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UCSB Study is First to Measure Value of Marine Spatial Planning

The ocean is becoming an increasingly crowded place. New users, such as the wind industry, compete with existing users and interests for space and resources. With the federal mandate for comprehensive ocean planning made explicit in the National Ocean Policy, the need for the transparent evaluation of potential tradeoffs is now greater than ever.

A study published in the March 5 Proceedings of the National Academy of Sciences (PNAS) shows for the first time that incorporating multiple stakeholder interests in a comprehensive approach to ocean planning (Marine Spatial Planning or MSP), actually reduces conflict and enhances cultural, conservation, and economic benefits. Using a model of Massachusetts Bay, the authors found that by designing offshore wind farms with multiple ocean users in mind, managers could prevent over $1 million in losses to the incumbent fishery and whale watching sectors, limit impacts on biodiversity conservation, and generate more than $10 billion in extra value to the wind energy sector.

Researchers at UC Santa Barbara's Bren School of Environmental Science & Management and UCSB's National Center for Ecological Analysis and Synthesis (NCEAS) developed MSP-minded wind farm designs and compared them to "business as usual" designs under traditional energy permitting. "This new study provides clear evidence for the value of doing MSP," says lead author Crow White, a postdoctoral researcher at Bren. Co-author Ben Halpern, director of UCSB's Center

for Marine Assessment and Planning and research scientist at NCEAS, adds: "It also validates the efforts by Massachusetts to implement their law and strongly supports other states and the Federal government in their efforts to pursue MSP."

Importantly, the study shows that the value of MSP increases with the size of the planning area. Even small states will benefit substantially, both financially and in avoiding unnecessary conflict, but the states with the largest coastal areas like Florida, California, Hawaii, Texas, and Alaska will benefit enormously, potentially in the trillions of dollars.

By using MSP, policymakers and managers could choose and implement a specific design that reflects society's relative preferences for particular ocean activities. While they are often left out of economic analyses, tradeoff analysis can include those ocean uses that can only be measured in non-monetary currencies such as biodiversity conservation, recreational person-days, and cultural value. Visualization of these tradeoffs can provide greater transparency for negotiations among existing and emerging ocean uses whose diverse stakeholders may not have previously considered their effects on other sectors.

"Strangers to marine spatial planning may worry that it means getting less from the ocean tomorrow. This study shows how smarts and science can help us all wind up with a little more ... forever," says Les Kaufman, a marine biologist at Boston University and a collaborator on the broader project that includes this study.

Though these results illustrate the possibilities of MSP, the findings are not prescriptive –– this study simply suggests possibilities. Analyses of other ocean activities such as bird conservation, shipping, and liquefied natural gas development could enrich the analysis, as well as could accounting for the indirect benefits of ocean activities, such as employment and coastal waterfront activity. White says, "The more ocean uses are accounted for, the more society will benefit."

The study was funded by SeaPlan, NCEAS, and UCSB.

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