Environmental Studies Program: Ongoing Study

Title	Understanding Potential Economic Impacts to Surfclam/Ocean Quahog Commercial Fishing from Offshore Wind Energy Facility Construction and Operation (AT-19-03)
Administered by	Office of Renewable Energy Programs
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Conducting Organizations(s)	Rutgers University, University of Southern Mississippi, Old Dominion University, and Virginia Institute of Marine
Total BOEM Cost	$499,751
Performance Period	FY 2019–2021
Final Report Due	September 6, 2021
Date Revised	February 5, 2020
PICOC Summary	
Problem	Fishermen are concerned that cumulative offshore wind energy development will limit their ability to make a living from the ocean.
Intervention	Characterize surfclam and ocean quahog commercial fishing activity within wind energy leases within the regional context; Describe ability and potential impacts of commercial fishers to fish in alternative locations within the larger fisheries management plan environment.
Comparison	Not applicable.
Outcome	Understand the cumulative economic impact to fisheries from offshore wind development on the Atlantic Outer Continental Shelf.
Context	North and Mid Atlantic OCS Planning Areas

BOEM Information Need(s): Building off previous work by NOAA and others, BOEM needs to develop one or more economic impact models that can evaluate a proposed construction and operation plan (COP) and cumulative impacts. As part of National Environmental Policy Act (NEPA) assessments, BOEM must estimate potential economic impacts of offshore wind development to the commercial fishing industry. This information will be used for leases being developed off the coast of New Jersey, New York, Massachusetts, Maryland, Virginia, Delaware, and Rhode Island, of which at least six COP environmental impact statements will be under way in the next five years. Based on conflicting information provided by the fishing community and offshore wind developers, BOEM needs to improve our understanding of impact producing factors (e.g., fishing gear compatibility, effectiveness of mitigation options).The model(s) will evaluate changes in costs and revenue if vessels adjust fishing locations due to construction and operation of offshore wind facilities within a cumulative impact framework.

Background: BOEM has issued thirteen offshore wind energy leases in southern New England and the Mid-Atlantic. Conflicts with fishing is a known challenge when siting

leases and though efforts were made to minimize space-use conflicts, fishermen are concerned about potential economic loss to their livelihood (NEFMC, 2016; FSF et al. v Jewell, 2016). National Oceanic and Atmospheric Administration (NOAA) data indicates that more than $16 million in federally permitted commercial fish revenue may be annually harvested from BOEM leases off the east coast (Kirkpatrick et al., 2017). Examples of potential models exist for some fisheries undergoing a management strategy evaluation (Kukendall et al., 2017). However, several fisheries that may be impacted by offshore wind development are lacking information that is essential to model development, such as characterization of fishing behavior. Uncertainty still exists regarding potential mitigation options (VA CZM, 2016; MAFMC BMP Workshop, 2014).

BOEM published the results of a NOAA report (Kirkpatrick et al., 2017) that discussed the potential exposure of commercial fishing revenue through creation of a database that combined commercial fishing vessel trip reports and observer data to model the likely spatial location of where fish were harvested and linked that spot on the ocean with the received revenue from seafood dealer reports via the methodology described in DePiper, 2014. NOAA found that fish harvest revenue and potentially affected groups of fishermen (e.g., gear type, ports, target species) varied greatly between lease areas. Rhode Island Department of Environmental Management (RI DEM) has tested an alternative methodology using vessel monitoring systems (VMS) with similar fisheries characterization results (RI DEM 2017). The next step is to conduct impact modelling to help understand how the identified fisheries, ports, and fishing gear groups might actually be impacted by proposed activities. For instance, studies in the Irish North Sea (Gray et al., 2016) suggest that highly mobile fishing gear, such as bottom trawls, may not be able to fully utilize the area within a wind facility and public comments to BOEM suggest that certain U.S. fisheries (e.g., groundfish) will have limited areas to fish due to closures called for in fishery management plans.

Objectives: Improve BOEM's ability to conduct economic assessments for wind energy development's impact on commercial fisheries through:

- Enhanced understanding of the impact producing factors (e.g., gear compatibility; mitigation) and best practices of how other agencies determine cumulative effects;

- Identification of economic impacts under different development scenarios, accounting for fisheries that vary over space and time and variation in underlying assumptions; and

- An enhanced spatial understanding through better representations of variation in gear, transit and fishery closures given different development scenarios.

Methods: The Principal Investigators will use SEFES, a spatially explicit surfclam fishery economic modeling approach, to simulate fishing behavior under the offshore wind development scenarios. This model was created prior to 2013 and thus required upgrades to the model will be necessary. These updates will be minimal and largely limited to updating parameterization associated with vessel operations and economics, and configuration of the clam stock spatial distribution. Model modifications will

require approximately 6 months to complete, with most of the time allocated to obtaining necessary details about the current state of the fishery from the Industry Advisory Team, and to re-configuring input files to properly parameterize SEFES.

Specific Research Question(s): What is the individual and cumulative economic impact of offshore wind energy development on the Atlantic surfclam and ocean quahog commercial fisheries?

Current Status: The project was awarded in September 2019. The first industry advisory meeting was held in October 2019 and model development has begun. The project is proceeding well.

Publications Completed: None.

Affiliated WWW Sites: None.

References:

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