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Environmental Imaging Solutions

**Digital Aerial Wildlife Survey of BOEM Lease Area OCS-A 520**

**Monthly Report: October 2020**

**Equinor Wind US**

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## 1. Executive Summary

- A digital aerial wildlife survey of the Bureau of Ocean Energy Management (BOEM) Lease Area Outer Continental Shelf – Atlantic (OCS-A) 0520, off the Massachusetts coast was conducted on October 14<sup>th</sup>, 2020 using APEM Inc.'s high-resolution camera system to capture digital still imagery.
- Images collected have been analyzed by APEM Inc. (hereafter referred to as APEM) and quality assured by Normandeau Associates (hereafter referred to as Normandeau). Raw counts of all species and incidental observations recorded during the October 2020 survey are presented here.
- A total of 62 birds were recorded in the survey area during the October survey. The most abundant group recorded was passerines (n=21), followed by gulls (n=19), shearwaters (n=16), scoters (n=3), gannets (n=2) and terns (n=1).
  - A total of 51 birds (82%) were recorded in flight during the survey. These consisted of unidentified passerine species (n=21), great shearwater (n=6), Cory's shearwater (n=6), herring gull (n=5), great black-backed gull (n=3), unidentified scoter species (n=3), northern gannets (n=2), lesser black-backed gull (n=1), unidentified large gull species (n=1), unidentified large shearwater species (n=1), unidentified shearwater species (n=1) and 'commic' / Forster's tern (n=1). There were 11 birds (18%) recorded as sitting.
  - A total of six marine mammals consisting of common dolphin (n=4) and unidentified dolphin species (n=2) were recorded.
  - A total of 10 large bony fish consisting of ocean sunfish (n=8), unidentified sunfish species (n=1) and unidentified tuna species (n=1) were recorded.
  - A total of two sharks, consisting of white shark (n=1), and unidentified shark species (n=1) were recorded.
  - No turtles or rays were recorded.
- No Listed species (Federally Listed as Threatened or Endangered, Massachusetts State Listed as Threatened or Endangered) were recorded.

## 2. Introduction

APEM and Normandeau were contracted by Equinor Wind US to provide a full year of digital aerial wildlife surveys of the Massachusetts Lease Area OCS-A 0520. Surveys will be carried out on a monthly basis from December 2019 through November 2020, except for April, May, August, and September, when two surveys per month shall be carried out in order to coincide with potential use of the area by roseate tern (*Sterna dougallii*).

The aims and objectives of the work are to assess the abundance and distribution of birds, marine mammals, sharks, rays, and turtles present in the Lease Area OCS-A 0520 over the course of a full year. The surveys will provide the baseline information required for conducting impact assessments and are consistent with the survey guidelines for providing avian, marine mammal, and sea turtle information for renewable energy development on the OCS (BOEM 2017 and 2019).

The Survey Area referred to herein is comprised of the Lease Area OCS-A 0520, plus a 2 km (c. 1 NM) buffer surrounding it with an approximately 4 km (c. 2 NM) buffer towards the northeast end.

Images were captured using a grid-based survey design with a 1.5 cm ground sampling distance (GSD). Images were analyzed by APEM and quality assurance was undertaken by Normandeau. This report describes the results of the October 2020 surveys.

## 3. Summary of Survey

The survey was undertaken on October 14<sup>th</sup>, 2020 from 18:25 to 20:26 (UTC). Data collected were 1.5 cm GSD digital still images using a GPS-linked bespoke flight management system to ensure the tracks were flown with a high degree of accuracy.

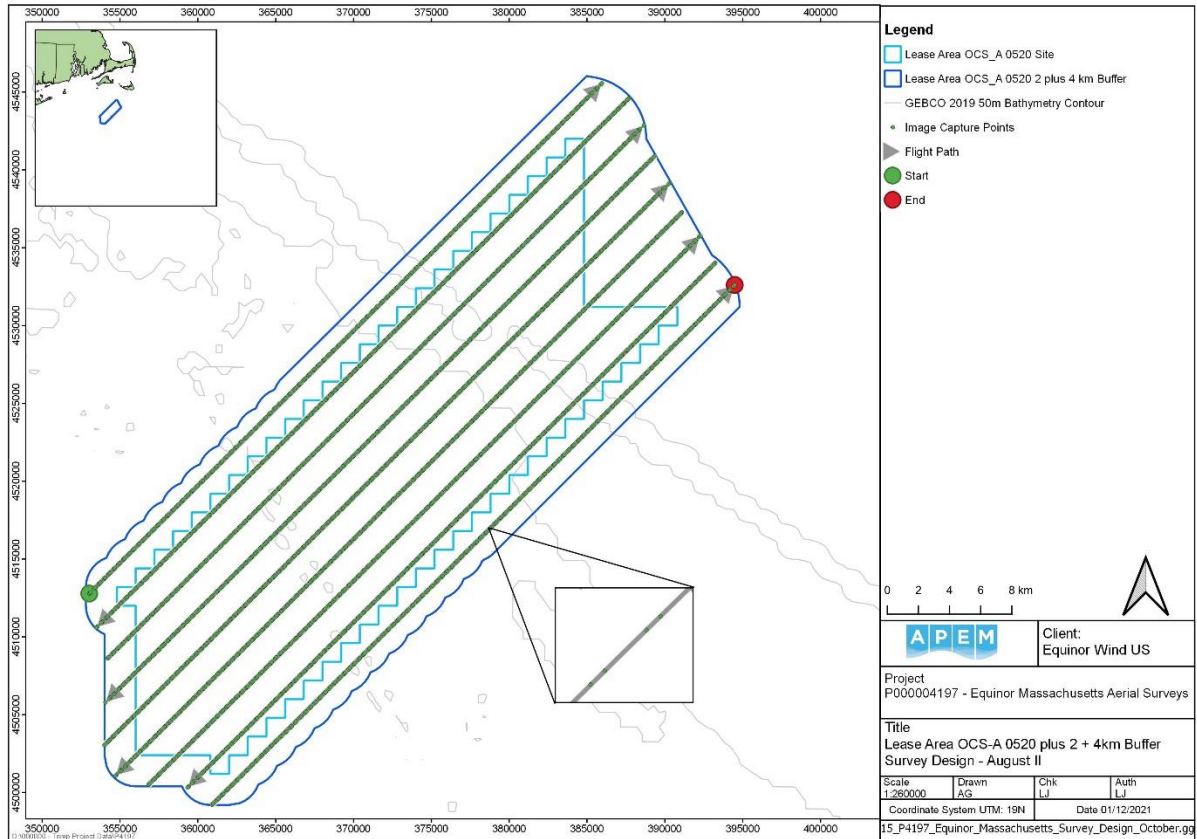
The digital aerial survey captured images along nine lines spaced approximately 1.9 km across-track and 0.5 km along-track between image nodes within the survey area (**Figure 1**). Coverage of images analyzed was calculated to be approximately 10% of the survey area.

On October 14<sup>th</sup>, 2020, the cloud cover was recorded as 0-5% (clear), visibility was greater than 10 km (6.2 miles), and no precipitation was recorded. Wind speed was recorded as 15 knots from a north-westerly direction. The outside air temperature at the survey altitude was recorded as 54-56°F. The sea state was 4 (moderate), and the water turbidity was 2 (moderately turbid).

No health and safety issues were reported during the survey.

APEM analyzed the images to enumerate birds to species level, and to enumerate any other non-avian marine fauna. Normandeau provided quality assurance (QA) of the data to check for missed animals in 10% of images recorded as empty, and quality assured 20% of the bird species identification undertaken by APEM (and 100% of Listed species). Normandeau also identified 100% of the species of non-avian marine fauna including marine mammals, turtles, sharks, and rays. Birds and marine fauna identified from the images were 'snagged' (i.e. located within the images) and categorized to species when possible, otherwise to the species grouping.

Data reported are raw counts of animals that have not yet been subject to extrapolation for population estimates. Design-based population estimates will be provided in the annual report.



**Figure 1** October Survey Design of Lease Area OCS-A 0520 plus 2 km / 4 km buffer

## 4. Abundance and Distribution

### 4.1 Species Abundance

The numbers of marine wildlife species recorded during the October 2020 survey are presented in **Table 1** to **Table 2**. Species scientific names are provided in Appendix I. Example images of individuals recorded during the surveys are provided in Appendix II.

**Table 1** Total number of individuals of birds recorded during the October 2020 survey of the Lease Area OCS-A 0520 WEA plus 2 km / 4 km irregular buffer

Group	Species	Flying	Sitting	Total
Duck	Scoter sp. - unidentified	3	0	3
Shearwater	Cory's Shearwater	6	0	6
	Great Shearwater	6	2	8
	Large Shearwater sp. – unidentified	1	0	1
	Shearwater sp. - unidentified	1	0	1
Gannet	Northern Gannet	2	0	2
Gull	Small Gull sp. - unidentified	0	1	1
	Great Black-backed Gull	3	1	4
	Herring Gull	5	7	12
	Lesser Black-backed Gull	1	0	1

Group	Species	Flying	Sitting	Total
	Large Gull sp. – unidentified	1	0	1
Tern	'Commic' / Forster's Tern	1	0	1
Passerine	Passerine sp. - unidentified	21	0	21
<b>Total Birds</b>		<b>51</b>	<b>11</b>	<b><u>62</u></b>

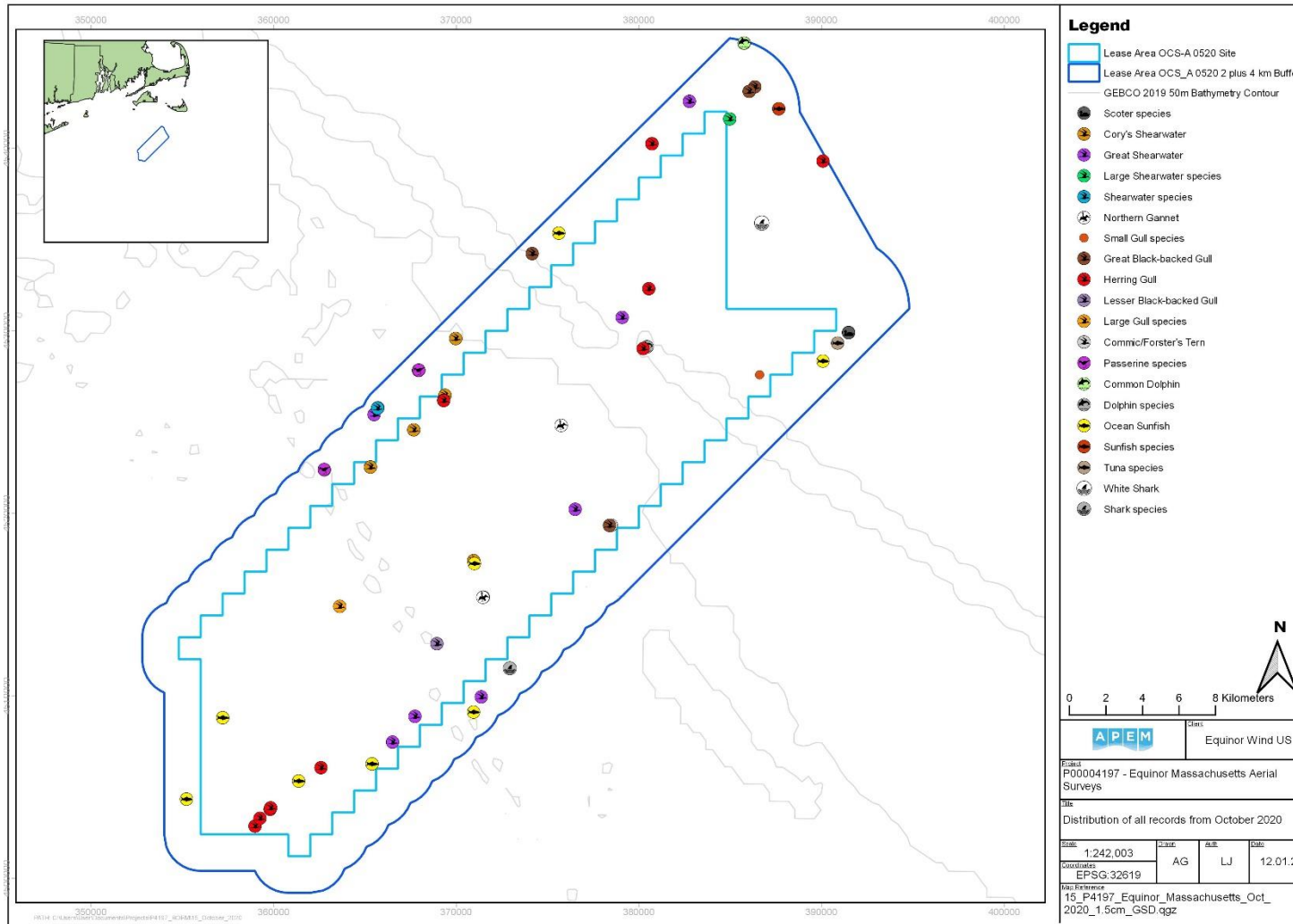
**Table 2 Total number of individuals of other fauna recorded during the October 2020 survey of the Lease Area OCS-A 0520 WEA plus 2 km / 4 km irregular buffer**

Group	Species	Submerged	Surfacing	Total
Marine Mammal	Common Dolphin	4	0	4
	Dolphin sp. - unidentified	2	0	2
Large Bony Fish	Ocean Sunfish	8	0	8
	Sunfish sp. - unidentified	1	0	1
	Tuna sp. - unidentified	1	0	1
Shark	White Shark	1	0	1
	Shark sp. – unidentified	1	0	1
<b>Total</b>		<b>18</b>	<b>0</b>	<b><u>18</u></b>

## 4.2 Spatial Distribution

**Figure 2** shows the location of all species recorded throughout the Survey Area during the October 2020 survey.





**Figure 2** Distribution of all records from the October 2020 survey of Lease Area OCS-A 0520 plus 2 km / 4 km irregular buffer

Note: Individuals may appear to overlap if they are in close proximity to each other.

## 5. Shipping Observations

No vessels were recorded in the imagery or from the aircraft in the October 2020 survey.

## Appendix I Species List

Common Name	Scientific Name	Family	Class
Cory's Shearwater	<i>Calonectris borealis</i>	Procellariidae	Aves
Great Shearwater	<i>Ardenna gravis</i>	Procellariidae	Aves
Northern Gannet	<i>Morus bassanus</i>	Sulidae	Aves
Great Black-backed Gull	<i>Larus marinus</i>	Laridae	Aves
Herring Gull	<i>Larus smithsonianus</i>	Laridae	Aves
Lesser Black-backed Gull	<i>Larus fuscus</i>	Laridae	Aves
Common Tern	<i>Sterna hirundo</i>	Laridae	Aves
Arctic Tern	<i>Sterna paradisaea</i>	Laridae	Aves
Forster's Tern	<i>Sterna forsteri</i>	Laridae	Aves
Common Dolphin	<i>Delphinus delphis</i>	Delphinidae	Mammalia
Ocean Sunfish	<i>Mola mola</i>	Molidae	Actinopterygii
White Shark	<i>Carcharodon carcharias</i>	Lamnidae	Chondrichthyes

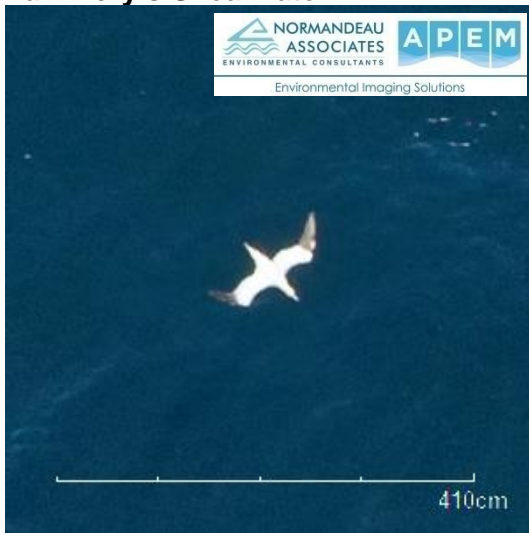
## Appendix II Example 'Snags' from the Survey



**a. Cory's Shearwater**



**b. Great Black-backed Gull**



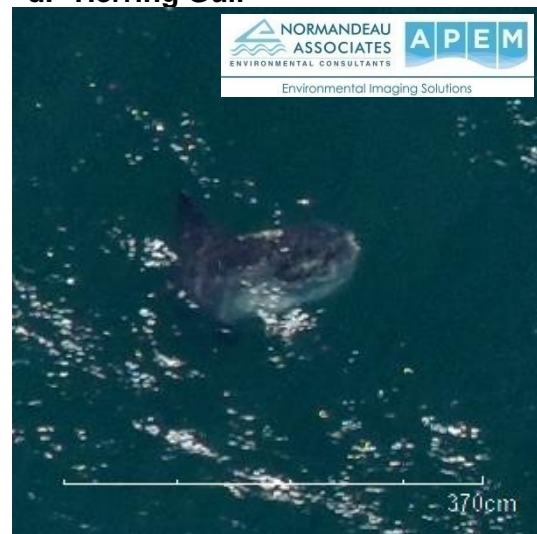
**c. Northern Gannet**



**d. Herring Gull**



**e. Common Dolphin**



**f. Ocean Sunfish**