3 SCIENCE FACTSHEET JULY 2024

POTENTIAL ENVIRONMENTAL IMPACTS OF FLOATING OFFSHORE WIND IN CALIFORNIA'S FEDERAL LEASE AREAS

Impacts to Seabirds

CALIFORNIA OCEAN SCIENCE TRUST

THE CALIFORNIA CURRENT ECOSYSTEM, which includes the Humboldt and Morro Bay wind energy areas, is home to more than 20 breeding seabird species and an additional 80 migratory seabird species.[1,2,3] Floating offshore wind energy developments present potential impacts to seabirds, including disturbance during construction and operation, collision with wind energy infrastructure, and displacement from their normal habitats or migration routes.[4]

ASHY STORM-PETREL

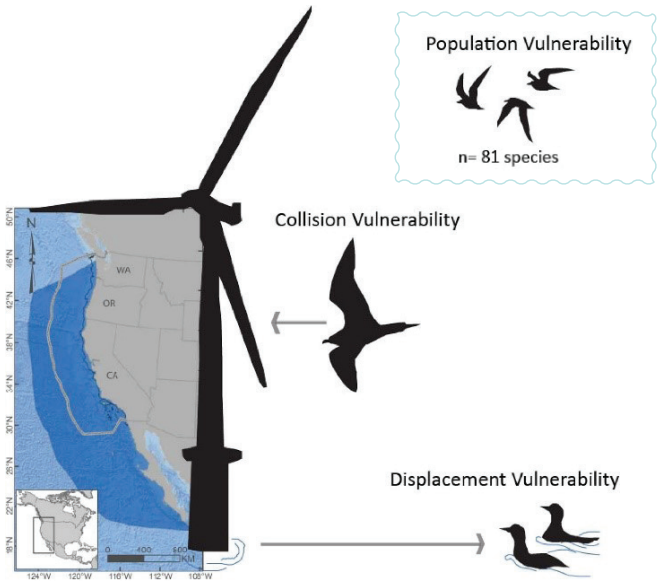
Research Shows

- Although the lease areas represent a small fraction (less than 1%) of the total area of the California Current ecosystem, **the Humboldt lease area is thought to include important foraging habitat for several seabird species nesting** in the Trinidad rocks area.[2] **The Morro Bay lease area is farther from important nesting sites; however, it supports many diverse seabirds,** including rare endemic California species (e.g. Ashy Storm-Petrel) and highly migratory species that nest in the Southern Hemisphere (e.g. Pink-footed Shearwater).[5]
- **The risk of displacement and habitat loss may be a greater concern than collision for some seabirds,**[6] **but more research is needed.** Collision is a relatively greater concern for land-based wind farms, which are thought to cause the death of 100 – 440 thousand birds per year[7] (for context, 2.6 – 2.8 billion annual deaths from cats[8]). In contrast, and although it is difficult to monitor, several studies in Europe found that collisions with fixed bottom offshore wind infrastructure are rare, due to active avoidance.[9]
- Given that avoidance is seen in many bird species[9,10] **displacement from foraging habitat and increased energy spent to detour around offshore wind infrastructure during migration or other travel is a concern.**[11] Although some studies have found minimal impacts of displacement at the individual level[11], there remains a need to better understand the implications at the population level.[12,13]
- **While researchers can learn from studies of offshore wind effects on seabirds elsewhere, caution is needed because effects can differ between species** and are unknown for many of the unique seabirds in the California Current.[14,15]

This document was reviewed by scientific experts for consistency with best available science in June 2024.

RESEARCH SHOWS CONTINUED

- **Future studies should consider the population-level and cumulative impacts** of offshore wind energy development on seabirds and cumulative impacts of offshore wind alongside other stressors (such as a warming ocean).[6]
- **Compensatory mitigation strategies, where the impacts of development are "offset" by conservation efforts, could result in net benefits** for marine bird species potentially impacted by offshore wind energy development (for example, mitigations strategies that protect against invasive predator protections at nesting areas).[16]



Credit: USGS Western Ecological Research Center.

The USGS Western Ecological Research Center has devised a framework to quantify, compare, and map three types of vulnerability to offshore wind energy infrastructure for Pacific coast species. Population vulnerability refers to factors such as population size or breeding rates, collision vulnerability refers to physical collision with turbines, and displacement vulnerability refers to habitat loss from avoiding offshore wind infrastructure. (Caption Adapted from USGS 2019)[17,4]

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