

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

Spring 2019 Survey Summary Report



**NYSERDA**



**NORMANDEAU  
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ENVIRONMENTAL CONSULTANTS



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

## Summary of Spring 2019 Digital Survey #12

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## Overview

The third spring survey for the NYSERDA Offshore Planning Area (OPA) was started on 27 April 2019 and completed on 7 May 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 at an average flight height of 1,350 ft. The survey team was based out of MacArthur Airport in Long Island, NY, for the duration of the survey.

## Methods

### Transect Orientation

The same flight plan was used for the Spring 2019 survey as detailed in the Spring 2019 Flight Plan (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 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).

### 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.

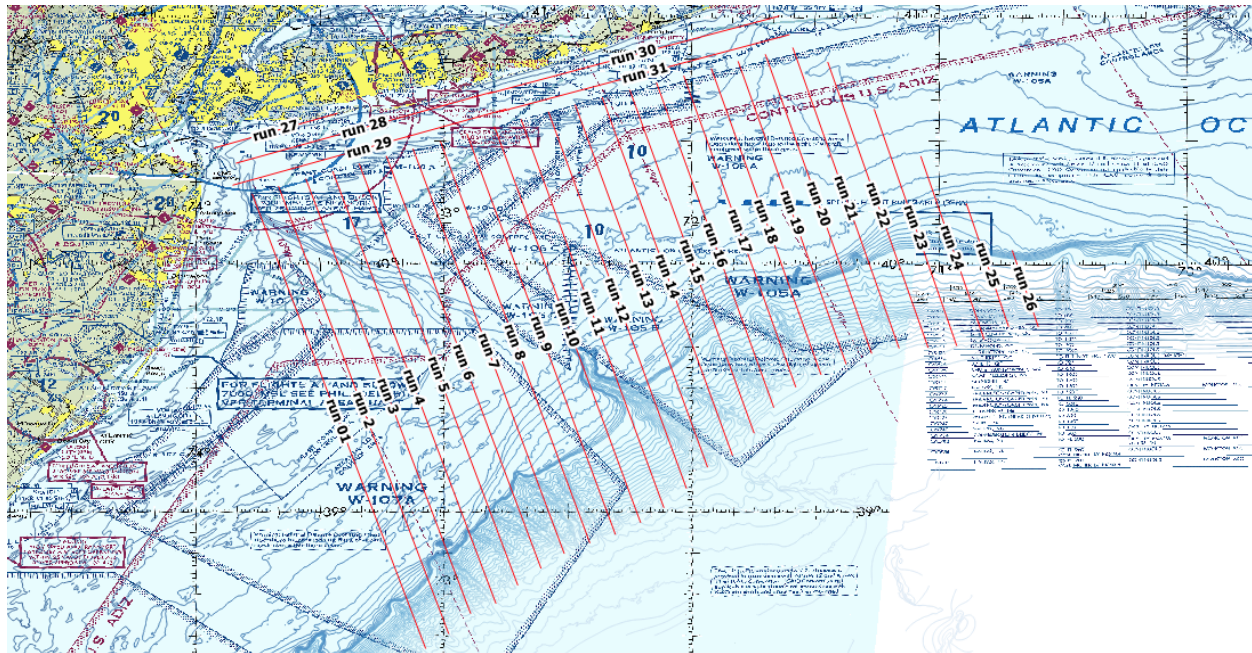


Figure 1. Transect lines flown for the OPA including nearshore and offshore areas.

## 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. The whole survey was completed at an average flight altitude of 1,350 ft and an average resolution of 1.5 cm GSD. The weather was generally poor throughout the survey period with long periods of low cloud cover; survey days were interspersed with periods when it was not suitable to survey.

## Timing

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

Date (2019)	Action
April 27	4 lines of the OPA flown
April 28	5 lines of the OPA flown
April 29	8 lines of the OPA flown
May 6	4 lines of the OPA flown
May 7	10 lines of the OPA 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.