

Environmental Studies Program: Ongoing Studies

Study Area: North Atlantic

Administered By: Office of Renewable Energy Programs

Title: Atlantic Fish Telemetry: Monitoring Endangered Atlantic Sturgeon and Commercial Finfish Habitat Use Offshore New York

BOEM Information Need(s) to be Addressed: BOEM has made good investments in determining the presence of important commercial and protected fish in Atlantic wind energy areas and sand borrow areas on the Atlantic Outer Continental Shelf (OCS). The next step is to better understand more about how fish use the area so that impacts from such impacts as bottom disturbance and noise can be better understood. The information collected for this study will greatly aid BOEM's Office of Renewable Energy Programs and Marine Minerals Program to meet obligations under the National Environmental Policy Act, the Endangered Species Act, and the Magnuson-Stevens Fishery Conservation and Management Act.

Total Cost: \$400,000

Period of Performance: FY 2016-2018

Conducting Organization: State University of New York – Stony Brook with support from NY Department of Environmental Conservation.

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Description:

Background: Increasingly, active acoustic telemetry is being used to track the movements of fish species. The use of telemetry involves the attachment of active acoustic tags on fish and the placement of passive acoustic receivers on the seafloor. Over the years a network of largely near-shore receivers has been established by various academic and government agencies on the Atlantic coast.

Through this study BOEM will be taking advantage of new methodologies of securing receivers in deeper waters of the OCS to expand and leverage data from the existing acoustic receiver network (see: Atlantic Cooperative Telemetry Network and the Mid-Atlantic Animal Tracking Observing System) by researchers participating in those networks. In addition, BOEM would fund the additional capture and tagging of fish to increase the pool and diversity of tagged fish. The information will be useful to the Office of Renewable Energy Programs and the Marine Mineral Program.

This study will focus on the New York Wind Energy Area.

Objectives: The objective of this project is to use acoustic telemetry to estimate the habitat use of Atlantic Sturgeon and important commercial species in the New York Wind Energy Area (NY WEA) in order to estimate: (1) the total number and proportion of tagged individuals present; (2) occurrence as a function of distance from the shore;

(3) map of array use and general habitat associations; (4) residency and; (5) rate of movement.

Methods: The approach would be to leverage large numbers telemetered fish and increase the number of tags in important commercial and protected fish taxa. This study will tag 100 Atlantic sturgeon along with 118 individuals of other species of ecological and commercial importance. These species include but are not limited to black sea bass, winter flounder, and summer flounder.

A large acoustic receiver array will be deployed within and in a linear transect to the NY WEA. The array will feature a minimum of 31 VEMCO VR2AR receivers that will actively monitor animal use of the NY WEA. Receivers will be deployed on 400 lb. moorings and will be downloaded a minimum of twice in a two year period. Each VR2AR receiver is equipped with an internal acoustic release and built-in transmitter that provides the ability to communicate with a surface vessel through the use of an onboard tracking receiver without retrieving the physical receiver.

Relative abundance of Atlantic sturgeon and other fish will be calculated as the proportion of tagged individuals present within the NY WEA. Residency within the region will be determined using a minimum of two successive transmitter detections at each receiver. Duration of a residency event will be started with the first detection and end with the last detection followed by a “time-out” period of 12 hours. The “time-out” period allows the residency event to continue if the individual sturgeon returns to the location within the 12 hour period; otherwise, the residency event is terminated at the last known detection. Rate of movement (ROM) will be calculated using a receiver-distance matrix. Existing data will be used to characterize the benthic habitat where acoustic receivers are located.

Current Status: Acoustic receivers were deployed in the Fall of 2016. Fish tagging has occurred (36 black sea bass, 40 summer flounder, and 17 winter flounder) and detections have been downloaded. As of December 2017 the array has detected almost 500 individual fish over 85,000 times. Atlantic sturgeon constituted 226 the individual fish detected over 5,000 times.

Final Report Due: April 2018

Affiliated Web Sites: None.

Revised Date: January 25, 2018.