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Environmental Imaging Solutions

Year 2 Digital Aerial Wildlife Survey of BOEM Lease Area OCS-A 520

Monthly Report (Year 2): June 2021

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 June 2nd, 2021 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 June 2021 survey are presented here.

- A total of 349 birds were recorded in the June 2021 Survey Area. The most abundant group recorded was shearwaters (n=303), followed by gannets (n=27), storm petrels (n=10), gulls (n=5), fulmars (n=2), and skuas (n=1) and unidentified birds (n=1).

- A total of 23 birds (7%) were recorded in flight during the survey. These consisted of storm petrel species (n=10), northern gannet (n=8), south polar skua (n=1), herring gull (n=1), great black-backed gull (n=1), sooty shearwater (n=1), shearwater species (n=1). There were 326 birds (93%) recorded as sitting.

- A total of six marine mammals were recorded. These were recorded as common dolphin (n=2), unidentified marine mammal species (n=2), unidentified seal species (n=1), and unidentified dolphin species (n=1).

- Three large bony fish were recorded during the survey, consisting of ocean sunfish (n=3), and two sharks were recorded, consisting of unidentified shark species (n=2). No turtles or rays were recorded.

- No Listed species were recorded (Federally or Massachusetts State Listed as Threatened or Endangered) in the June 2021 Survey Area.

2. Introduction

APEM and Normandeau were contracted by Equinor Wind US to provide combined spring through fall digital aerial wildlife surveys of the Massachusetts Lease Area OCS-A 0520. This will comprise the second year of surveys following the initial Year 1 surveys undertaken from March 2020 to November 2021. Surveys will be carried out on a monthly basis from March 2021 through October 2021, 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 the spring to fall period. 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 June 2021 survey.

3. Summary of Survey

The survey was undertaken on June 2nd, 2021 from 15:06 to 17:17 (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 June 2nd, 2021, the cloud cover was recorded as 80-100% (scattered to overcast), visibility was greater than 10 km (6.2 miles), and no precipitation was recorded. Wind speed was recorded as 15 knots from a southwesterly direction. The outside air temperature at the survey altitude was recorded as 64-67°F. The sea state was 1 (calm / rippled), and the water turbidity was 0 (clear). The survey was conducted at an altitude of approximately 1,360 ft at a speed of approximately 150 knots.

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.

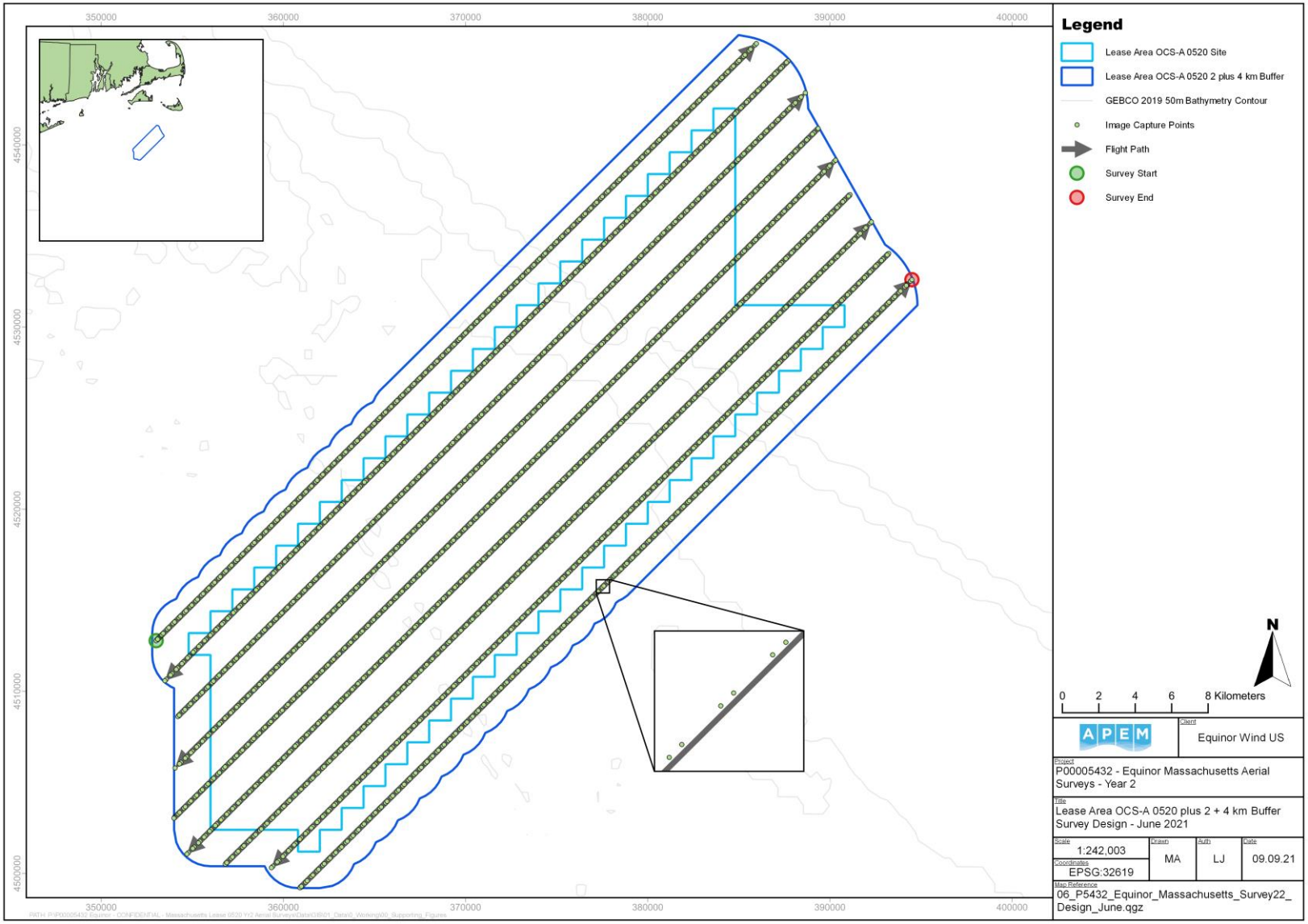


Figure 1 Survey design of Lease Area OCS-A 0520 plus 2 km / 4 km buffer

4. Abundance and Distribution

4.1 Species Abundance

The numbers of marine wildlife species recorded during the June 2021 survey are presented in **Table 1** and **Table 2**. Species scientific names are provided in Appendix I. Example individuals recorded during the surveys are provided in Appendix II.

Table 1 Total number of individuals of birds recorded during the June 2021 survey of the Lease Area OCS-A 0520 WEA plus 2 km / 4 km irregular buffer

Group	Species	Flying	Sitting	Total
Skua	South Polar Skua	1	0	**1**
Gull	Small Gull species	0	1	**1**
	Herring Gull	1	0	**1**
	Great Black-backed Gull	1	0	**1**
	Gull species	0	2	**2**
Storm Petrel	Storm Petrel species	10	0	**10**
Fulmar	Northern Fulmar	0	2	**2**
Shearwater	Cory's Shearwater	0	1	**1**
	Great Shearwater	0	9	**9**
	Sooty Shearwater	1	263	**264**
	Small Shearwater species	0	9	**9**
	Large Shearwater species	0	2	**2**
	Shearwater species	1	17	**18**
Gannet	Northern Gannet	8	19	**27**
Unidentified Bird	Unidentified Bird species	0	1	**1**
Total Birds		***23***	***326***	***349***

Table 2 Total number of individuals of marine megafauna recorded during the June 2021 survey of the Lease Area OCS-A 0520 WEA plus 2 km / 4 km irregular buffer

Group	Species	Submerged	Surfacing	Total
Marine Mammal	Seal species	0	1	**1**
	Common Dolphin	2	0	**2**
	Dolphin species	0	1	**1**
	Marine Mammal species	1	1	**2**
Large Bony Fish	Ocean Sunfish	3	0	**3**
Shark	Shark species	2	0	**2**
Total Marine Megafauna		***8***	***3***	***11***

4.2 Spatial Distribution

Figure 2 shows the location of all species recorded throughout the Survey Area.

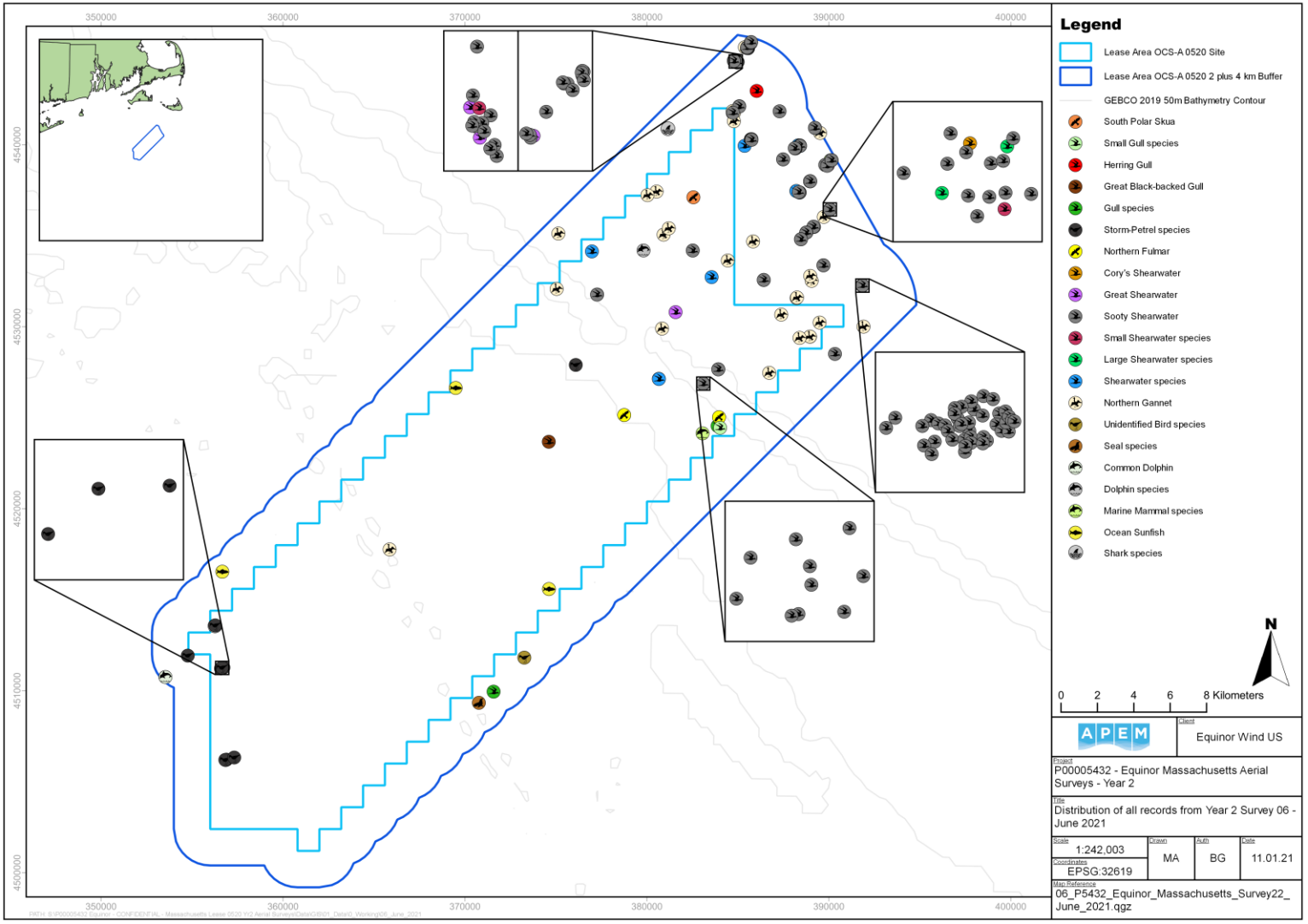


Figure 2 Distribution of all records from the June 2021 survey of Lease Area OCS-A 0520 plus 2 km / 4 km irregular buffer

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

5. Shipping Observations

During the June 2nd, 2021 survey, no vessels were recorded visually from the aircraft or in the imagery.

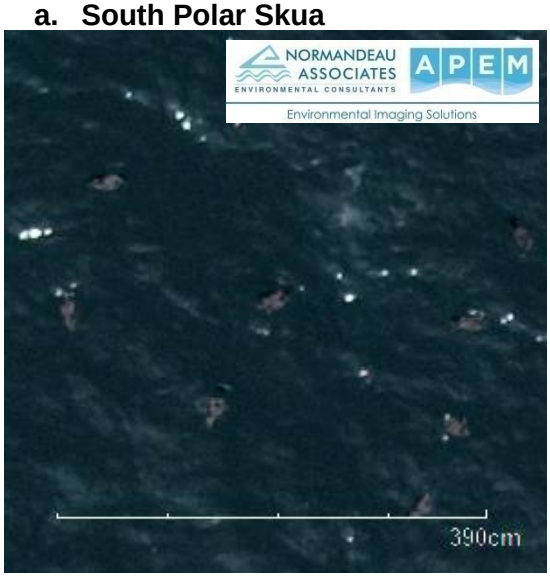
Appendix I Species List

Common Name	Scientific Name	Family	Class
South Polar Skua	*Stercorarius maccormicki*	Stercorariidae	Aves
Herring Gull	*Larus argentatus*	Laridae	Aves
Great Black-backed Gull	*Larus marinus*	Laridae	Aves
Northern Fulmar	*Fulmarus glacialis*	Procellariidae	Aves
Cory's Shearwater	*Calonectris borealis*	Procellariidae	Aves
Great Shearwater	*Ardenna gravis*	Procellariidae	Aves
Sooty Shearwater	*Ardenna grisea*	Procellariidae	Aves
Northern Gannet	*Morus bassanus*	Sulidae	Aves
Common Dolphin	*Delphinus delphis*	Delphinidae	Mammalia
Ocean Sunfish	*Mola mola*	Molidae	Actinopterygii

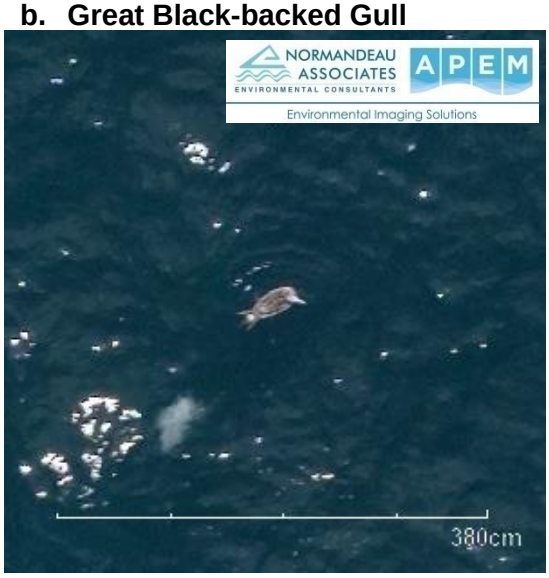
Appendix II Example 'Snags' from the Survey

a. South Polar Skua

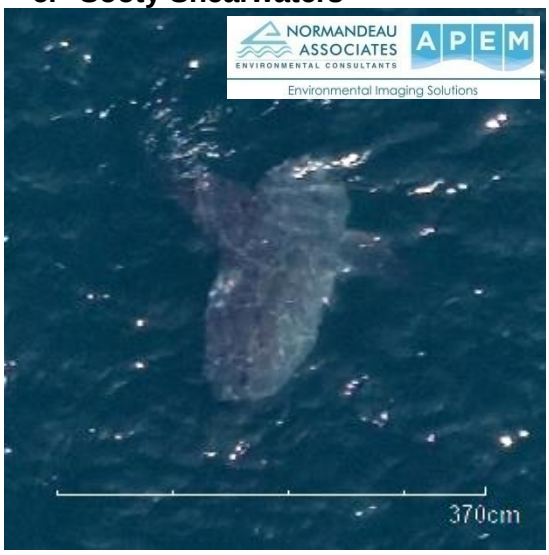
b. Great Black-backed Gull



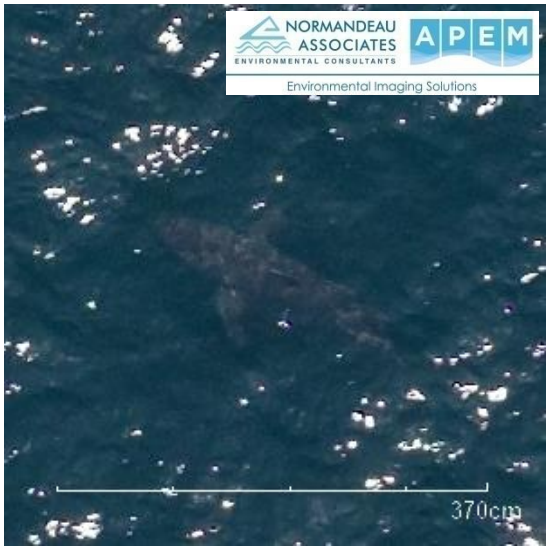
c. Sooty Shearwaters



d. Northern Gannet



e. Ocean Sunfish



f. Shark Species