**Bureau of Ocean Energy Management**

## Request for Letters of Research Interest

*Applicants must be a member in one of the following Cooperative Ecosystem Studies Units Regions: Hawaii-Pacific Islands, South Florida – Caribbean, Californian, Gulf Coast, Piedmont-South Atlantic Coast*

**Project Title:** Baseline Environmental and Socioeconomic Studies to Support Potential Offshore Wind Energy Development in the U.S. Territories

**Background:**

The Bureau of Ocean Energy Management (BOEM) oversees the exploration and development of oil, natural gas and other minerals and renewable energy alternatives on the Nation's outer continental shelf (OCS). BOEM'S Environmental Studies Program (ESP, https://www.boem.gov/environment/how-we-do-research) supports decisions made within the Department of the Interior, but also provides other Federal regulators, and the coastal states, and local governments with the information necessary to ensure that all stages of offshore energy and mineral activities are conducted in a manner to protect both the human and natural environments. BOEM's geographic responsibility increased substantially with the passage of the Inflation Reduction Act of 2022, which expanded OCSLA's definition of the OCS and gave BOEM authority for energy and mineral development in the U.S. Territories. OCSLA Section 1345 authorizes the use of cooperative agreements with affected States to meet the requirements of OCSLA, including sharing of information, joint utilization of available expertise, formation of joint monitoring arrangements to carry out applicable Federal and State laws, regulations, and stipulations relevant to outer continental shelf operations both onshore and offshore. BOEM can enter into cooperative agreements with various entities within the affected States including State offices, public colleges and universities, and Tribes.

The purpose of this Request for Letters of Interest (LOI) is to identify cooperative research in the U.S. Territories that will instigate the sharing of information, the joint utilization of available expertise and the potential development of monitoring arrangements to support the offshore wind (OSW) energy as practicable and statutorily appropriate. Proposed projects should seek to describe the existing state of knowledge, identify information gaps (e.g., data and enhanced knowledge) and clearly describe a research project that will advance the current state of knowledge. BOEM anticipates cooperative agreement to be awarded across multiple disciplines and research to be funded in U.S. Territories in both the Caribbean and Pacific.

**Project Timelines:** The deadline for responding to this request for a LOI is August 23rd, 2024. Selection for requesting proposals is expected by September 2024 and cooperative agreements to be put in place in early 2025. LOI should include an expected timeline for the proposed research which may be from one to 5 years.

**Funds Available:** The BOEM anticipates having approximately 2- 4 million dollars to fund projects. Individual projects should propose a budget no higher than $750,000 dollars. This includes the CESU overhead rate of 17.5%.

**Materials Requested for Letters of Interest:**

All submitted letters of interest must contain the following information and must not exceed 4 pages per topic in length.

A. Name, Organization and Contact Information.

B. Identify Research Topic(s) that are being addressed (e.g. A, see below).

C. Geography – What is the location of the proposed study.*

D. Proposed technical approach.

E. Draft Budget and Timeline (1-5 years is acceptable).

F. Statement of Qualification including:

   a. Brief descriptions of relevant experience.

   b. Resumes or CVs of key personnel (these do not count towards the 4-page limit).

*Proposed Studies should focus on the U.S. Territories in light of possible offshore wind energy development on the OCS. For more information on the boundaries of the OCS, please see https://www.boem.gov/oil-gas-energy/leasing/outer-continental-shelf

**Evaluation of Letters of Interest:**

All letters received will be reviewed by a panel of BOEM scientists. Contingent upon available funds, selected letters will be invited to prepare full study proposals.

Letters will be evaluated based on the following criteria:

- (50%) **Technical Approach –** Proposals should present sound (e.g., transparent, logical/systematic, replicable) technical approaches that answer explicit research questions relevant to the LOI's intent. OCS resource studies typically address the following research foci: baseline conditions, dynamics/trends, and impacts.
- (25%) **Relevant Experience -** Teams must have relevant experience to support the research.
- (10%) **Budget –** Is the budget appropriate and reasonable for the proposed approach.
- (10%) **Science Capacity Building in the U.S. Territories –** The proposal should identify how funds for research will support capacity building (science recruitment and training) in the Territories via participation in the research and provide meaningful outreach and engagement with stakeholders in the U.S. Territories on the supported study and Offshore Wind.
- (5%) **Diversity, Equity, and Inclusion-** Proposed research should contribute to justice, equity, diversity, and inclusion.[1] BOEM seeks to support proposals that are inclusive, invite innovation, encourage diversity, and have a high possibility of successfully answering the research questions.

[1] **Justice, Equity Diversity, and Inclusion:** BOEM's Environmental Studies Program seeks to foster diversity, equity, and inclusion by establishing processes and external outreach that avoid the unwitting introduction of barriers that would preclude equitable and meaningful participation. DOI's Environmental Justice Vision is "To provide outstanding management of the natural and cultural resources entrusted to us in a manner that is sustainable, equitable, accessible, and inclusive of all populations" (DOI, 2021).

**Submission Instructions:**

All LOIs must be sent by email by 5pm EST August 23rd , 2024 to the following email address: michael.rasser@boem.gov. Late LOIs will not be reviewed or further considered for a full proposal.

Please use the subject line "CESU LOI US Territories" in the subject field of the email and name your LOI file(s) as "Lead Investigator/Institution – X" where x is a number that differentiates LOIs should you submit more than one.

For More Information Contact:

Dr. Michael Rasser, Senior Marine Ecologist, Bureau of Ocean Energy Management, 703-787-1729, michael.rasser@boem.gov.

## Research Topics

BOEM is requesting letters of Research Interest on the following study topics:

A. **Collaboration on Baseline Monitoring Program of Birds, Cetaceans and Sea Turtles in Puerto Rico and the U.S. Virgin Islands –** The Bureau of Ocean Energy Management (BOEM) and the United States Fish and Wildlife Service (USFWS) have a long-standing collaborative relationship in the utilization of high-resolution aerial imagery surveys and the development of artificial intelligence (AI)/machine learning (ML) computer vision algorithms for the detection and classification of seabirds, marine mammals, and sea turtles in marine environments. BOEM is seeking the participation and guidance of experts in the U.S. Caribbean region to contribute to survey design, project coordination involving aerial imagery surveys and computer vision development, assist in the development of AI algorithms, and leverage their expertise in annotating marine wildlife in aerial imagery for the training of deep learning models. Complementary studies aimed at gathering additional information on the population distribution of birds, cetaceans, and sea turtles in the U.S. Caribbean may also be proposed. Examples of such methodologies include the analysis of existing data and the employment of radar, passive acoustic monitoring, environmental DNA (eDNA), and animal tagging to acquire new data.

B. **Baseline Data for Birds Cetaceans and Sea Turtles in the Pacific –** In the context of the U.S. Pacific Territories, research may be proposed to explore concepts that facilitate the acquisition of novel data and the synthesis of existing information pertaining to the distribution of seabirds, cetaceans, and sea turtles. Examples of such methodologies include the analysis of available data, and the use of radar, environmental DNA (eDNA), at-sea distribution and abundance surveys, passive acoustic monitoring, and various tagging techniques for the collection of new data.

C. **Synthesis of Social Science Research on Fisheries –** This study is a secondary data query to characterize and understand the social, economic and cultural aspects of Territorial fisheries within the confines of completed research. The objective is to garner a view of what has been studied and what else we need to know about fisheries in planning for Offshore Wind. This is a

synthesis exercise, not just a review. The study should also highlight vulnerable fisher groups whose activities and use of fisheries may be impacted by the development OSW along with the myriad environmental and societal changes taking place.

D. **Offshore Wind Energy and Visual Resources: Culture, History, and Tourism and Recreation –** Studies are needed to understand how visual impacts by offshore wind energy development may affect the physical elements and features that make up a seascape/ landscape's aesthetic, perceptual, and experiential aspects that contribute to its distinctive character. These impacts affect the "feel," "character," or "sense of place" that in turn may also affect the scenic and social values, historical and natural resources (e.g., cultural practices, historic resources) and, tourism and recreation resources (e.g., beachgoing, scenic recreation, recreational fishing). Potential studies may capture baseline conditions (e.g., inventory of coastal scenic/ visual character, recreation/ tourism activities, user/ viewer demographics, business composition, and socioeconomics) with projections of potential changes to the baseline conditions from post-offshore energy development using tools to characterize the changes such as photo-simulations, viewshed modeling, etc. The studies would also evaluate means to avoid, reduce, and mitigate these impacts. It's not necessary to focus on all of the impacted resources – social, cultural, historical and economic – a study may focus on several or one resource – e.g., tourism and recreation, historic properties, etc.

E. **OSW Workforce Capability and Benefits: What's needed? What exists? What can be locally sourced? What training programs would be useful? How do we ensure OSW benefits local people? –** There is a push to ensure large infrastructure projects don't just meet the need (e.g., energy production, transit, recreation) of a nation or some large-scale entity, but that they also directly spur job opportunities, ancillary employment, and training for local people to the extent plausible. OSW induced employment is highest during construction and then stabilizes to a lower level during operations. This theme aims to spur queries that survey extant data on OSW infrastructure, development and employment as well as local assets (infrastructural and educational). Research may build off recent infrastructure studies and other studies to determine the nature of workforce needs. In addition, there should be an exploratory component to understand extant capacities (e.g., training centers) that can be utilized to provide necessary and reasonable technical training. This study should consider how training and associated employment may be made accessible to some of the most marginalized groups who reside, work, and play in the shadows of potential facilities (i.e., the viewshed, the OSW site, cable landing area, on shore substations, etc.).

F. **Baseline Hydrodynamic Modeling and Potential Impacts for larval dispersal –** The objective of this study is to determine, via computer modeling experiments, the impacts of offshore wind farms (OWF) on hydrodynamics and biogeochemistry, including nutrient availability and primary productivity, and therefore the vulnerability of marine species. The results from this study will be used to evaluate the need for and the formation of mitigation measures. Methods would include: 1) A regional computational modeling approach would be used. The spatial domain would cover the coastal areas. 2) Experiments with simulated wind impacts from OWF would be compared to a control scenario without OWF. The model would simulate hydrodynamical and

biogeochemical aspects of the regional response to OWF. The use of established regional ocean models would be beneficial for this effort. 3) Artificial intelligence (AI) methods and algorithms would be helpful for optimizing the hydrodynamic simulation and parametrizing the effects of wind turbines on mixing and waves in the ocean. Studies can focus on specific regions, for example, Puerto Rico and the U.S. Virgin Islands or Guam

G. **Inventory and Assessment of Coastal and Submerged Archeological and Historical Sites Along the U.S. Caribbean Territories –** The objectives of this study are to (1) acquire and synthesize archival information on the coastal and submerged cultural resources and historic properties along the U.S. Caribbean Territories that could be affected by offshore wind energy leasing and (2) determine the appropriate local stakeholders and territorial government representatives to engage for NHPA Section 106 and NEPA consultations. Methodologies would include consultations involving the National Park Service (NPS) while archival research is being conducted and the creation of a geospatial database of known, reported, and potential cultural and historic sites. Visual impact simulations of offshore wind turbines at variable distances from the U.S. Caribbean Territory islands will also be needed. Archival and data compilations, geospatial database development, and the identification of Best Practices to consult with local stakeholders will be similar to the objectives of the BOEM study "Maritime Heritage of Guam and Mariana Islands," which involves a cooperative agreement with East Carolina University (ECU). "

H. **Air Quality –** Baseline study is needed discussing the current state of knowledge of air quality in Puerto Rico and that will also provide potential impacts of offshore wind to air quality. The Clean Air Act requires the Environmental Protection Agency to set the National Ambient Air Quality Standards (NAAQS) for six principal pollutants, called the "criteria pollutants" that are common in outdoor air, considered harmful to the public health and environment, and that come from numerous and diverse sources. The NAAQS cover six common criteria air pollutants (Carbon Monoxide [CO], Lead [Pb], Nitrogen Dioxide [$NO_2$], Ozone [$O_3$], Particulate Matter [PM], and Sulfur Dioxide [$SO_2$]) that are considered harmful to the public. Hazardous air pollutants and pollutant greenhouse gas types are also considered harmful to the public (USEPA 2024; USEPA 2009). Currently, Puerto Rico has some $SO_2$ non-attainment areas (https://www.drna.pr.gov/wp-content/uploads/2022/03/PR-SO2-NAA-SIP.pdf). In addition, a photochemical modeling platform was developed for Puerto Rico to support assessments relevant to the NAAQS (https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7322826/). Potential air quality impacts will be spatially allocated, assessed (emissions calculated) and modeled.

I. **Coastal and Marine Space Use: The U.S. Territories –** The necessary information basis for the development of Offshore Wind (OSW) includes a thorough understanding of how relevant ocean and coastal spaces are used; by 'whom', for 'what', 'when' (e.g., seasonality), 'where', and just as importantly 'why'. This letter invites researchers to approach this information need through a diverse array of methods as appropriate, collecting secondary and/or primary information. It also aims to capture the broad group of ocean users and incorporate the interests of the local population. 'Space-use' studies often address a diversity of users: fishers (of various types as

locally defined), shippers, Native/Indigenous groups, recreational users, tourists, beach goers, coastal infrastructure (e.g., ports, marinas, shipyards, fabrication facilities), research areas, cultural/historic sites, etc. In addition, the inclusion of vulnerable populations that fall within the realm of environmental justice is important; to understand their access to this space, associated import, current and historic challenges, and potential concerns with OSW. Insights into mitigation (broadly interpreted, compensatory, in-kind, capacity, etc.) and avoidance measures for 'use conflicts' between users and development are also sought.

J. **Stakeholder/Community Perspectives on OSW: Public Values, Beliefs, and Concerns –** The Territories are comprised of demographically diverse (e.g., class, ethnicity, race, affiliation) populations and it's important to gauge peoples' varied interests in the sea and coasts, and how these relate to OSW development. For some, the introduction of a new energy source (i.e., relatively efficient, reliable, and affordable) is a positive development, whereas for others (e.g., coastal enclaves, coastal homeowners, ocean users) the use of space for an OSW may degrade resources they depend on and/or enjoy. This theme is purposely written in generalized terms to allow for flexibility in research design and goals given they are allied with the objectives of this topical area (this narrative). This topical area aims to generate study ideas that access the public's interests as related to OSW. Potential studies should identify and document their values, beliefs and concerns as related to OSW. While this topic aims to document the diversity of interests within these regions, it's important to highlight any vulnerable subpopulations as related to OSW, with regard to their livelihoods, their ways of life and their health (economic, sociocultural and public health).