

Environmental Studies Program: Studies Development Plan | FY 2023–2024

Title	Evaluating Hawaiian Fisheries and Potential Impacts of Offshore Wind Energy Development (PC-23-05)
Administered by	Pacific OCS Regional Office
BOEM Contact(s)	Linette Makua (linette.makua@boem.gov), Donna Schroeder (donna.schroeder@boem.gov)
Procurement Type(s)	Contract or Competitive Cooperative Agreement
Conducting Organization(s)	TBD
Total BOEM Cost	TBD
Performance Period	FY 2023–2025
Final Report Due	TBD
Date Revised	April 29, 2022
PICOC Summary	-
<i>Problem</i>	Given the ubiquity of fishing activities in virtually every part of the ocean, offshore wind energy proposals often face strong opposition from fishing stakeholders, and successful outreach to these stakeholders is often inhibited by incomplete information.
<i>Intervention</i>	Discussions between BOEM and stakeholders, site visits
<i>Comparison</i>	Characteristics of different ports/harbors and fishing sectors unique to Hawai'i and their vulnerability to prospective offshore wind energy development
<i>Outcome</i>	Human dimension 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 energy projects
<i>Context</i>	Hawai'i OCS

BOEM Information Need(s): To reach common understanding between fishing and offshore wind energy on the OCS, BOEM needs to understand and seek input from all potentially impacted fishing sectors. Obtaining information to ensure orderly OCS development offshore Hawai'i is hampered by the lack of information necessary to conduct outreach activities and impact analyses. The State of Hawai'i has a bold energy agenda to achieve 100 percent clean energy by the year 2045 (H.B. 623¹). This will make Hawai'i the first state to set a 100 percent renewable portfolio standard for the electricity sector.

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 (Kaua'i, O'ahu, Moloka'i, Lāna'i, Maui, Hawai'i), 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 farms. The Western Pacific Regional Fishery Management Council (2002)

¹ [HB623_CD1_.pdf \(hawaii.gov\)](#)

notes that 1) fishing and related services and industries are important to all of Hawai'i's inhabited islands, 2) the social and economic cohesion of fishery participants is particularly strong at the island level, and 3) fishing communities are best not distinguished according to fishery or gear type. Critically, there is often no clear distinction between subsistence, cultural, recreational, and commercial fisheries.

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, especially those of the Native Hawaiian Communities, and evaluate the potential impacts to social and economic attributes of local fisheries. BOEM will recognize Indigenous Traditional Ecological Knowledge—a form of Indigenous Knowledge (IK)—as one of the important bodies of knowledge contributing to the scientific, technical, social, and economic advancements of the United States and to our collective understanding of the natural world.² For Native Hawaiians, cultural heritage and the natural world are valued as one. After working with our Indigenous partners in other states for many years, BOEM has found that it is best to treat IK and science as independent but comparable knowledge systems. Consulting early with local IK holders may not only help in better designing scientific activities but also in developing more accurate and culturally rich stories. BOEM seeks to connect with entities (TBD) within the Native Hawaiian Community. This study will complement the BOEM-funded study, *Maritime Cultural Resources Site Assessment in the Main Hawaiian Islands*, and will complement the effort described in one of three reports from that study, *A Guidance Document for Characterizing Native Hawaiian Cultural Landscapes* (Van Tilburg et al. 2017).

Objectives: The purpose of this study is to collect information on Hawai'i's fisheries to enable early and effective outreach, and to inform impact analyses (National Environmental Policy Act [NEPA] and Coastal Zone Management Act).

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 may be used for this study, or other appropriate techniques that may be proposed by the recipient.

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:

² Executive Office of the President, MEMORANDUM FOR THE HEADS OF DEPARTMENTS AND AGENCIES (2021, November 15) 111521-ostp-ceq-itek-memo.Pdf (whitehouse.Gov)

1. Gathering and synthesizing existing economic and port infrastructure data for potentially affected fisheries
2. Conducting structured discussions with key participants (including Native Hawaiian communities) in Hawaiian fisheries and with resource agency representatives
3. Analyzing these data to identify opportunities for public outreach
4. Comparing alternative scenarios for offshore wind energy lease plans
5. Complying with NEPA including Environmental Justice reviews
6. Improving the likelihood of public support and the successful development of offshore wind energy resources in Hawai'i

The costs and complexity of collecting human dimensions data will be minimized by engaging knowledgeable and respected local fisheries representatives, and limiting formal engagement to community leaders, including leaders of Indigenous, minority, and low-income communities, and resource managers (Nelson and Kramer 2017; Kittinger et al. 2012). Some measure of engagement to community leaders is also expected to improve cooperation and data quality (Crane et al. 2017). To gain a basic understanding of existing fishing infrastructure and sense of place, site visits to ports and harbors will precede guided discussions. Such leaders will help BOEM identify individuals who possess traditional knowledge and incorporate traditional knowledge into the evaluation.

The timing of this effort is critical: collecting these data substantially (five years) before any project is established enables BOEM and project proponents the best opportunity to understand the human environment in Hawai'i and respond appropriately.

Specific Research Question(s):

1. What human dimension aspects (including Traditional Ecological Knowledge) are important in characterizing Hawaiian fisheries in O'ahu and outer islands?
2. What existing port infrastructure supports Hawaiian fisheries and how can this infrastructure be protected or improved?
3. How can existing frameworks of understanding and mitigating potential impacts from offshore wind energy development be adapted to the unique fishing culture of Hawai'i?
4. How can outreach activities and impact analyses be sensitive to the foundational Hawaiian cultural strengths of 'ohana (extended family and social groups), mo'omeheu (culture), and 'āina (land and sea)?

Current Status: N/A

Publications Completed: N/A

Affiliated WWW Sites: N/A

References:

Crane N, Ruhlmal J, Nelson P, Paddock M, Bernardi G. 2017. Collaborating with indigenous citizen scientists towards sustainable coral reef management in a changing world: the One People One

- Reef program. In: Cigliano J, Ballard H, editors. Citizen science for coastal and marine conservation. Oxfordshire (UK): Routledge. 298 p.
- Fuller EC, Samhouri JF, Stoll JS, Levin SA, Watson JR. 2017. Characterizing fisheries connectivity in marine social-ecological systems. *ICES J Mar Sci.* 74(8):2087–2096.
- Kittinger JN, Finkbeiner EM, Glazier EW, Crowder LB. 2012. Human dimensions of coral reef social-ecological systems. *Ecology and Society.* 17(4):17.
- Kramer S, Previsic M, Nelson P, Woo S. 2010. Deployment effects of marine renewable energy technologies - framework for identifying key environmental concerns in marine renewable energy projects. Washington (DC): U.S. Department of Energy, Advanced Waterpower Program. 99 p. Report No.: RE Vision DE-003.
- Nelson P, Kramer S. 2017. Identifying fish stocks requiring Federal conservation and management in Hawaii. Honolulu (HI): National Marine Fisheries Service, Pacific Islands Regional Office. 64 p.
- Pitcher T. 1999. RAPFISH a rapid appraisal technique for fisheries, and its application to the code of conduct for responsible fisheries. Rome (Italy): Food and Agricultural Organization of the United Nations.
- Pitcher T, Bundy A, Preikshot D, Hutton T, Pauly D. 1998. Measuring the unmeasurable: a multivariate and interdisciplinary method for rapid appraisal of the health of fisheries. In: Pitcher T, Hart PJB, Pauly D, editors. *Reinventing fisheries management.* London (UK): Kluwer Academic Publishers. p.31–54.
- Rosvall M, Bergstrom C. 2008. Maps of random walks on complex networks reveal community structure. *Proceedings of the National Academy of Sciences USA.* 105:1118–1123.
- Van Tilburg H, Watson TK, Faria K, Hoomanawanui K, Ho-Lastiama I, Ritte W, Maly K, Nahoopii M, Horcajo K, Kaupiko K, Ball D. 2017. A guidance document for characterizing Native Hawaiian cultural landscapes. Camarillo (CA): U.S. Department of the Interior, Bureau of Ocean Energy Management. 208 p. with app. Report No.: OCS Study BOEM 2017-023.
- Western Pacific Regional Fishery Management Council. 2002. Magnuson-Stevens Act Definitions and Required provisions identification of fishing communities. 156 p.