Environmental Studies Program: Ongoing Study

Title	Comparative Study of Aerial Survey Techniques (AT-22-03)
Administered by	Office of Renewable Energy Programs
BOEM Contact(s)	Mary Boatman (mary.boatman@boem.gov)
Procurement Type(s)	Interagency Agreement
Conducting Organization(s)	NOAA Northeast Fisheries Science Center
Total BOEM Cost	$130,870
Performance Period	FY 2022–2023
Final Report Due	July 10, 2023
Date Revised	September 2, 2022
PICOC Summary	
Problem	With the installation of offshore wind turbines, the traditional method of aerial surveys will not be possible in those areas.
Intervention	Adjust survey techniques to use cameras
Comparison	Comparison of aerial surveys with observers to those with camera systems
Outcome	Change in methodology that can be integrated into historical data bases
Context	The region of focus will be the Atlantic where construction may occur in the foreseeable future

BOEM Information Need(s): Future offshore wind development will include wind turbines with a height of 850 feet or more. These turbines will interfere with survey methods that are used to develop population estimates for protected species. BOEM, NOAA and FWS use aerial surveys as part of consultations, to determine population levels and make take estimates which is important across all BOEM programs. BOEM has a need to execute survey requirements in a safe and cost-effective manner while considering current and future constraints. Development of new techniques will enable BOEM to have the information needed for protected species consultations with NOAA and FWS, which support all BOEM programs.

Background: Offshore wind turbines are anticipated to have heights up to 1000 ft. Historical visual marine mammal and sea turtle aerial surveys were at altitudes of 600 – 1000 ft. For example, the National Marine Fisheries Services aerial abundance surveys are at 600 ft altitude. Thus, the future turbines will interfere with these traditional aerial low altitude flights. This will impact the collection of observations necessary to evaluate the changes in species distributions due to the presence of the turbines, and to stock assessments that use the aerial abundance survey data. The evaluation of distribution changes and the stock assessments are necessary pursuant to obligations under the Outer Continental Shelf Lands Act, the Endangered Species Act, and the National Environmental Policy Act.

New methodologies, using high-definition cameras, allow for higher flight heights. However, a change in methodology puts into question the integration of new observations with the historical record and the assessments based on this record. Recently, the State of New York funded two separate aerial survey

efforts. One survey effort, funded through the New York Department of Environmental Conservation (NY DEC), collected monthly data for three years over the entire New York Bight using traditional aerial survey methods. Contemporaneously, the New York State Energy Research and Development Authority (NYSERDA) funded quarterly aerial surveys over the same area using high-definition cameras. In addition, over these New York waters during the same time period, the NEFSC conducted periodic visual 2-team aerial surveys allowing the estimation of perception bias that cannot be estimated using the 1-team NY DEC visual survey data. These three data sets are ideal for conducting a comparison of results.

Objectives: The objective of this study is to compare high-resolution aerial imagery survey and aerial visual survey methodologies from surveys conducted over the New York Bight. The reason for the comparison is to explore avenues to integrate data from both data streams to be able to create a consistent time series of aerial survey data results from both imagery and visual data.

Methods: This study proposes the following general work plan:

1. Acquire the datasets from the New York surveys.

2. Create a steering group of stakeholders to coordinate with the data owners and experts on aerial surveys to create a detailed work plan to process and analyze the data.

3. Conduct the agreed upon work plan while reaching out to the steering group or other experts as needed for advice.

4. When preliminary results are available, develop a document describing the process and results, and hold a virtual meeting with the steering group and other experts to review the results.

5. Develop a final report, taking in account of reviewer's comments, which will be delivered to BOEM and also be used to develop a peer-reviewed journal article.

Specific Research Question(s): How best can imagery data be merged with historical aerial survey data?

Current Status: N/A

Publications Completed: N/A

Affiliated WWW Sites: N/A

References: None.