

Digital Aerial Baseline Survey of Marine Wildlife in Support of Offshore Wind Energy

Summary of Fall 2017 Digital Survey #6



NYSERDA



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Prepared for

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Overview

The second fall survey for the NYSERDA Offshore Planning Area (OPA) was conducted from 9-27 November. These surveys are designed to characterize the usage of the area by marine fauna to aid in the planning for offshore wind. The survey was undertaken by one APEM camera technician using the Shearwater 3 camera system, with an image resolution of 1.5 cm. A Piper Aztec twin engine aircraft was used at the planned flight height of 1,360 ft. The survey team was based out of MacArthur Airport in Long Island, NY, for the duration of the survey.

Methods

Transect Orientation

The Fall 2017 survey followed the same flight plan as the Summer 2017 survey when the grid survey of the WEA was dropped, as detailed in the Fall 2017 flight plan (confidential document to NYSERDA). Because there are a number of local airfields on Long Island, FAA imposes varying altitude restrictions that survey aircraft must obey. These are designated according to distance from the airfield. Flights parallel to the shoreline within the restricted zone ensure that the survey aircraft can maintain constant altitude over a complete transect, thus ensuring consistency in image resolution and areal coverage along the transect. For this reason the nearshore area is surveyed along transects parallel to the shoreline and the offshore area is surveyed along transects perpendicular to the shoreline (Figure 1). During the Fall 2017 survey, a technical issue with the flight plan when out on task made it necessary to revert to an earlier flight plan for transects parallel to shore. As a result of adopting this plan an additional transect line was flown in the Fall 2017 survey. To ensure consistent coverage across surveys, not all images from transects will be analyzed.

FAA-controlled altitude restrictions cease to be an issue several miles off shore. At this point transects were orientated perpendicular to the shoreline and consequently to the bathymetry, providing optimal orientation for expected clines in the distribution of target species (Figure 1).

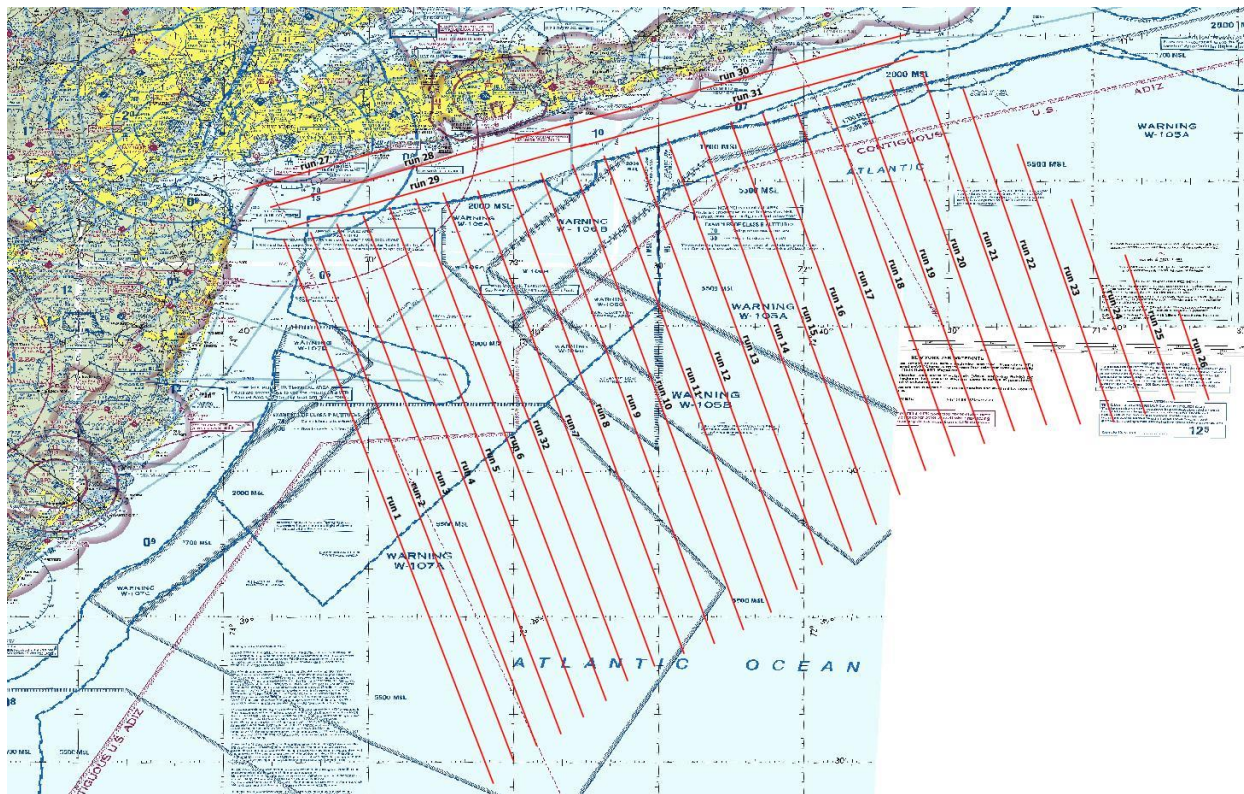


Figure 1. Transect lines flown for the OPA including nearshore and offshore areas

Daily Schedule

The survey was undertaken by one APEM camera technician and pilot each day. Due to weather conditions and daylight hours, the crew was only able to survey 3–4 hours on task a day. The survey crew generally began surveying around 7 AM, and, depending on the weather, the crew would either plan to conduct two short missions or one longer mission. Following each daily survey, sample imagery was evaluated to make sure it was of good quality for analysis. If data were deemed not high enough quality, the lines affected were re-flown. Data were backed up daily and prepared to be shipped for analysis.

Flight Altitude and GSD Resolution

The flight crew was able to gain permission to enter the controlled airspace close to the coast at the proposed flight altitude and therefore the whole survey was completed at a flight altitude of 1,360 ft and resolution of 1.5 cm GSD. The weather was generally poor throughout the survey period, with survey days interspersed with periods when it was not suitable to survey.

Timing

The following details the lines completed on each day where surveying took place

Date (2017)	Action
November 09	6 lines of the OPA were flown
November 11	1 line and 1 partial line of the OPA was flown
November 12	7 lines of the OPA were flown
November 18	4 lines of the OPA and 2 lines of the nearshore East were flown
November 20	3 lines of the nearshore West were flown
November 23	2 lines of the OPA were flown
November 26	4 lines of the OPA were flown
November 27	2 lines and 1 partial line of the OPA were flown

Other dates not listed above were non-survey days due to weather or aircraft maintenance.

Results

There were approximately 400,000 images collected during the survey covering the OPA area, from which sufficient images will be extracted to achieve over 7% image capture coverage for the OPA. Details on the footprint size and capture point of each image along with the final coverage will be provided once data have been fully processed.