Spatial Modeling to Support Sustainable Offshore Wind Energy Development for California



Executive Summary

Offshore wind energy developed in federal ocean waters off California is poised to help the state achieve its 100% renewable and zero-carbon energy goals. Since 2016, the State has coordinated with governmental partners, including the Bureau of Ocean Energy Management (BOEM) and the BOEM-California Renewable Energy Intergovernmental Task Force, to identify areas off the state's coast suitable for potential offshore wind energy development. To support this effort, the Conservation Biology Institute (CBI) used data from the California Offshore Wind Energy Gateway to produce a robust set of spatial models, designed to synthesize information to help stakeholders and decision-makers assess the suitability of offshore wind energy development in federal waters off the coast of California. These models, created using the Environmental Evaluation Modeling System (EEMS) with 239 input datasets, provide a transparent and data-driven means for assessing a range of considerations at a given location, such as energy potential, deployment feasibility, ocean uses, fisheries, and marine life occurrence. Together, these models can be used to inform planning processes for offshore wind energy development, to maximize renewable power generation and to help avoid or minimize potential impacts to existing ocean uses and the environment.

Credits

Degagne, R., Gough, M., Joseph, G., Pizzino, D., Smith, C. and Strittholt, J. 2022. Spatial Modeling to Support Sustainable Offshore Wind Energy Development for California. CBI Technical Report.

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The California Offshore Wind Energy Modeling Platform, powered by EEMS Online technology, provides an interface where stakeholders and decision-makers can interact with and explore the models and their data sources to help support decision-making processes. However, it is also important to understand these do not provide a sensitivity or vulnerability evaluation and should not be used to identify or assess project-level impacts. Additionally, they reflect available data, expert opinion, and currently understood geographic distributions of species and ocean use, without taking potential shifts due to climate change into account.

In the future, CBI's models could be extended geographically, (e.g. to include California's state waters or to Oregon for regional planning efforts), and/or enhanced with additional data and expert input, based on agency and stakeholder priorities. This work could be leveraged to further support strategic planning by combining the thematic models in a least-conflict analysis to highlight areas most suited for exploration of OSW development, under different scenarios. There is a need for continued investment, to keep the analysis current and relevant throughout the different stages of offshore wind energy planning in California.

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