BOEM ENVIRONMENTAL STUDIES PROGRAM: ONGOING STUDIES

BOEM OCS Region:	Atlantic
Planning Area:	Gulfwide
Title:	Characterization and Potential Impacts of Noise Producing Construction and Operation Activities on the OCS – Part II (AT-10- x13)
Total Cost: $499,903.00	**Period of Performance:** FY 2010-2013
Conducting Organization:	Cornell University, Inc.
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 work are to identify and characterize the levels and sources of anthropogenic and naturally occurring ambient sound in oceanic areas that

are prospective sites for offshore energy-generation projects powered by the prevailing winds, waves, or ocean currents. Characterization would include determining the overall intensity, direction(s), and persistence of the various sounds and their frequency spectrum. The measurements and analyses will be made in advance of the construction of the energy-producing facilities, and serve as baseline data to potential ecological impacts of offshore wind construction activities. Estimates shall be made of the potential impacts (behavior, number of species present during activities, etc.) to the species resident in these areas or migrating through them as a consequence of the sounds produced by the construction and, later, operation of the energy-generating facilities. Please note that while some (perhaps many) of the resident marine organisms will themselves produce little or no sound, impacts to them from anthropogenic sound must be considered. In lieu of empirically evaluating impact of windfarm construction and operation, the focus will be on the baseline analysis, and then use modeled data to predict impact from construction and operation activities.

Methods: The geographic areas of interest for this project are within the Atlantic OCS Planning Area Boundaries.

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

1. Offshore Rhode Island
2. Offshore Georgia
3. Offshore South Carolina / North Carolina
4. Offshore Florida

The period of performance (POP) is anticipated to be thirty-six (36) months, from October 1, 2010 through March 31, 2014. The POP will encompass all tasks from initial planning, through and including BOEM's final acceptance of all deliverables. The modification of scope and schedule will create no change on the contracted budget for the project.

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 October 2010 and currently collecting data.

Final Report Due: September 2013

Publications:	None
Affiliated WWW Sites:	None
Revised date:	December 2012
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