

MachairWind Offshore Windfarm

Annex 11.2C Third-Party DAS Survey 6 (21 March 2021)





Aerial Digital Baseline Surveys of Clachan Dubh

CD Offshore Energy Limited

P00004825

Monthly Report: Survey 05 – February 2021

Matthew Arundale, Simon Warford, and Laura Jervis

Client: CD Offshore Energy Limited

Address: c/o Everoze Partners
5th Floor
30 Queen Charlotte Street
Bristol
BS1 4HJ

Project reference: P00004825

Date of issue: July 2021

Project Director: Stephanie McGovern

Project Manager: Laura Jarvis

Other: Simon Warford and Matthew Arundale

APEM Ltd
Aviation Park
Hawarden Airport
Flint Road
Saltney Ferry
Chester
CH4 0GZ

Tel: 01244 520 460

Fax: 01244 533 741

Registered in England No. 2530851

This report should be cited as;

APEM (2021). Clachan Dubh: February 2021 Monthly Report - Aerial Bird & Marine Mammal Baseline Survey 05, Year 01. APEM Scientific Report P4825. CD Offshore Energy Limited, 05/07/2021, v1.1, 10 pp.

Revision and Amendment Register

Version Number	Date	Section(s)	Page(s)	Summary of Changes	Approved by
1.0	28/06/2021	All	All	Creation	MA
1.1	05/07/2021	All	All	Internal Review	LJ

Contents

1. Executive Summary	1
2. Introduction	2
3. Summary of Survey	4
4. Abundance and Distribution	5
4.1 Abundance	5
4.2 Spatial Distribution	5
5. Anecdotal Information	7
Appendix I Survey Information.....	8
Appendix II Scientific Names of Birds.....	9
Appendix III JNCC Bird and Marine Mammal Groups	10

List of Figures

- Figure 1** Location of the Clachan Dubh Lease Option Area and 8 km buffer area3
- Figure 2** Distribution of all birds and marine mammals recorded in the February 2021 survey of the Clachan Dubh Lease Option Area plus 6 km buffer6

List of Tables

- Table 1** Surveys of Clachan Dubh Lease Option Area completed to date.....4
- Table 2** Total number of individuals of birds recorded during the February 2021 survey of the Clachan Dubh plus 6 km buffer Survey Area5
- Table 3** Total number of individuals of marine fauna recorded during the February 2021 survey of the Clachan Dubh plus 6 km buffer Survey Area5

1. Executive Summary

An aerial survey was conducted off the west coast of Scotland on the 1st and 4th March 2021 using APEM's high-resolution camera system mounted on a twin-engine aircraft to capture digital still imagery. Images collected have been analysed and internally quality assured. The raw counts of birds and marine mammals recorded are presented here.

The aerial surveys are carried out to meet the aims and objectives of the work required by CD Offshore Energy Limited to assess the abundance and distribution of birds and marine mammals in the Clachan Dubh Lease Option Area and a 6 km buffer surrounding it (the Survey Area).

Overall, 1,313 birds were recorded in the Survey Area during the survey undertaken for February 2021. The most abundant species was guillemot / razorbill (n=490), followed by guillemot (n=403), razorbill (n=307), kittiwake (n=51), unidentified auk species (n=24), great black-backed gull (n=23), fulmar (n=5), Manx shearwater (n=2) and gannet (n=2), and great northern diver (n=1), cormorant / shag (n=1), unidentified small gull species (n=1), herring gull (n=1), unidentified black-backed gull species (n=1), and unidentified large gull species (n=1). A total of 51 marine mammals were recorded in this survey, these were recorded as unidentified dolphin / porpoise species (n=25), common dolphin (n=15), harbour porpoise (n=7), and unidentified seal species (n=4).

A total of 56 birds (4%) were recorded in flight during this survey. These were recorded as kittiwake (n=30), guillemot / razorbill (n=9), guillemot (n=5), great black-backed gull (n=4), fulmar (n=3), razorbill (n=2), gannet (n=1), herring gull (n=1), and Manx shearwater (n=1). There were 1,257 birds recorded as sitting (96%).

2. Introduction

CD Offshore Energy Limited requested APEM Ltd (APEM) to undertake two years of monthly aerial digital surveys of the Clachan Dubh Lease Option Area plus a 6 km buffer (1,193 km² total survey area; the Survey Area) for birds and marine mammals (**Figure 1**). The surveys commenced in October 2020 and are currently planned to continue until September 2022. The purpose of the surveys is to provide baseline information on the abundance, distribution, and behaviour of birds, marine mammals, and any other marine megafauna captured.

The Survey Area is located off the west coast of Scotland, west of the island of Colonsay in the Inner Hebrides (**Figure 1**). The survey method has been designed to optimise the data collection for marine megafauna using a grid-based survey design at 1.5 cm GSD (ground sampling distance) to achieve approximately 12% coverage. The report describes the results of the fifth survey for year one undertaken for February 2021. The surveys are carried out in order to meet the aims and objectives of the work required by CD Offshore Energy Limited to inform future environmental impact assessment work for this proposed wind farm development.

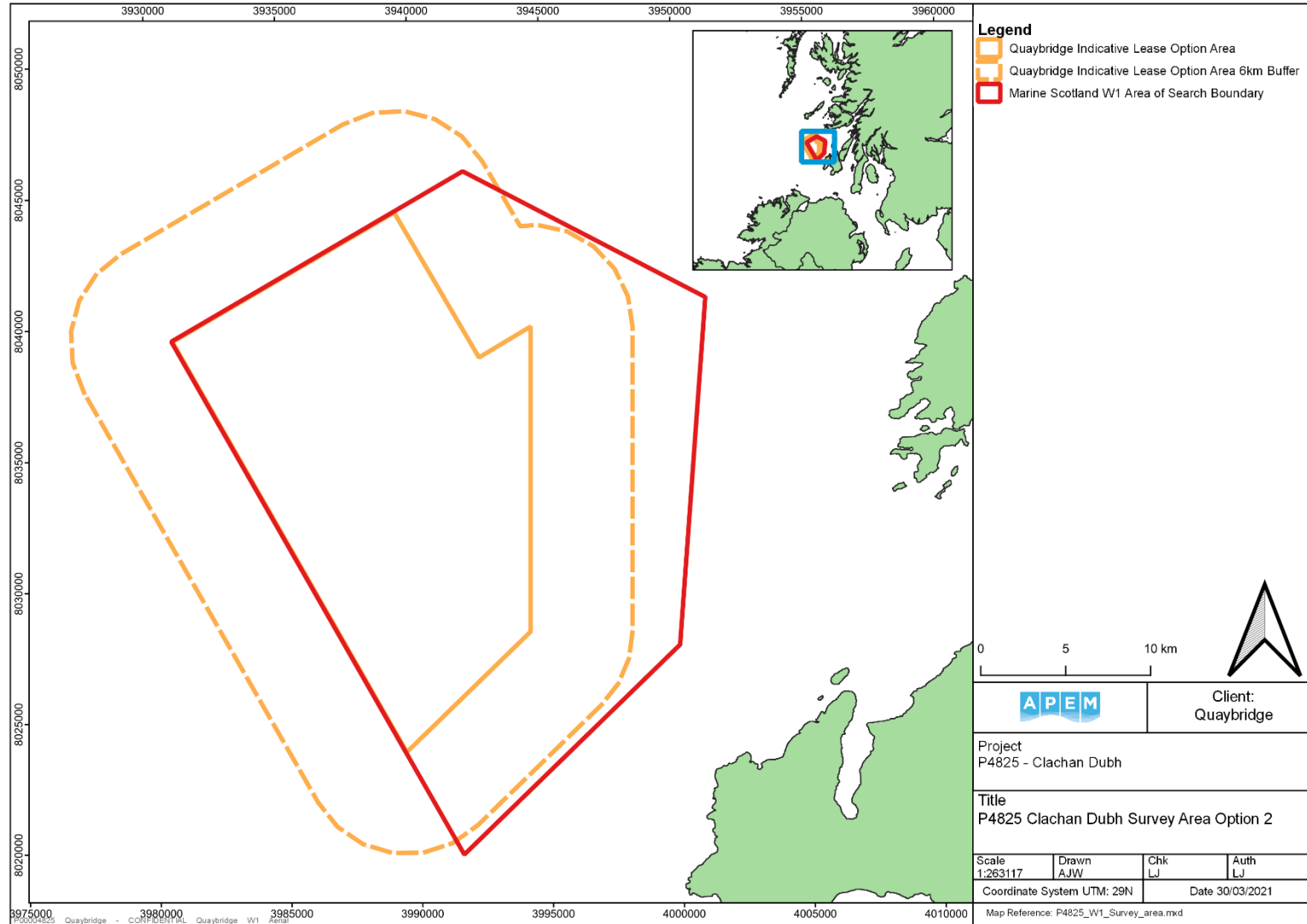


Figure 1 Location of the Clachan Dubh Lease Option Area and 8 km buffer area

3. Summary of Survey

The survey was undertaken on the 1st and 4th March 2021 using a Vulcanair P68 C twin-engine survey aircraft. The number and dates of the surveys undertaken so far are provided in **Table 1**. Further detailed survey information is provided in Appendix I.

Table 1 Surveys of Clachan Dubh Lease Option Area completed to date.

Survey No.	Date of Survey	Start Time (UTC)	End Time (UTC)	First Transect Line
Survey 01	01/10/2020	08:36	14:07	1
Survey 02	19/11/2020	09:51	12:51	16
Survey 03	07/12/2020	10:21	13:08	16
Survey 04	07/02/2021	11:21	14:08	16
Survey 05	01/03/2021	11:47	12:44	1
		16:06	17:23	7
	04/03/2021	14:26	15:10	13

The survey involved high-resolution digital still image collection using a GPS-linked flight management system to ensure the tracks were flown with a high degree of accuracy.

The aerial survey captured data along 16 transects with nodes spaced 2 km apart within the Survey Area. The analysed images form a grid-based survey design with coverage calculated to be approximately 12% generated from 1,403 image nodes.

Due to poor weather conditions that continued into February, the survey was completed at the earliest opportunity on the 1st March. On the 1st March cloud cover was few (5-10% cloud cover) and visibility remained greater than 10 km throughout the survey. Wind speed was recorded as 5-10 knots and blew from a south-easterly direction. The sea state was recorded as 0 (calm / glass). The outside temperature was 5-6°C. The majority of the survey was completed on this day, but poor weather conditions meant three of the lines were not surveyed. These were completed at the next available weather opportunity on the 4th March.

On the 4th March cloud cover was overcast (96-100% cloud cover) and visibility remained greater than 20 km throughout the survey. Wind speed was recorded as 5 knots and blew from an easterly direction. The sea state was recorded as 1 (calm / rippled). The outside temperature was 5°C.

No health and safety issues were reported during the survey.

The images were analysed to enumerate bird and marine mammals to species level, where possible. Internal quality assurance was undertaken to check for missed animals and to ensure the correct species were identified. Birds and marine mammals identified from the images were 'snagged' (i.e. located within the images) and categorised normally to species (Appendix II), but sometimes to the standard Joint Nature Conservation Committee (JNCC) categories (Appendix III).

Data reported are raw counts of animals that have not yet been subject to extrapolation for abundance estimates.

4. Abundance and Distribution

4.1 Abundance

A total of 1,313 birds were recorded in the Survey Area on 1st and 4th March 2021. Of those birds recorded, 1,257 were observed sitting on the water and 56 birds were flying (Table 2).

A total of 51 marine mammals were recorded during the survey (Table 3).

Table 2 Total number of individuals of birds recorded during the February 2021 survey of the Clachan Dubh plus 6 km buffer Survey Area

Species	Flying	Sitting	Total
Great Northern Diver	0	1	1
Fulmar	3	2	5
Manx Shearwater	1	1	2
Gannet	1	1	2
Cormorant / Shag	0	1	1
Kittiwake	30	21	51
Small Gull species	0	1	1
Great Black-backed Gull	4	19	23
Black-backed Gull species	0	1	1
Herring Gull	1	0	1
Large Gull species	0	1	1
Guillemot	5	398	403
Razorbill	2	305	307
Guillemot / Razorbill	9	481	490
Auk species	0	24	24
Total Birds	56	1,257	<u>1,313</u>

Table 3 Total number of individuals of marine fauna recorded during the February 2021 survey of the Clachan Dubh plus 6 km buffer Survey Area

Species	Submerged	Surfacing	Total
Common Dolphin	15	0	15
Harbour Porpoise	6	1	7
Dolphin / Porpoise species	20	5	25
Seal species	4	0	4
Total Mammals	45	6	<u>51</u>

4.2 Spatial Distribution

Figure 2 shows the location of birds and marine mammals recorded in the Survey Area. Birds were distributed across the Survey Area.

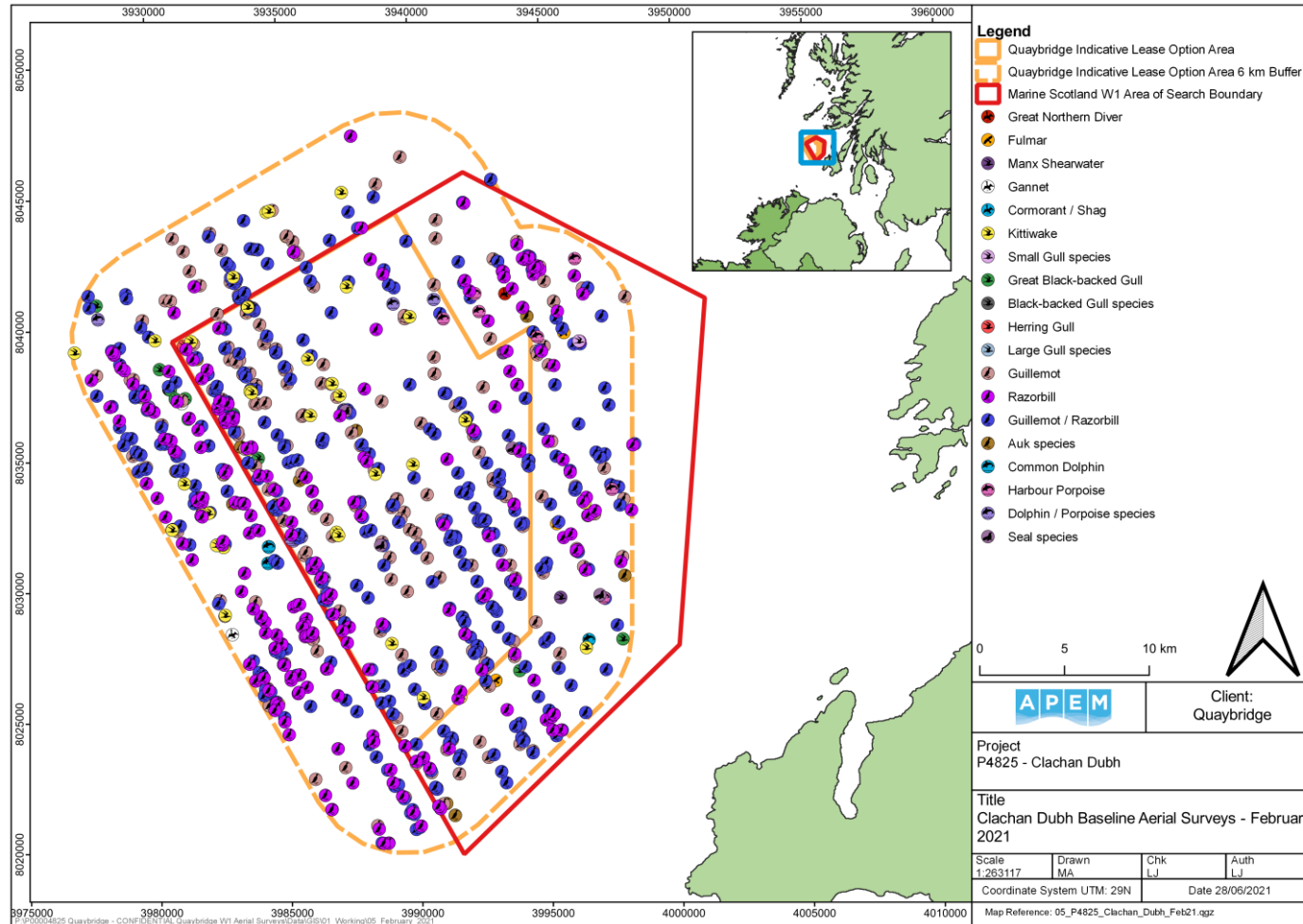


Figure 2 Distribution of all birds and marine mammals recorded in the February 2021 survey of the Clachan Dubh Lease Option Area plus 6 km buffer

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

5. Anecdotal Information

No vessels were recorded visually from the aircraft or in the imagery from the 1st and 4th March 2021.

Appendix I Survey Information

Run	Line No.	Bearing (Degrees)	Groundspeed (knots)	Time on Line (UTC)	Time off Line (UTC)
1	1	331	124	11:47	11:47
2	2	151	104	11:50	11:53
3	3	331	126	11:56	12:01
4	4	151	114	12:03	12:10
5	5	331	128	12:13	12:21
6	6	151	114	12:23	12:33
7	7	331	119	16:06	16:16
8	8	151	122	16:17	16:26
9	9	331	114	16:28	16:37
10	10	151	118	16:38	16:48
11	11	331	122	16:50	17:00
12	12	151	122	17:01	17:11
13	13	331	128	14:26	14:37
14	14	151	127	14:38	14:48
15	15	331	125	14:49	14:59
16	16	151	123	15:01	15:10

Appendix II Scientific Names of Birds

Common Name	Scientific Name
Great Northern Diver	<i>Gavia immer</i>
Fulmar	<i>Fulmarus glacialis</i>
Manx Shearwater	<i>Puffinus puffinus</i>
Gannet	<i>Morus bassanus</i>
Cormorant	<i>Phalacrocorax carbo</i>
Shag	<i>Phalacrocorax aristotelis</i>
Kittiwake	<i>Rissa tridactyla</i>
Great Black-backed Gull	<i>Larus marinus</i>
Herring Gull	<i>Larus argentatus</i>
Guillemot	<i>Uria aalge</i>
Razorbill	<i>Alca torda</i>
Common Dolphin	<i>Delphinus delphis</i>
Harbour Porpoise	<i>Phocoena phocoena</i>

Appendix III JNCC Bird and Marine Mammal Groups

JNCC Code	Grouping	Species Code	Species
95018	Scoter species	2130	Common scoter
		2150	Velvet scoter
95003	Diver species	20	Red-throated diver
		30	Black-throated diver
		40	Great northern diver
220	Fulmar	220	Fulmar
710	Gannet	710	Gannet
95009	Cormorant / shag	720	Cormorant
		800	Shag
95032	Skua species	5660	Pomarine skua
		5670	Arctic skua
		5680	Long-tailed skua
		5690	Great skua
94003	Small gull species	5780	Little gull
		5820	Black-headed gull
		5900	Common gull
		6020	Kittiwake
95034	Large gull species	5920	Herring gull
		5910	Lesser black-backed gull
		6000	Great black-backed gull
95037	Tern species	6110	Sandwich tern
		6150	Common tern
		6160	Arctic tern
		6240	Little tern
95038	'Commic' tern (common or Arctic tern)	6150	Common tern
		6160	Arctic tern
95040	Auk species	6340	Guillemot
		6360	Razorbill
		6540	Puffin
8000	Porpoise species	82410	Harbour porpoise
82000	Dolphin species	82510	Bottlenose dolphin
		82520	White-beaked dolphin
		82530	White-sided dolphin
		82540	Common dolphin
70000	Seal species	70010	Grey seal
		70020	Common (harbour) seal