Environmental Studies Program: Planned New Study

Title	Evaluating Connectivity Among Hawaiian Fisheries and Potential Socio-Economic Impacts of Offshore Wind Energy Installations (NSL #PC-19-05)
Administered by	Pacific OCS Region
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Procurement Type(s)	Cooperative Agreement
Approx. Cost	TBD
Performance Period	FY 2020–2022
Date Revised	December 17, 2019
PICOC Summary	
Problem	Given the ubiquity of fishing activities in virtually every part of the ocean, offshore renewable energy proposals often face strong opposition from some commercial fishing sectors.
Intervention	Guided discussions
Comparison	Social and economic characteristics of different fishing sectors unique to Hawaii
Outcome	Social and economic data, both qualitative and quantitative, on Hawaiian fisheries in an exportable database format, and an analysis of fisheries vulnerabilities and stakeholders' attitudes toward offshore wind projects
Context	Hawaii OCS

BOEM Information Need(s): The potential effects of wind energy installations to these fisheries may vary widely and include both positive and negative consequences. Local and popular understanding of these effects varies. Existing biases are likely to be largely negative and based on an incomplete understanding of potential renewable energy scenarios. Given the importance and the lack of up-to-date, general knowledge of the human dimensions of Hawaiian fisheries, BOEM needs to support a study to collect social, economic and logistical fisheries data, assess current attitudes toward offshore wind development in Hawaiian waters and evaluate the potential impacts to social and economic attributes of local fisheries. The timing of this effort is critical: Collecting these data substantially (five years) before any project is established provides BOEM and project proponents with the best opportunity to understand the human environment in Hawaii and respond appropriately.

Background: Hawaiian fisheries are uniquely integrated into the local traditions, culture and economy of the State. These include subsistence fishermen operating strictly from shore as well as long-range, commercial-scale fisheries, and their participants' motivation includes, in many cases, a complex blend of cultural, subsistence and economic drivers. Some of these fisheries take place in waters far from the main Hawaiian Islands (Kauai, Oahu, Molokai, Lanai, Maui, Hawaii), but most depend on access to areas within a few tens of miles from their home port, including areas under

consideration for installation of offshore wind turbines. Critically, there is often no clear distinction between subsistence, cultural, recreational and commercial fisheries.

Objectives: The purpose of this study is to collect information on Hawaii's fisheries to enable early and effective outreach, and to inform impact analyses.

Methods: Several alternative approaches to evaluating similar fisheries attributes have been used in comparable circumstances: Fuller et al. (2017) quantified social-ecological connectivity among California-Oregon-Washington fisheries using the infoMap community detection algorithm (Rosvall and Bergstrom 2008) to construct "participation networks". They used the strength of these networks to assess fisheries' sensitivity to social and economic disturbance. Fuller et al.'s (2017) approach relies on generally available fisheries data (landings time series, accessed from PacFIN); but these data may be limited to fisheries with a more substantial commercial role, excluding those that are primarily recreational or subsistence, and the metadata (particularly home port information) may not accurately reflect the location of capture. Pitcher (1999, see also Pitcher et al. 1998) developed a rapid assessment tool called RAPFISH based on a multivariate approach for comparing the sustainability of multiple fisheries. RAPFISH has been adapted for use in comparing alternative offshore marine renewable energy technologies (Kramer et al. 2010). The flexibility of this method and the option to include qualitative, as well as quantitative, data on social, economic and ecological aspects of diverse fisheries made it the technique of choice for prioritizing management options for Hawaiian fisheries (Nelson and Kramer 2017). A combination of these methods will be used for this study.

Studies of the potential social and economic effects of the installation and operation of offshore renewable energy technologies in the main Hawaiian Islands will be useful to BOEM. Such studies might involve gathering and synthesizing existing economic and infrastructure data for potentially affected fisheries, conducting structured discussions with key participants in Hawaiian fisheries and with resource agency representatives, and analyzing these data to identify opportunities for public outreach, compare alternative scenarios for offshore wind lease plans, comply with the National Environmental Policy Act (NEPA), and, ultimately, improve the likelihood of public support and the successful development of offshore wind energy resources in Hawaii.

The costs and complexity of collecting human dimensions data will be minimized by engaging knowledgeable and respected local fisheries representatives, and limiting formal surveys to community leaders and resource managers (Nelson and Kramer 2017, Kittinger et al. 2012). Some measure of community engagement is also expected to improve cooperation and data quality (Crane et al. 2017).

Specific Research Question(s):

1. What socioeconomic indicators are important in understanding changes to Hawaiian fisheries?

2. What are the potential beneficial and negative impacts of offshore wind farms to Hawaiian fishing communities?

References:

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