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

Title	Gulf of Maine Fish and Invertebrate Benthic Habitat Baseline Data Collection (AT-23-05)
Administered by	Office of Renewable Energy Programs
BOEM Contact(s)	Brandon Jensen (brandon.jensen@boem.gov)
Procurement Type(s)	Inter-agency Agreement
Conducting Organization(s)	National Oceanic and Atmospheric Administration
Total BOEM Cost	TBD
Performance Period	FY 2023–2026
Final Report Due	TBD
Date Revised	January 21, 2022
PICOC Summary	–
Problem	There is a lack of integrated baseline information about benthic habitats and associated fauna in potential wind energy areas in the Gulf of Maine.
Intervention	This study will summarize existing information and collect additional baseline information in potential wind energy areas.
Comparison	Information will be compared to data provided by developers during their pre-plan surveys.
Outcome	Improved evaluation of the potential impacts of offshore wind on the local habitats
Context	Gulf of Maine

BOEM Information Need(s): At present, there is a lack of a systematic independent baseline benthic habitat characterizations of potential offshore wind energy areas in the Gulf of Maine. This information is not only important for the evaluation and assessment of a lessee's construction and operations plan, but also necessary for consultations with the National Marine Fisheries Service (NMFS) pursuant to the Essential Fish Habitat (EFH) provisions of the Magnuson-Stevens Fishery Conservation and Management Act (MSA).

Background: This project will build upon previous efforts to collect baseline habitat data and to analyze the data in the context of potential impacts from renewable energy development (Guida et al. 2017). There is a lack of standard baseline benthic habitat data that includes areas for potential wind energy development in the Gulf of Maine. Previous habitat characterization efforts have primarily been inshore or designed for other specific purposes in areas that do not overlap with potential wind energy lease areas.

The study will assess and characterize benthic habitat and the epibenthic fish and macroinvertebrate communities in potential wind energy areas (WEAs) in the Gulf of Maine. Surveys will be conducted via multibeam sonar and optical (still and video) imaging of the seafloor. Data collected from these surveys will establish a baseline for the benthic macrofaunal species presence, abundance, and

sediment/seabed type. The location of the baseline surveys could also be used to establish a control study site to compare and measure impacts from future offshore wind development in the region. This study may include analysis of previously collected data of similar type as well as new data collection and analysis. For example, a data gap analysis of the Gulf of Maine, "*A Comprehensive Assessment of Existing Gulf of Maine Ecosystem Data and Identification of Data Gaps to Inform Future Research (AT-22-11)*" will kick-off this year and could be used to inform this study.[1]

Objectives: The objective of this study is to establish baseline benthic habitat characteristics at regional/WEA scales (10s of km). These data would allow for improved siting, impact assessments, and provide a baseline to evaluate project-scale habitat surveys submitted by lessees. Additionally, the results of this study would enhance our scientific understanding of these habitats, improve our EFH consultations with NMFS under the MSA in the region, and inform the National Environmental Policy Act process with the best available information regarding benthic resources in the Gulf of Maine.

Methods: The study would synthesize existing information regarding the benthic habitat types and macrofaunal (fish and invertebrate) species in the potential Gulf of Maine WEAs. The study will conduct multibeam sonar data and imaging surveys (video and still photography) of benthic habitat at potential WEAs within a regional scale of 10s of km (Harris and Stokesbury, 2010). Survey methods should also consider Sediment Profile and Plan View Imaging (SPI/PV) techniques where substrate types are conducive to this approach. Physical sampling of sediments may be warranted but is not required. Surveys would occur on a minimum of a 3 nautical mile (5.6 km) grid or along a continuous transect. Sampling resolution may be increased based upon diversity of habitat types found. The survey would use high resolution geophysical survey methods, videography, and still imagery of each station/transect. This survey will provide distribution and density estimates of prevalent benthic fish and invertebrate species as well as a classification of substrate types across the survey domain using the Coastal and Marine Ecological Classification Standard (CMECS) system. The number of stationary quadrats per station and/or length of survey tows will be refined prior to a formal request for quotes. Final products of this project will include at a minimum, a report characterizing the benthic habitat in the identified WEAs, a list of species identified within the study area to the lowest practicable taxonomic level, a data catalog of video and still imagery, and the classification of habitat using a habitat classification model following the CMECS system.

Specific Research Question(s): What habitats as well as fish and invertebrate species are present in potential offshore wind development areas in the Gulf of Maine?

Current Status: N/A

Publications Completed: N/A

Affiliated WWW Sites: N/A

References:

Harris BP, Stokesbury KDE. 2010. The spatial structure of local surficial sediment characteristics on Georges Bank, USA. Continental Shelf Research. 30(17):1840–1853. https://doi.org/10.1016/j.csr.2010.08.011.

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[1] https://www.boem.gov/sites/default/files/documents/environment/environmental-studies/AT-22-11.pdf

Guida V, Drohan A, Welch H, McHenry J, Johnson D, Kentner V, Brink J, Timmons D, Estela-Gomez E. 2017. Habitat Mapping and Assessment of Northeast Wind Energy Areas. Sterling (VA: U.S. Department of the Interior, Bureau of Ocean Energy Management. 312 p. Report No.: OCS Study BOEM 2017-088.