

Environmental Studies Program: Ongoing Study

Title	Shorebird Movements on the U.S. Atlantic Outer Continental Shelf
Administered by	Office of Renewable Energy Programs
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Principal Investigator(s)	Scott Johnston, scott_johnston@fws.gov
Conducting Organization(s)	US Fish and Wildlife Service with Environment and Climate Change Canada (ECCC)
Total BOEM Cost	\$70,000
Performance Period	FY 2018–2020
Final Report Due	July 1, 2020
Date Revised	October 26, 2020
PICOC Summary	
<i>Problem</i>	Shorebird movement and migratory paths are poorly understood thus making it difficult to assess risk to birds from offshore wind energy development.
<i>Intervention</i>	Analyze existing data from multiple efforts
<i>Comparison</i>	NA
<i>Outcome</i>	A report describing migratory movements of multiple shorebird species
<i>Context</i>	Shorebirds birds migrating on the Atlantic OCS

BOEM Information Need(s): BOEM has a responsibility to assess the risks of offshore wind energy development to migratory bird species. Many shorebird species migrate through areas developed for offshore wind. Information from this effort will be used to inform NEPA analyses on the risk of offshore wind development projects to migratory shorebirds.

Background: Many shorebird species migrate across the Atlantic Outer Continental Shelf (OCS) each spring and fall while traveling between their breeding and wintering areas. Opportunities to track specific flight paths of individual birds have only recently become available with advances in light weight transmitter technology. This project will describe the offshore movements of multiple shorebird species by analyzing existing data from nanotagged shorebirds that were tracked by partners using the Motus network (www.motus.org).

From 2014 to 2017, Environment Canada deployed >1,400 nanotags on shorebirds that occur in the U.S. Atlantic during migration including: Semipalmated Sandpiper, Semipalmated Plover, Black-bellied Plover, and Sanderling. Migration flights of several hundred of these individuals were tracked by BOEM-funded automated radio telemetry stations located adjacent to wind energy areas off the U.S. Atlantic coast from Massachusetts to Virginia. This study will implement analytical methods developed from other BOEM projects (BOEM OCS Studies 2018-046 & 2019-017) to assess

movements and flight altitudes of ESA listed species, red knot, piping plover and roseate tern.

This information is essential for understanding the potential for other species to encounter conflicts with renewable energy development in these areas for NEPA assessments. It will also allow the gathering of information on flight paths and altitudes of these birds at night and during inclement weather conditions, data which has heretofore been unattainable.

Objective: Use existing data collected from hundreds of shorebirds fitted with nano-tag transmitters and a network of receivers to describe the occurrence, extent, and altitudes of shorebird flights over Federal waters where potential exists for offshore wind energy development.

Methods: Environment and Climate Change Canada (ECCC) has compiled information on the shorebirds that were tagged by ECCC efforts from 2014 to 2017 and detected on BOEM-funded telemetry towers along the U.S. Atlantic Coast. A total of 474 tags representing 13 different species of shorebirds, detected during fall and spring migratory seasons. Efforts to obtain data from additional partners to include: Semipalmated Sandpipers tagged in Jamaica Bay, New York by New York City Audubon; Semipalmated Sandpipers tagged in Plymouth Bay, Massachusetts by Manomet and MassWildlife; and various species of shorebirds tagged by the USFWS National Wildlife Refuge System in the northeast region.

Data analysts will implement analytical methods developed for previous BOEM nanotag projects (BOEM OCS Study 2018-046 "[Tracking Movements of Threatened Migratory *rufa* Red Knots in U.S. Atlantic Outer Continental Shelf Waters](#)" and BOEM OCS Study 2019-017 "[Tracking Offshore Occurrence of Common Terns, Endangered Roseate Terns, and Threatened Piping Plovers with VHF Arrays](#)") to assess movements and flight altitudes. The analysis will focus on the core study area covered by BOEM automated radio telemetry stations ranging from Massachusetts to Virginia. These methods include species-specific boosted GAM models will be used to assess demographic (age, sex), atmospheric (e.g. wind speed, wind direction, barometric pressure, temperature, precipitation, visibility), temporal (time of day, date) variation in nearshore versus offshore movements in Federal waters of the Study Area. Analysts will estimate and summarize the exposure of tagged shorebirds to Federal waters and within each BOEM Wind Energy Area and wind energy lease area within the Study Area.

Specific Research Question(s): How and under what conditions do shorebirds migrate over Federal waters?

Current Status: Post- award meeting conducted on March 19, 2019. Draft final report received on February 7, 2020. Draft final report is in revision.

Publications Completed: None.

Affiliated WWW Sites: None.

References: None