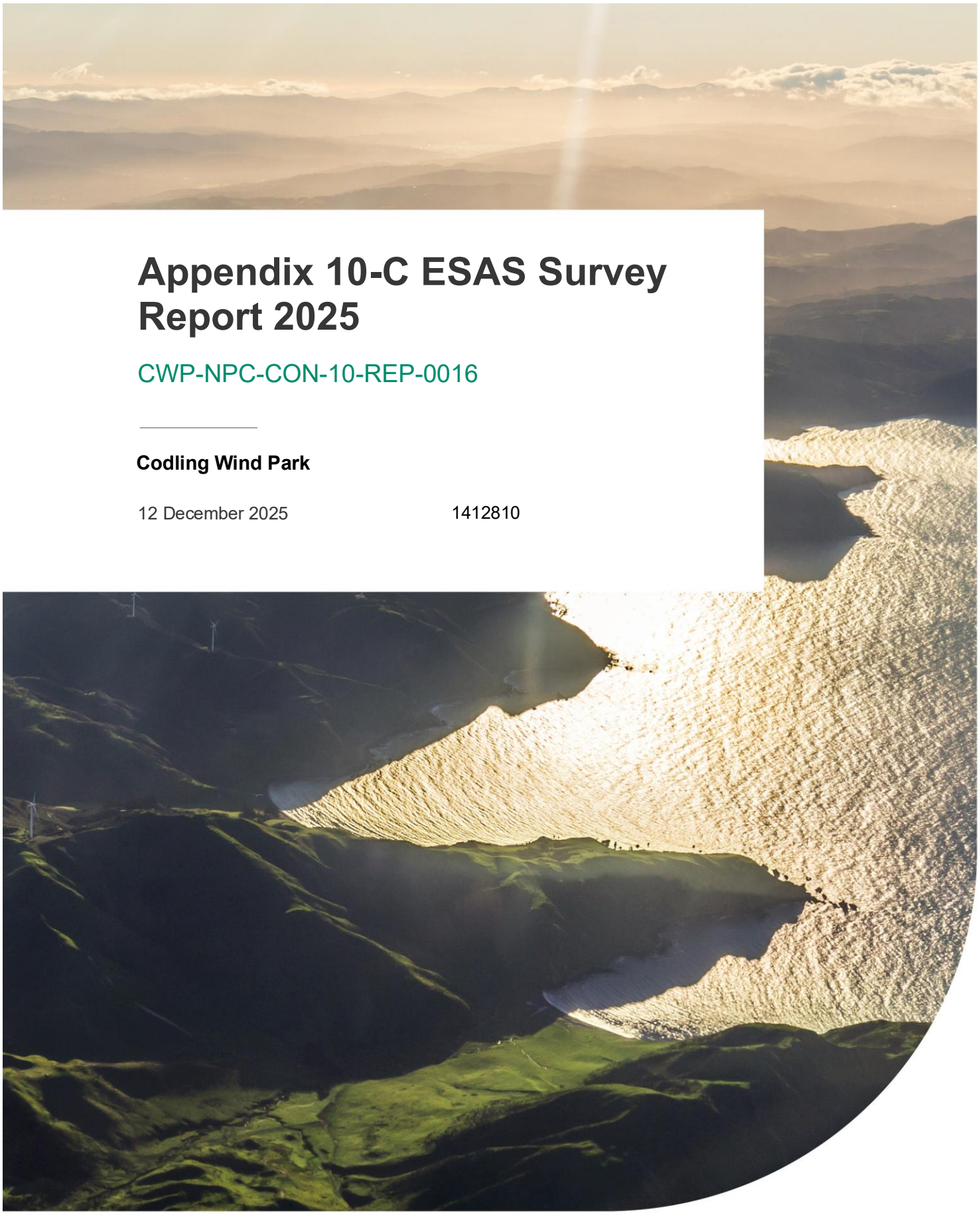
codling wind park

EIAR Addendum

Appendix 10-C ESAS Survey Report 2025



Appendix 10-C ESAS Survey Report 2025

CWP-NPC-CON-10-REP-0016

Codling Wind Park

12 December 2025 1412810

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Document history

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Contents

1. Introduction

This technical report presents the findings of boat-based seabird surveys undertaken in accordance with the European Seabirds at Sea (ESAS) protocol, developed by the Joint Nature Conservation Committee (JNCC). The purpose of these surveys was to collect data on the abundance, distribution, and behaviour of seabirds within the defined survey area, to support ecological assessment and inform future environmental and offshore development considerations.

The surveys were conducted within the Codling Bank located off the east coast of Ireland. Surveys were carried out aboard the Alpha Marine Panther, a stable platform suitable for offshore visual observations, ensuring safe and effective data collection under varying sea conditions

Boat-based surveys were undertaken on two separate occasions during the summer period — specifically from the 24th of June till the 26th of June and again completed on the 16th of July till the 18th of July 2025 to capture representative data on seabird presence during the breeding season. The summer period was selected as it coincides with the peak activity of many seabird species, when adults are foraging at sea to provision chicks. Additionally, improved weather conditions and extended daylight hours during summer maximise visibility and survey efficiency, enhancing data quality and consistency.

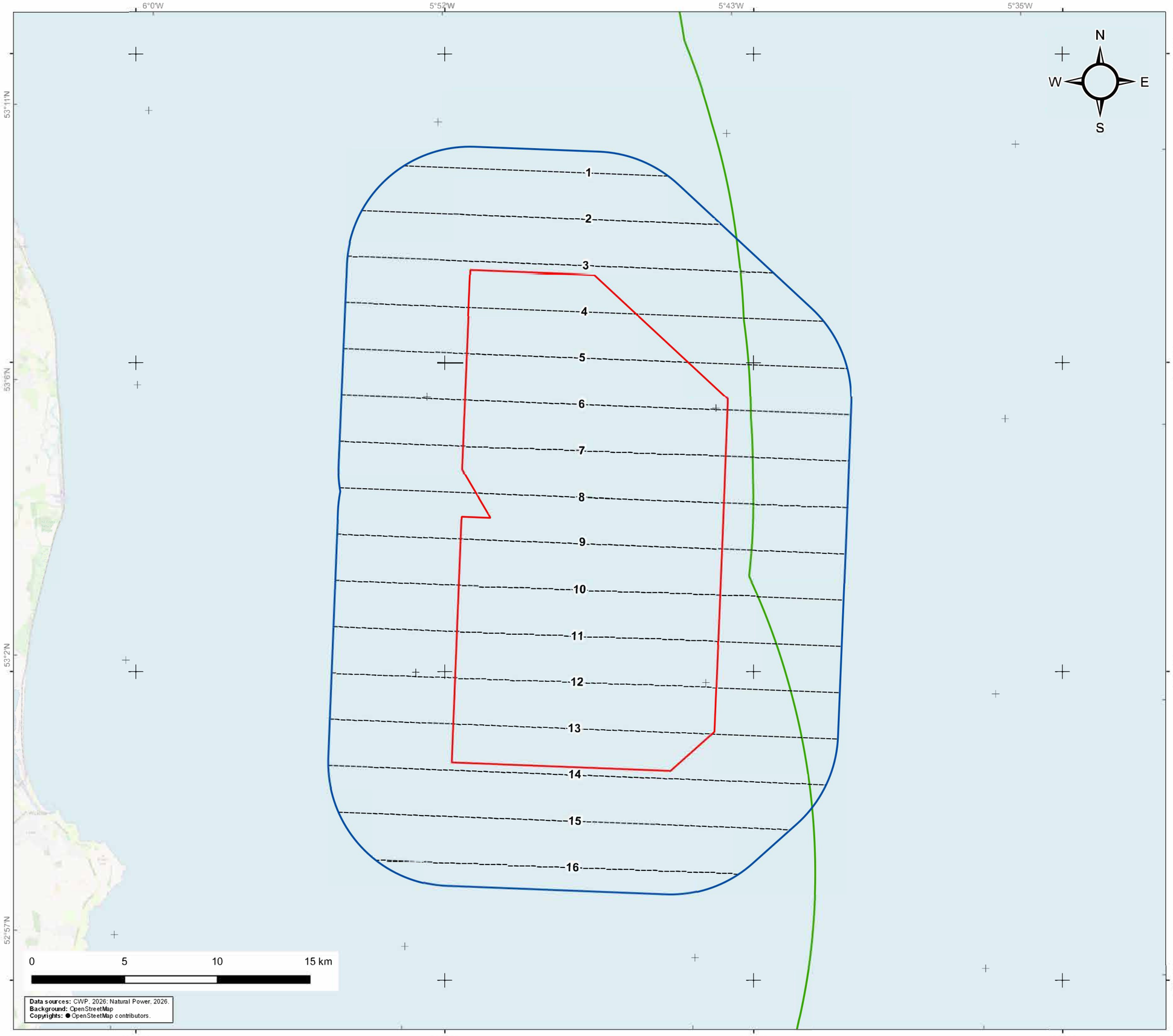
The surveys were undertaken by a team of trained and accredited marine ornithologists, following standardised JNCC methodologies to ensure consistency, reliability, and compatibility with national and international datasets. All surveyors were highly experienced in seabird identification and offshore survey techniques, enabling accurate data collection under appropriate environmental conditions.

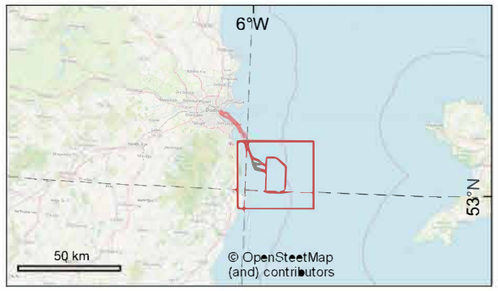
2. Methods

Boat-based seabird surveys were undertaken in accordance with the ESAS protocol developed by the JNCC, as described by Camphuysen et al. (2004), and following the recommendations outlined by MacLean et al. (2009).

Each survey was undertaken by a team of three trained ESAS surveyors, all of whom were JNCC-accredited and highly experienced in seabird survey recording techniques and species identification. One surveyor acted as observer, a second as scribe, and a third provided rotational cover to allow for rest periods and to assist when required (e.g. photographing completed data sheets or providing support during periods of high bird activity). The three surveyors alternated roles throughout each survey to minimise fatigue and maintain visual acuity.

All surveyors were experienced in the identification of all commonly occurring and scarce marine bird species, familiar with the identification of rarer species, and had a comprehensive understanding of plumage, age, and moult characteristics. The transect layout followed the configuration provided in **Figure 1** below.





Legend

- Array site
- Survey area (4 km buffer of development area)
- Survey transects (1.5 km spacing)
- 12 nautical mile (NM) limit

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Project: Codling Wind Park

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Figure 1
Area covered and transects used during contemporary boat-based ornithology surveys

CWP doc. number: CWP-NPC-ENG-08-01-MAP-0673

Internal descriptive code: WF - WF.RLB..BUFF.4km..S.TRANSECTS - SEA.LIMs - (EIAR.Vol.04.Ch.10.Ap.05.FIG.01.02)

Size: A3

Scale: 1:120,000

CRS: EPSG 25830

Rev.	Updates	Date	By	Chk'd	App'd
01	For FIR submission	2026/04/17	AC	FM/EA	CM

Survey Design and Observation Methods

The survey followed a line transect method with a strip width of 300 m, undertaken on one side of the survey vessel using a 90° viewing angle.

Bird Detection

Birds were primarily detected using the naked eye, with binoculars employed only to confirm species identification and counts, or to look ahead for easily flushed species such as divers and sea ducks.

Transect Banding

The 300 m transect was subdivided into five perpendicular distance bands, into which all birds observed on the water were allocated as follows:

- A: 0–50 m
- B: 50–100 m
- C: 100–200 m
- D: 200–300 m
- E: >300 m

Only birds observed within bands A–D (≤300 m) were considered to be 'in transect' for analytical purposes.

Recording Procedures

For each observation, the time was recorded to the nearest minute. At a vessel speed of approximately 10 knots, this corresponds to a spatial resolution of approximately 300 m. The timepieces used for recording were synchronised with handheld GPS units used to log survey tracks.

All birds in flight were recorded; however, only those observed during designated 'snapshot' intervals were considered 'in transect'. Snapshots were taken approximately every 300 m of travel (equivalent to one per minute at 10 knots). A timed repeat alarm was used to mark snapshot intervals, with timing adjusted to the vessel's speed. At each snapshot, all birds in flight within a 300 × 300 m box extending 300 m ahead of and perpendicular to the vessel were recorded as being 'in transect'.

Flight Heights and Direction

The direction of flight was recorded using an eight-point compass.
Flight heights were estimated following the recommended approach outlined in Scally et al. (2016) to ensure compatibility with future Collision Risk Modelling (CRM) analyses. The following recording resolution was applied:

- < 5 m: to the nearest metre
- 5–50 m: to the nearest 5 m
- 50–100 m: to the nearest 10 m
- 100 m: to the nearest 20 m

Information collected for individuals observed

For each individual or flock observed, the following parameters were recorded:

- Species (using BTO two-letter codes)
- Count

- Distance from vessel (transect band)
- Flight height
- Flight direction (where applicable)

And, where possible, additional details (age, sex, plumage, behaviour)

Environmental Conditions

All surveys were undertaken only under suitable environmental conditions, specifically sea state ≤4 and visibility ≥300 m. Environmental variables that could affect detection and survey efficiency, including rain, glare, wind speed, and sea state, were recorded at the start of each transect and whenever notable changes occurred, following the procedures outlined by MacLean et al. (2009).

Table 2.1: 2025 survey details and weather conditions

Details	June	July
Survey dates & times	24/06/25: 10:02/13:05 25/06/25: 07:09/14:30 26/06/25: 06:31/10:12	16/07/25: 08:02/16:47 17/07/25: 07:23/11:37 18/07/25: 08:23/10:15
Wind direction	W/SW/S	NW/S
Wind force (Beaufort)	4	1-3
Sea state (Beaufort)	2-4	3-4
Swell (m)	1-3	1-2
Visibility	≥300m	≥300m
Cloud cover	4-8/8	4-8/8
Wind: 16-pt compass/Beaufort scale. Cloud cover: eighths, from 0/8 = Clear sky to 8/8 = Overcast.		

3. Results

Whilst the transects in the survey area encompassed the array area and a 4km buffer, only results recorded from the array area and 2km buffer are presented here. This allows for ease of comparison with the baseline characterisation data submitted for the original EIAR, which described ESAS results for the array area and 2km buffer. It should also be noted that the numbers of seabirds reported in **Table** 3.1 are only inclusive of those recorded on transect. The counts of species recorded in the 4km buffer are presented in **Table 5.1** of Annex A.

A total of 14 seabird species were identified during the 2025 ESAS surveys (**Table** 3.1)**.** This amounted to a total of 3815 individual seabirds being identified to species level. A further 211 individuals were not identified to species level and instead were classed as being guillemot or razorbill ('guillemot/razorbill' or GU/RA).

Of the individuals identified to species level, 922 were recorded as being in flight, and 3168 birds identified to species level on the sea's surface.

Guillemot was the most commonly recorded species, with a total count of 1486 individuals (representing 36.3% of all birds recorded within the CWP site and associated buffer), followed by Manx shearwater (1301 individuals, 31.8%) and razorbill (694 individuals, 16.9%).

Kittiwake flight heights are of particular interest due to the potential for collision risk with WTG blades for this species within the array area. The majority of kittiwake were recorded on sea, however, of those individuals which were flying, most were in the 2km buffer surrounding the Array (55.3%). A breakdown of the proportion of estimated flight heights, calculated from birds flying in transect across the entire survey area, is provided in **Table 3.2**. Of the flights, 5m was the most commonly recorded flight height (21.8%), followed by 10m (19.47%) and 7m (15.03%). No kittiwake flight heights were estimated to be above 20m.

Table 3.1: Seabirds identified on transect during 2025 surveys, in the array area + 2km buffer

Species / Species groups		June 2025						July 2025					
		Array area			2km buffer			Array area			2km buffer		
		In flight	On sea	Total	In flight	On sea	Total	In flight	On sea	Total	In flight	On sea	Total
Identified to species level													
Arctic tern	*Sterna paradisaea*	0	0	0	0	0	0	0	0	0	5	1	6
Common tern	*Sterna hirundo*	4	0	4	11	2	13	10	5	15	2	6	8
Fulmar	*Fulmarus glacialis*	2	0	2	0	0	0	0	0	0	3	1	4
Great black-backed gull	*Larus marinus*	5	0	5	1	2	3	2	2	4	0	0	0
Guillemot	*Uria aalge*	9	40	49	7	32	39	35	630	665	12	721	733
Gannet	*Morus bassanus*	19	1	20	14	2	16	11	9	20	18	17	35
Herring gull	*Larus argentatus*	0	0	0	3	5	8	6	2	8	5	7	12
Kittiwake	*Rissa tridactyla*	21	3	24	35	6	41	13	65	78	7	26	33
Manx shearwater	*Puffinus puffinus*	141	3	144	1	91	92	171	228	399	296	370	666
Great Northern Diver	*Gavia immer*	0	1	1	0	0	0	0	0	0	0	0	0
Puffin	*Fratercula arctica*	0	1	1	2	0	2	3	4	7	4	5	9
Razorbill	*Alca torda*	4	8	12	0	0	0	24	289	313	8	361	369
Shag	*Gulosus aristotelis*	0	0	0	0	0	0	0	0	0	1	3	4
Storm petrel	*Hydrobates pelagicus*	1	0	1	4	0	4	2	0	2	0	1	1
Not identified to species level													
Guillemot or razorbill	*U.aalge or A.torda*	0	0	0	0	0	0	0	0	0	0	211	211

Table 3.2: Kittiwake flight heights

Flight height (m)	Number of flights	Proportion of total flights
1	13	9.77%
2	1	0.75%
3	8	6.02%
4	6	4.51%
5	29	21.80%
6	12	9.02%
7	20	15.03%
8	10	7.52%
10	22	19.47%
15	8	6.02%
20	5	3.76%
>20	0	0%

4. Discussion

The boat-based seabird surveys conducted in accordance with the ESAS methodology successfully achieved their primary objective of collecting additional baseline validation data on the abundance, distribution, and behaviour of seabirds within the survey area. The surveys were undertaken on two separate occasions during the summer period to provide representative coverage of seabird activity during the breeding season, when many species are present and actively foraging in offshore waters.

The use of experienced, JNCC-accredited surveyors and standardised ESAS protocols ensured that data were collected to a high and consistent standard, allowing for reliable comparison with existing datasets and facilitating future temporal or spatial analyses. The application of rigorous recording methods, including transect-based observations, snapshot techniques, and standardised flight height estimation, contributed to the generation of robust and scientifically defensible results.

Overall, the surveys recorded a range of seabird species typical of the region, including both resident and migratory species, reflecting seasonal patterns in distribution and habitat use. Variations in abundance across the two survey periods likely reflected differences in foraging behaviour, breeding status, and local prey availability. Environmental conditions during both survey periods were within acceptable limits for ESAS survey standards, contributing to high detection rates and reliable data capture.

The data collected validates the baseline understanding of seabird use of the area and supports the existing environmental assessments. The dataset also provides a reference point against which future surveys can be compared, allowing for the detection of potential temporal changes in seabird abundance or distribution.

In conclusion, the surveys were completed successfully, adhering to recognised industry and scientific standards. The outcomes provide a robust validation of the existing characterisation and support the justification for site specific flight height data for certain species. The outcomes also provide a foundation for future environmental monitoring.

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Annex A

Table 5.1: Seabirds identified on transect during 2025 surveys, on 4km buffer

Species / Species groups		June 2025	July 2025
		4km buffer	4km buffer
		On sea	On Sea
Identified to species level			
Arctic tern	*Sterna paradisaea*	0	0
Common tern	*Sterna hirundo*	2	11
Fulmar	*Fulmarus glacialis*	0	0
Great black-backed gull	*Larus marinus*	1	1
Guillemot	*Uria aalge*	14	1284
Gannet	*Morus bassanus*	1	2
Herring gull	*Larus argentatus*	6	34
Kittiwake	*Rissa tridactyla*	7	22
Manx shearwater	*Puffinus puffinus*	5	272
Great Northern Diver	*Gavia immer*	0	0
Puffin	*Fratercula arctica*	0	15
Razorbill	*Alca torda*	8	394
Shag	*Gulosus aristotelis*	1	2
Storm petrel	*Hydrobates pelagicus*	1	0
Not identified to species level			
Guillemot or razorbill	*U. aalge* or *A. torda*	1	0

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