

## **BOEM ENVIRONMENTAL STUDIES PROGRAM: ONGOING STUDIES**

**BOEM OCS Region:** [Gulf of Mexico](#)

Planning Area: Gulfwide

**Title:** Characterization and Potential Impacts of Noise Producing Construction and Operation Activities on the OCS (GM-09-11)

**Total Cost:** \$494,525.35

**Period of Performance:** FY 2009-2011

**Conducting Organization:** JASCO Applied Sciences

**BOEM Contact:** [Dr. Donald \(Tre\) Glenn](#)

### **Description:**

Background: The renewable energy industry is rapidly evolving in the face of changing energy markets, technologies, and governmental policies. Currently wind is of greatest interest because of its proven technology, however planning for this future cannot be based on past experience alone. Limited ocean-based renewable energy development has occurred world-wide and this has been primarily wind power, located offshore of Europe.

Renewable energy projects link to an electricity market that is very different from the petroleum-based industry BOEM manages under the OCS Lands Act. These projects will also have very different potential environmental effects and operational needs than do offshore petroleum projects. Based on current expressions of industry interests, BOEM expects that most, if not all, renewable energy projects and activities in the foreseeable future will focus on portions of the BOEM Atlantic OCS. These are “frontier areas” with no current renewable energy operations.

The construction of offshore renewable facilities will ultimately introduce a considerable amount of noise into the marine environment for some period. To better understand the cumulative effects of noise from renewable construction and development activities on the OCS, the BOEM will conduct a study to characterize all aspects of noise-producing activities, such as pile driving, during the construction and operation of an offshore wind facility.

The impacts from pile driving result in substantial noise energy transmission within the water column. The BOEM needs to understand the zone of influence from sound generated by these activities as well as measure existing ambient noise levels in order to determine potential impacts (behavior, number of species present during activities, etc.) to marine mammals, sea turtles, fish, and the surrounding habitats.

Objectives: The objectives of this study are: (1-Baseline Data) to identify and characterize the levels and sources of ambient noise (both man-made and natural) in

surrounding waters within the areas of concern (to be determined by the BOEM) prior to construction of an offshore wind facility; and (2-Option Phase II) to field-measure actual levels of underwater noise generated during the construction and operation of the facility and to estimate the potential impacts (behavior, number of species present during activities, etc.) to the species present in the area as determined from analyses of the ambient acoustic data (Baseline Data). In addition, signal acquisition, detection, processing, and identification would be required for entire project (Baseline Data and Option Phase II).

Methods: The location of the study area will be determined by the BOEM but will be in two (2) of the locations below and within the Atlantic OCS Planning Area Boundaries.

The areas for possible collection to be determined by BOEM (2 areas minimum):

1. Horseshoe Shoal off the coast of Cape Cod
2. Offshore New Jersey / Delaware
3. Offshore Rhode Island
4. Offshore Georgia
5. Offshore South Carolina / North Carolina
6. Offshore Florida

The period of performance (POP) is anticipated to be twenty-four (24) months for the Baseline Data (at least one year data collection and analyses) and thirty-six (36) months for the Option Phase II after awards (at least one year data collection during construction and operation; then analyses), for a total of 60 months if the Option Phase II is exercised. The POP will encompass all tasks from initial planning, through and including the BOEM's final acceptance of all deliverables.

Products: Field work, data acquisition and storage, published report(s).

Importance to BOEM: The study will characterize both specific sources of noise from BOEM-permitted actions associated with the construction and operation of an offshore wind facility, as well as ambient noise measurements on the Atlantic OCS. Major noise-producing activities will be identified, and may include activities in addition to pile driving, and measurements of noise from these activities will be recorded and reported in appropriate units of measurement to estimate the acoustic footprint of the activities' duration, frequency, intensity, and relative contribution to ambient noise levels. These data will help quantify the relative contribution to ambient noise levels and consequently, the potential impact(s) to marine resources from the introduction of sound into the marine environment.

**Current Status:** This effort was awarded November 2009. The draft report has been sent to BOEM for review.

**Final Report Due:** July 2012 (1-Baseline Data)

**Publications:** None

**Affiliated WWW Sites:** None

**Revised date:**

December 2011

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