Environmental Studies Program: Ongoing Study

Title	Risk Assessment to Model Encounter Rates between Large Whales and Vessel Traffic from Offshore Wind Energy on the Atlantic OCS (AT-19-01)
Administered by	Office of Renewable Energy Programs
BOEM Contact(s)	Kyle Baker (kyle.baker@boem.gov)
Principal Investigator(s)	Kimberly Olsen (kolsen@conshelf.com)
Conducting Organization(s)	CSA Ocean Sciences
Total BOEM Cost	$274,781.49
Performance Period	FY 2019 - 2020
Final Report Due	February 28, 2021
Date Revised	October 15, 2019
PICOC Summary	
Problem	Evaluating risk to whales from offshore vessel activity that supports wind development.
Intervention	Currently, mitigation for risk to whales is based on a mostly qualitative analysis. The mitigation may not match the risk predicted by the current analyses.
Comparison	The risk from vessels supporting offshore wind will be put into context with all other vessel traffic.
Outcome	What is the expected or predicted outcome, and understanding?
Context	U.S. North, Mid, and South Atlantic wind energy areas

BOEM Information Need(s): BOEM Office of Renewable Energy implements requirements of the Endangered Species Act, Marine Mammal Protection Act, and the National Environmental Policy Act to assess the potential and apply appropriate mitigation for the protection of marine mammals. Vessel strikes are a potential impact being studied to provide results that will contribute to the existing knowledge of vessel strike risk to inform BOEM decision-making.

Background: The approval of wind projects both on land and at sea typically involves an assessment of the risk they pose to wildlife. Risk is generally considered to be a function of the probability of an event occurring and the consequence of the event, should it occur. Often, there is limited information on which to base this evaluation and the default is to err on the side of precaution. Without modeling the interactions of variables (such as the stressor characteristics, animal behavior, geographic region, and time of year), assumptions of potential risk is often over-predicts the actual risk. While risk models exist for some species of whales, the focus is on the risk in localized areas of high vessel usage such as shipping lanes. For renewable energy projects, increased vessel traffic will occur during construction, and to a lessor extend during operations

and decommissioning. Thus far, models have not looked at the specific circumstances nor put into context this risk.

Objectives: The objective of this study is to develop a model to evaluate the risk of vessel strikes during different phases and areas of wind energy development, and visually communicate those risks to stakeholders by:

- Characterizing current regional levels of vessel traffic on the Atlantic coast in and around wind energy areas identified by BOEM.
- Assessing the offshore wind vessel types, speeds, frequency of trips, and routes of travel predicted to occur in wind energy and planning areas.
- Characterizing seasonal and regional risks by identifying density and distribution patterns at different times of year (e.g., by month).
- Characterizing the most sensitive parameters (vessel and operational) required for an analytical framework to evaluate vessel strike risk from offshore wind vessels.
- Developing the appropriate modeling tool required to evaluate the probability of vessel strike risk between offshore wind vessels and large whales and sea turtles.
- Provide a mapping tool to that can visually show vessel strike risks for stages of offshore wind development along the U.S. Atlantic OCS.

Methods: This desktop study will a risk assessment model to address the specific circumstances for offshore renewable energy. The process is to identify the important variables for risk using available resources such as animal behavior publications, OBIS-SEAMAP, AIS data, and BOEM program information; assess the exposure potential; and then characterize the risk probability. For vessel strike risk, factors such as the number of vessels operating, the density and behavior of protected species, season, and the probability of the vessel and whale occupying the same space will be incorporated into the model capabilities. A mapping tool is in development to graphically display the model outputs.

Specific Research Question(s): What is the vessel collision risk to marine mammals and sea turtles from offshore wind development?

Current Status: This study was awarded in August 2019. CSA is working with BOEM staff to identify the model parameters and capabilities needed for the mapping tool. The first progress report was received in October 2019.

Publications Completed: None.

Affiliated WWW Sites: None.

References: None.