

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

Field	Study Information
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)	Interagency Agreement
Conducting Organization(s)	United States Geological Survey
Total BOEM Cost	\$400,000
Performance Period	FY 2024–2029
Final Report Due	TBD
Date Revised	July 12, 2024
Problem	There is a lack of integrated baseline information about benthic habitats and associated fauna in BOEM's Gulf of Maine Wind Energy Area (WEA) and potential lease areas.
Intervention	Summarize existing information and recent survey efforts to develop baseline benthic habitat and faunal associations information in the Gulf of Maine WEA and potential lease 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 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 identify existing best available physical benthic habitat data in potential lease areas within the GOME WEA. A data gap analysis will compare the spatial extent of existing benthic and organismal data with the potential lease areas and GOME WEA. 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)" is underway and deliverables from that study could be used to inform this study.¹ BOEM is aware of several survey efforts with some overlap of possible lease areas in the GOME WEA. We seek to include data collected via those efforts to improve our understanding of benthic habitat and epibenthic fish and macroinvertebrate communities in the potential lease areas in the GOME WEA. The resulting spatial data gaps will aid in focusing data collection needs and prioritizing future survey efforts.

Subsequent field surveys to collect additional geophysical and organismal data could employ multibeam sonar, physical grab samples, and/or optical (still and video) imaging of the seafloor. Data collected from these surveys will improve BOEM's baseline knowledge for the benthic macrofaunal species presence, abundance, and sediment/seabed type in the GOME WEA. 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.

Objective(s): The objective of this study is to establish baseline benthic habitat characteristics at WEA/lease area 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 under OCSLA. 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 NEPA process with the best available information regarding benthic resources in the GOME.

Methods: The study would synthesize existing information regarding the benthic habitat types and macrofaunal (fish and invertebrate) species in the Gulf of Maine WEA (approximately 2 million acres) and potential lease areas (approximately 1 million acres). Depending on the availability of future funding, the study will conduct multibeam sonar data and imaging surveys (video and still photography) of benthic habitat within the WEA and potential lease areas 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 wind energy areas, 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.

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

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

Current Status: Developing the Intra-Agency Agreement with USGS.

Publications Completed: None

Affiliated WWW Sites: None

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>.

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.