

ENVIRONMENTAL STUDIES PROGRAM: Ongoing Studies

Region: Headquarters

Planning Area(s): Atlantic

Title: Acoustic/Thermographic Monitoring of Temporal and Spatial Abundance of Birds Near Structures on the Atlantic OCS (M10PC00101)

BOEM Cost: \$3,959,940

Period of Performance: FY 2010-2012

Conducting Organization(s): Normandeau Associates

BOEM Contact: [Dr. James Woehr](#)

Description:

Background: BOEM has identified impacts to birds from alternative energy development as a primary concern and has been seeking additional data to describe bird use of the OCS. With the publication of the BOEM Framework for Renewable Energy Development on the U.S. Outer Continental Shelf, significant interest in leases for wind energy development on the OCS has developed, creating a critical need for information on bird use of the OCS. Monitoring birds offshore has been limited worldwide due to difficulty of access and high cost. Boat transect surveys and “ships of opportunity” are subject to potentially large sampling error and are too slow and too limited in scope to provide sufficient information. Traditional aerial surveys are expensive and also subject to substantial sampling error. An effective and economical way to monitor bird presence offshore would be to use specially designed, strategically positioned and remotely operated acoustic/thermographic detection devices attached to offshore structures such as meteorological towers or wind turbines.

Acoustic/thermographic devices could monitor vocalizations of birds both day and night at all seasons of the year and in any weather conditions, including periods of low visibility that would prevent effective visual monitoring. They would also detect via thermal imaging birds which pass by silently without vocalizing. This study would test the technology for remote digital recording of birds offshore. It will provide three years of information on seasonal, annual, and weather-related variation in bird species presence on the Atlantic OCS in all seasons and weather conditions. This technique can monitor birds on the OCS during both daytime and night and in both good and poor visibility conditions, but only at point locations where offshore structures are available. Thermographic cameras positioned to obtain stereoscopic images will enable the determination of bird flight heights, information which is critical to assessment of risk to birds from wind turbines. Once the specifics of this technique are worked out, acoustic/thermographic surveys used in combination with high definition aerial surveys, which are useful only in daylight and good visibility conditions but which can cover wide

areas of the OCS, can yield a robust data set which will elucidate the annual, seasonal and diurnal variation in bird species use of the OCS.

Objectives: The objectives of the study are to:

- 1) Determine the optimal positioning of acoustic/thermographic detectors on meteorological towers and wind turbines to minimize background ocean noise while effectively detecting bird vocalizations.
- 2) Determine the number of such devices needed at each type of structure to determine the spatial position of a vocalizing bird.
- 3) Document the date and time of recorded bird vocalizations for each species detected.
- 4) Estimate, to the maximum extent feasible, the seasonal, annual, and weather-related abundance and/or passage rates for each bird species detected.

Importance to BOEM: With the publication of the BOEM Framework for Renewable Energy Development on the U.S. Outer Continental Shelf, significant interest in leases for wind energy development on the OCS has developed. Information on bird use of the OCS is now critically needed for environmental analyses of proposed sites. This study would provide new information on seasonal and annual variation in bird species presence on the Atlantic OCS.

Current Status: September 22, 2010. An acoustic/thermographic offshore monitoring system (ATOM) is currently collecting bird flight call data from the lighthouse on Frying Pan Shoals off the coast of North Carolina.

Final Report Due: September 21, 2014

Publications: None.

Affiliated Web Sites: None.

Revised Date: March 13, 2012

ESPIS: Environmental Studies Program Information System

All *completed* ESP studies can be found here:

http://www.data.boem.gov/homepg/data_center/other/espis/espisfront.asp