

Conservation News

Biodiversity, renewable energy and maritime spatial planning in Europe: should offshore wind farms be located in marine protected areas?

European countries have committed to increase the area of ocean under protection to meet global and regional biodiversity targets, and also plan to expand offshore wind energy to reduce greenhouse gas emissions. But how can ambitious goals for nature and renewable energy be delivered in seas already heavily exploited for fisheries, shipping, tourism, oil and gas? EU policies encourage the collocation of activities, but is wind farm construction viable in marine protected areas?

These dilemmas are addressed in a discussion paper commissioned by the Renewables Grid Initiative (Stephenson, 2023, renewables-grid.eu/publications/offshore-colocation-discussion-paper.html). An assessment of the policy context, the status of marine protected areas and the impacts of wind energy on marine ecosystems produced several findings.

EU policies and directives allow wind farms to be constructed in Natura 2000 sites if significant disturbance can be avoided or if it is in the overriding public interest. National policies vary between allowing or banning wind farms in marine protected areas. Although wind farms may be less damaging than many other uses of the ocean, their construction, operation and decommissioning can cause habitat loss and harm wildlife through, for example, noise, pollution, invasive alien species and collisions with turbines, if mitigation measures are not taken. The reef effect (caused by adding solid substrates to the seabed), reserve effect (caused by restricting access to fishing vessels) and biodiversity enhancement (through nature-inclusive design of infrastructure) can increase the abundance of certain species in offshore wind farms, but the resultant communities differ from those found naturally. Collocating

wind energy and marine protected areas is therefore risky for biodiversity conservation.

Many European marine protected areas lack management plans, objectives or IUCN management categories, and fail to protect nature because of their small size, weak enforcement of regulations, and inadequate restrictions on offtake. Only 1% of Europe's seas are strictly protected, well short of the 10% target.

Other human uses of the ocean, especially passive fishing, aquaculture, shipping and tourism, may provide more appropriate collocation opportunities with wind energy than marine protected areas, as demonstrated by wind farms, such as Borssele in the Netherlands, which have multiple-use zoning plans.

The discussion paper concludes that European states must improve the management and protection of marine protected areas. They also need to clarify the designation process for other area-based conservation measures and identify those that can enhance marine protected area connectivity. Opportunities for the collocation of offshore wind energy with non-conservation related activities should be optimized. Where wind farms and marine protected areas are already colocated, operators must optimize mitigation and conservation, monitor environmental impacts and share results. The key enabling condition for marine conservation and sustainable use is that EU Member States and their neighbours follow an ecosystem-based approach to data-driven maritime spatial planning that enhances renewable energy while not jeopardizing biodiversity.

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