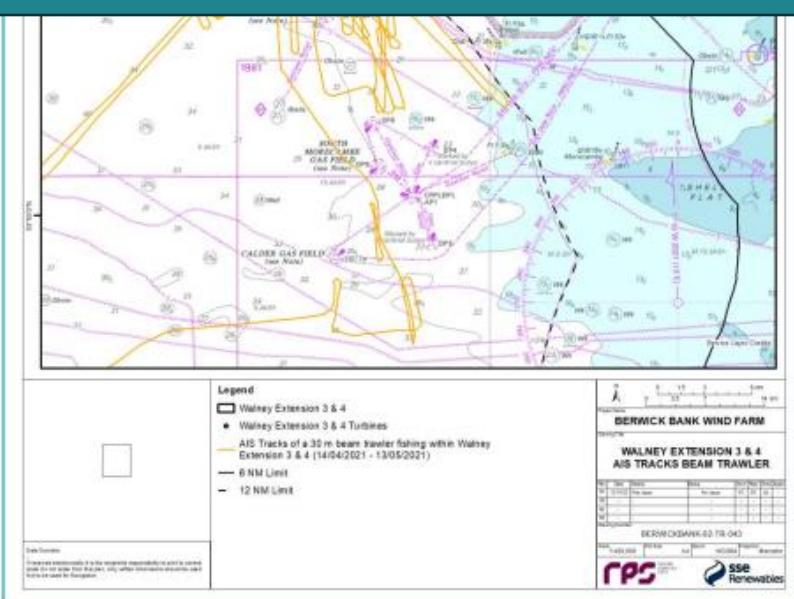
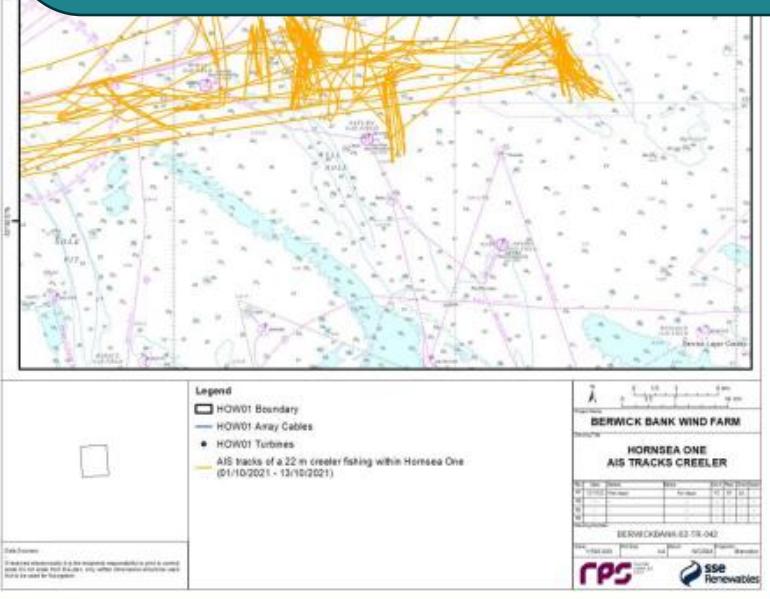


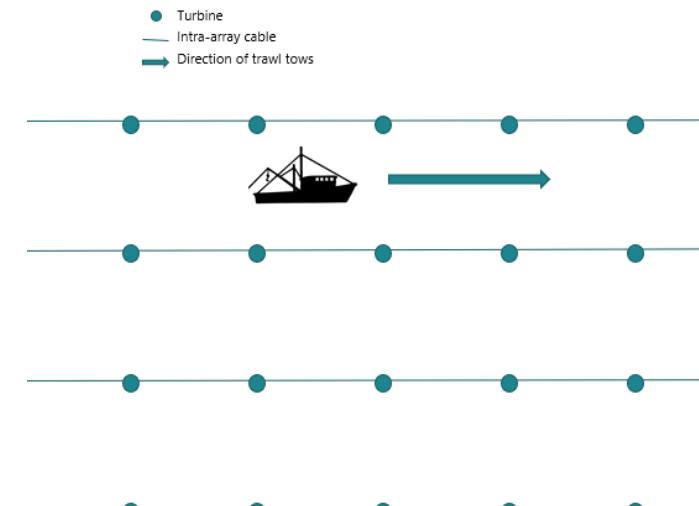
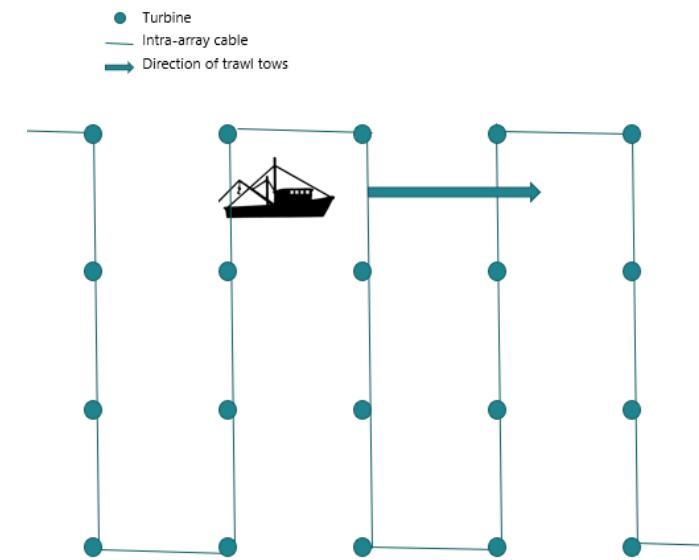
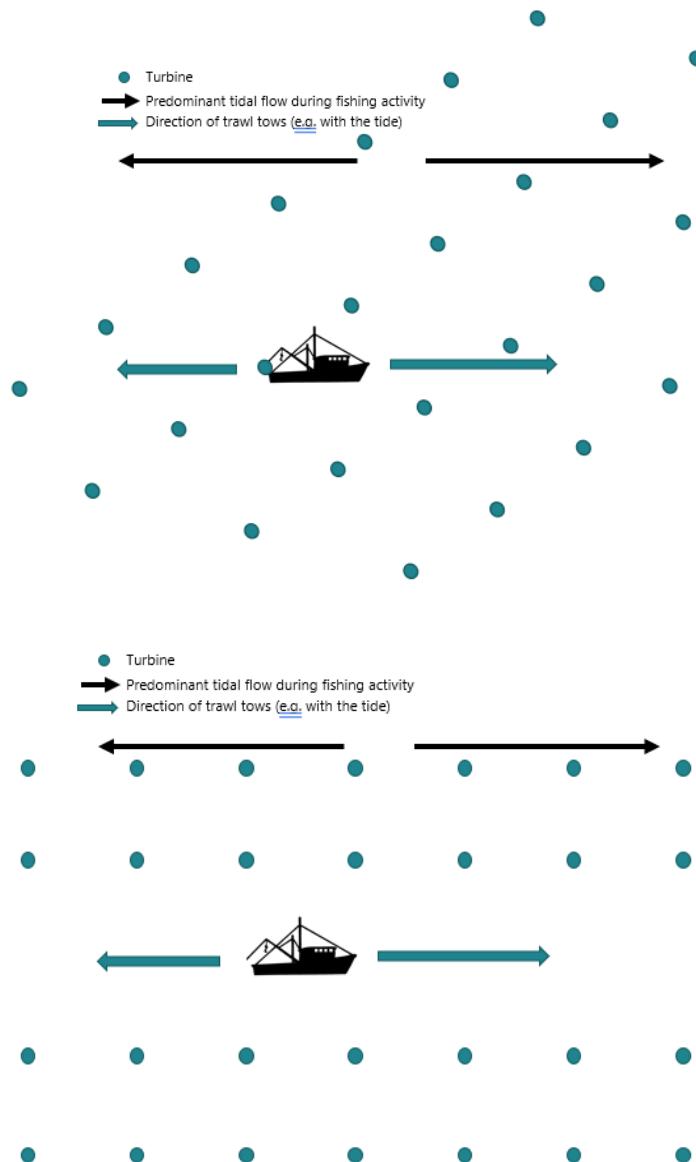
Figure 12.32: AIS Tracks of a 22 m Creeler Fishing within Hornsea One

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:

- Wind turbine array layout and orientation**
- Clear corridors**
- 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)**:

- Regular monitoring for cable exposure**
- Improved cable mapping**
- Fishing-friendly external cable protection**
- 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



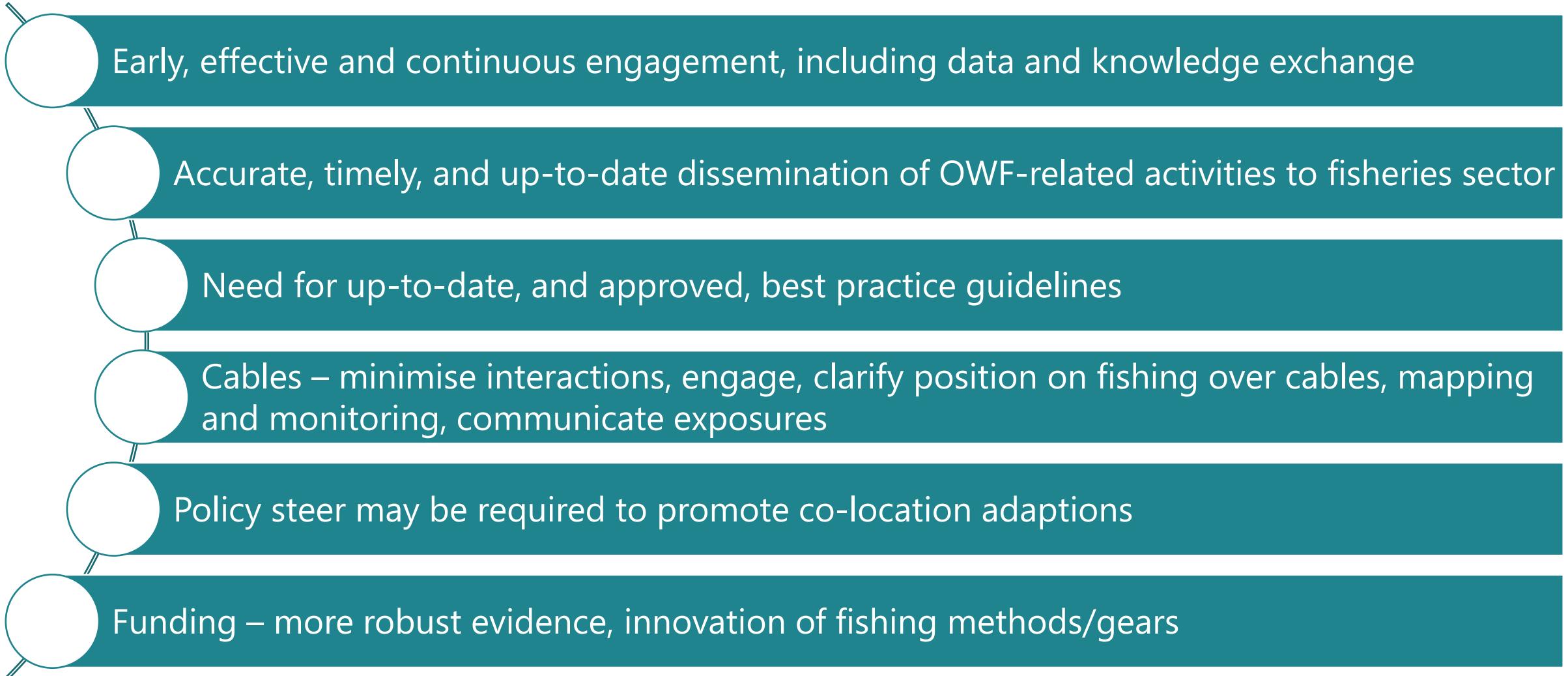
Photo: S.Walmsley

# 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

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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

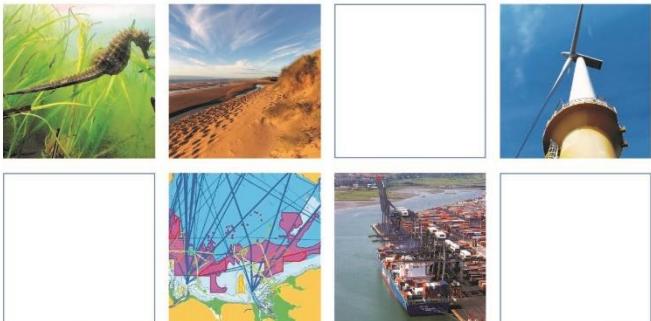
Cables – minimise interactions, engage, clarify position on fishing over cables, mapping and monitoring, communicate exposures

Policy steer may be required to promote co-location adaptions

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

May 2023



Innovative Thinking - Sustainable Solutions

