

# Assessing the Potential Impacts of Floating Offshore Wind Farms on Vulnerable Species in the Mediterranean Sea

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## BACKGROUND

Offshore wind farms (OWF) are gaining momentum worldwide as countries aim to reduce their reliance on fossil fuels and combat climate change. The recent emergence of floating offshore wind farms has expanded the potential for wind energy production in deeper waters, including the Mediterranean Sea. However, the ecological impacts of these structures, particularly on vulnerable species, are not well understood.

There is currently a lack of comprehensive research on the potential ecological impacts of floating offshore wind farms especially in the Mediterranean Sea. However, such studies are crucial for ensuring the sustainable development of these structures, particularly in areas of high conservation value and for vulnerable species. Furthermore, the findings from such research can inform policy decisions regarding renewable energy development.

**AIM:** To assess the potential impacts of different floating offshore wind farms technologies in the Mediterranean Sea, with a particular focus on vulnerable species.

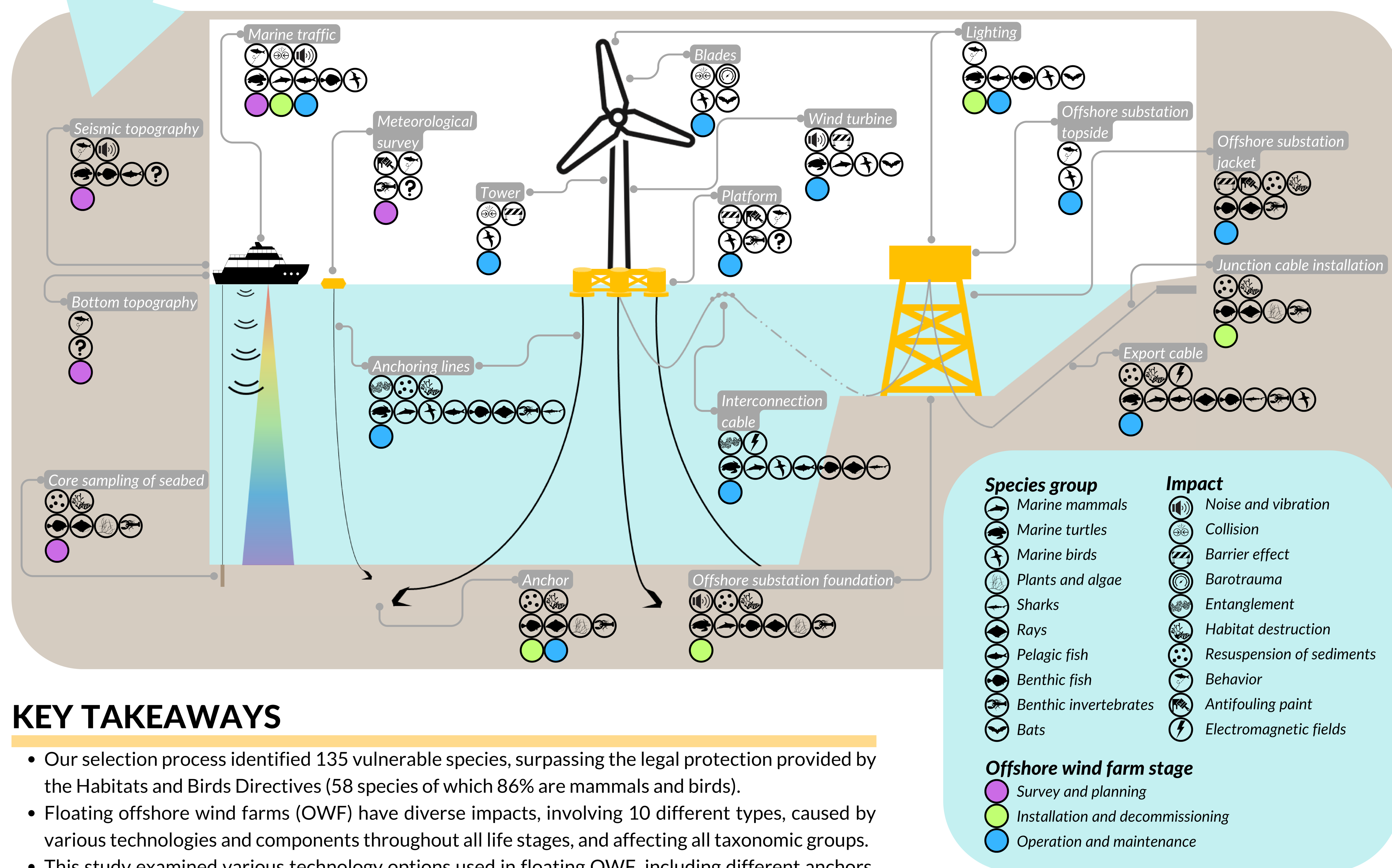
## MATERIALS & METHODS

We selected a case study area located in the Cape Creus/Gulf of Roses (Spain, NW Mediterranean), which has been identified by the Spanish government as suitable for the development of commercial Offshore Wind Farms (OWF). We reviewed the documentation for the seven proposed OWF projects in this area to identify the various technologies and components that are planned for installation.

To list vulnerable species in the study area, we first compiled a list of all observed species in the marine region. We then used three criteria to identify vulnerable species:

- 1) all species classified as threatened or near threatened according to the IUCN Red List Mediterranean regional assessment,
- 2) all species protected under the Habitats and Birds Directives,
- 3) all species protected under international conventions (Barcelona, Bern, Bonn, CITES, and OSPAR conventions) and local protection status.

To determine potential biological effects of floating OWFs, we conducted a bibliographical review of studies from other seas and oceans.



## KEY TAKEAWAYS

- Our selection process identified 135 vulnerable species, surpassing the legal protection provided by the Habitats and Birds Directives (58 species of which 86% are mammals and birds).
- Floating offshore wind farms (OWF) have diverse impacts, involving 10 different types, caused by various technologies and components throughout all life stages, and affecting all taxonomic groups.
- This study examined various technology options used in floating OWF, including different anchors, mooring lines, and more. The findings emphasize the need for detailed assessments as impacts can vary depending on the specific technology option chosen.

Impact studies are crucial for assessing the environmental consequences of floating offshore wind farms and ensuring their sustainable development. They provide valuable insights into the potential impacts on biodiversity, guiding responsible practices and balancing renewable energy production with the conservation of vulnerable species and their habitats.

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