

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

Winter 2018-2019 Survey
Summary Report



NYSERDA



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

Summary of Winter 2018-2019 Digital Survey #11

Prepared for

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NYSERDA

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Overview

The third winter survey for the NYSERDA Offshore planning area (OPA) was started on February 3, 2019 and completed February 17, 2019. 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. Low level cloud meant that the survey had to be executed at an average flight altitude of 1,320 ft, rather than at the planned flight height of 1,360 ft. The survey team was based out of MacArthur Airport in Long Island, New York, for the duration of the survey.

Methods

Transect Orientation

The same flight plan was used for the Winter 2018-2019 survey as detailed in the Winter 2018-2019 Flight Plan and as used for the Winter 2017–2018 survey (confidential document to NYSERDA) in which 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). 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.

FAA controlled altitude restrictions cease to be an issue several miles offshore. 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).

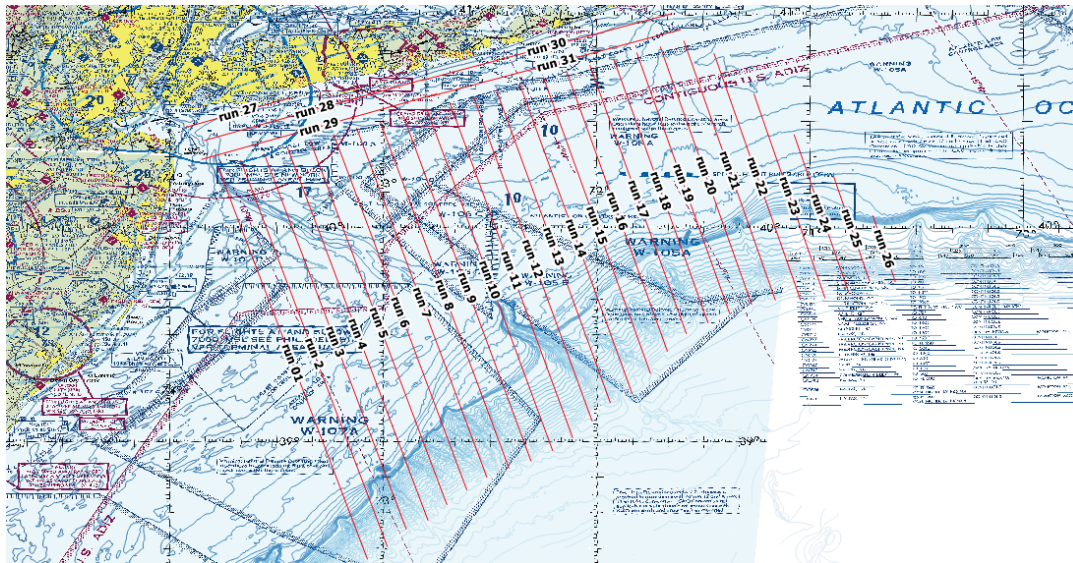


Figure 1. Transect lines flown for the OPA including nearshore and offshore areas

Daily Schedule

The survey was undertaken by one APEM camera technician and pilot each day. The survey crew generally began surveying around 7 AM, 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, however due to low level cloud the altitude had to be adjusted during the survey and therefore the whole survey was completed at an average flight altitude of 1,320ft and an average resolution of 1.5cm GSD. The weather was generally poor throughout the survey period with long periods of low cloud cover and 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 (2018) | Action |
|---------------|--|
| February 3rd | 4 lines of the OPA were flown |
| February 5th | 4 lines of the OPA were flown |
| February 6th | 2 lines and 2 partial lines of the OPA were flown |
| February 9th | 1 partial line of the OPA were flown |
| February 10th | 4 lines and 2 partial lines of the OPA were flown |
| February 14th | 2 lines of the OPA and 5 lines of the nearshore were flown |
| February 16th | 8 lines of the OPA were flown |
| February 17th | 2 lines 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.