

Impact of the use of offshore wind and other marine renewables on European fisheries

Requested by the PECH committee



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Background

The **advancement of offshore renewables (OR)**, such as offshore wind farms, is a key pillar in the global transition to a **carbon-free power sector**. The expansion of OR varies greatly across the European seas, whereby Northern European countries such as the United Kingdom, Germany, Denmark, Belgium and the Netherlands currently have the largest numbers of installed offshore wind farms. This **spatial expansion** is accompanied by an **increasing conflict potential** with other marine sectors such as fisheries.

The study

This study looks at the general impacts of the development of offshore wind farms and other marine renewables in European sea basins on fisheries. It further highlights pathways for possible co-existence solutions of both sectors

A spatio-temporal overlap analysis of OR development and fishing activities of European fishing fleets suggests a **sharp increase** of spatial conflict potential in the North Sea, Baltic Sea and Mediterranean on a mid-term view (until 2025). In contrast, the Atlantic and Celtic Sea regions will rather face a **significant increase** of conflict potential due to the expansion of OR installations on a long-term (after 2025). The results showed also a **great variation of fishing effort per fleet** and OR planning sites between **different years**. Restricting fishing activities in a larger area will likely lead to the **reallocation of fishing activities**. **Economic impact assessments** for the effects of OR on fisheries need to address **direct and indirect costs** of a loss of fishing opportunities as well as the **socio-cultural effects**, but these are hampered by the **lack of available and harmonised socio-economic data**. While standardised data on fishing activities

become increasingly available, a **European-wide effort to standardise research and monitoring strategies** with respect to OR expansion and its socio-ecological effects is lacking.



Main Findings

In Europe, **marine spatial planning allocates multiple human activities** such as OR development or shipping at sea but falls often short in contributing to the adaptive capacity of fisheries. From existing case studies such as the United Kingdom, Denmark or Belgium a few measures emerged that can aid **mitigating spatial use conflicts**. Those comprised 1) early **stakeholder consultation** to detect conflict potential at an early stage and acknowledge the importance of all actors; 2) facilitation of negotiation processes by **independent third parties** and the **creation of guidelines**; 3) **compensation payments** for the disturbance and the associated loss of income or additional expenditures can **reduce the impact potential**. Co-design approaches for the co-location of OR with other uses can reduce the impact potential on fisheries, strengthen the relationship of the sectors of concern and even enable beneficial co-operation between them.



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Conclusions and policy recommendations

Existing knowledge on the impact of OR on fisheries is centred on **ecological and environmental impacts**. Current research often neglected a glimpse into the future at the expansion of the OR sectors (i.e. assessments of future scenarios are lacking). This study found a sharp increase of spatial conflict potential in the North Sea, Baltic Sea and Mediterranean over the next five years, until 2025 the spatial expansion is the greatest in the **North Sea and Baltic Sea**.

The study identified a **clear gap with respect to economic and socio-cultural data and impact assessments** of the OR expansion on fisheries. Overall, **more research is needed** to assess direct and indirect effects on the fishing sector, local communities and economic activities onshore. European-wide efforts for **standardised monitoring programs** to assess the general cumulative ecological and socio-economic effects of an expansion of OR are **recommended**.

Strategic guidelines for the development of OR promoting **early stakeholder consultation**, the involvement of **independent third parties** and the creation of transparent guidelines could alleviate the conflict potential between fisheries and OR.

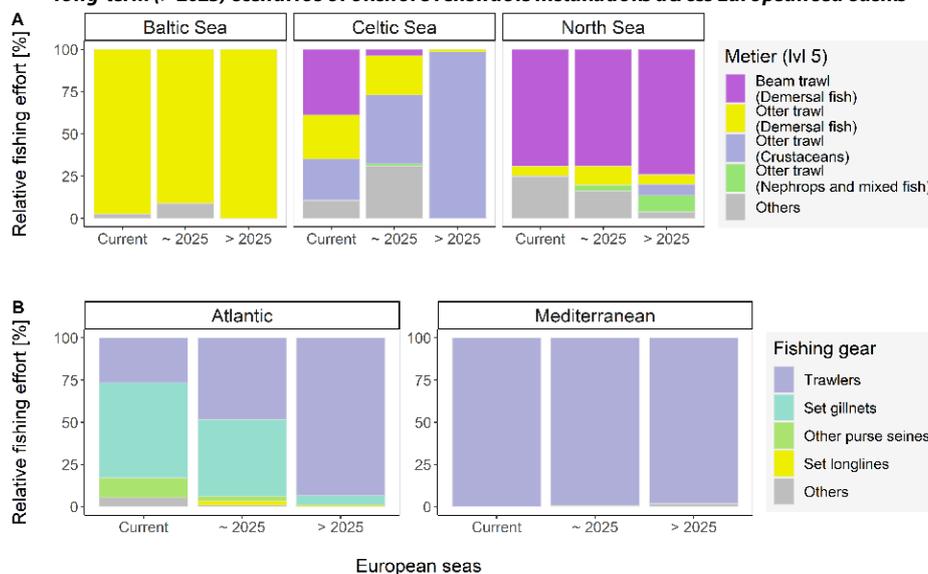
Three main recommendations for EU policy-makers both at national and EU level are proposed:

- To **promote standardised monitoring programmes** and a **harmonisation of fishing effort data** to enable cumulative ecological and socio-economic environmental impact assessment of the expansion of marine energy.
- To **enable more research to understand the effects of OR installations** on the fishing sector, local communities and economic activities onshore and to **provide guidance for marine spatial planning to plan with fisheries** and support their adaptive capacities.
- To **develop best practice guidance for marine spatial planning on the implementation of mitigation measures** to ease conflict potential between fisheries and OR development and to promote co-operation between marine uses.

Key areas for action at EU and national level

1. Promote standardised monitoring programmes and harmonisation of fishing effort data.
2. Enable more research to understand the effects of offshore renewable installations.
3. Provide guidance for marine spatial planning to plan with fisheries.
4. Develop best practice guidance for marine spatial planning on the implementation of mitigation measures.

Fig. Relative proportions of total fishing effort of the main fishing fleets overlapping with the areas of the current, mid-term (~ 2025), and long-term (> 2025) scenarios of offshore renewable installations across European sea basins



Source: Author based on data provided by 4C Offshore Ltd. and EMODnet for the offshore renewables; and data provided by (A) OSPAR and HELCOM, and the German Federal Office for Agriculture and Food (BLE) and (B) Global Fishing Watch (GFW) for fisheries; the metier levels (Ivl) are provided by [European Commission 2008a](#)

Note: The metier level represents a group of fishing operations targeting a specific assemblage of species, using a specific gear, during a precise period of the year and/or within the specific area

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