



Arklow Bank Wind Park 2

Environmental Impact Assessment Report

Volume III, Appendix 12.17: Offshore Ornithology Technical Report
- Kittiwake Flight Height Survey Report (RFI March 2026)

Arklow Bank Wind Park 2 (ABWP2)

Kittiwake Flight Height Survey Report



GoBe Ref: P00018987

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COMMERCIAL IN CONFIDENCE

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1.0	18/02/2026	Final	MRO	ML	ML



Statement of Authority

Expert	Qualifications	Experience
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Expert	Qualifications	Experience
Mark Lewis	<p>JNCC European Seabirds at Sea (ESAS) surveyor/trainer</p> <p>JNCC Visual Aerial Survey trainer</p> <p>JNCC Marine Mammal Observer</p>	<p>Mark is a Principal Ornithological Consultant at GoBe with expertise in marine ornithology. His main skills are in seabird monitoring (both on and offshore), training of survey methodologies, data management, technical report writing and other forms of both scientific and non-scientific communication, and acoustic monitoring.</p> <p>In previous roles Mark worked with the JNCC on renewables casework, SPA designation, offshore monitoring, development and management of seabird and cetacean datasets, and development of citizen science schemes for the offshore environment. He has also worked for other consultancies on the development of the MORL Environmental Statement and collecting data on Dogger Bank.</p> <p>Mark is currently managing all the ornithology deliverables for Outer Dowsing Offshore Wind Farm. This includes a complex derogation case and being expert witness at issue-specific hearings.</p>



Expert	Qualifications	Experience
Rob Andrew	<p>MSc Biodiversity Conservation</p> <p>BSc (Hons) Environmental Science</p>	<p>Rob works as ornithology consultant at GoBe Consultants since Spring 2025, and has written or progressed a number of ornithological reports for different clients and at different project phases, including screening and scoping chapters and baseline surveys.</p> <p>Prior to this role, Rob worked as a Marine Wildlife QA Analyst within the MWA team at APEM Ltd since 2021 where he was tasked with undertaking a number of checks for a variety of primarily offshore projects, ensuring accuracy in taxonomic identifications, behaviour, biometric and other data and thus has years of experience with wildlife data management and analysis.</p> <p>Rob possesses a range of field survey and bird identification experience from previous roles, including seabird census methods, WeBS, BBS and other ecological surveys.</p>



Expert

Qualifications

Experience

Sean Sweeney

MA in Environmental
Impact Assessment and
Management

BSc (Hons) Geology

Sean is an Associate Director and Offshore Wind Lead (Australia) for the APEM Group. He is an experienced ecologist, ornithologist and leader, having headed up major plans and projects and their impact assessments (particularly renewable energy projects) across the UK, Ireland, US, Australia and globally for over 20 years. He previously built and led APEM's ornithology team, undertaking ornithological EIAs for National Significant Infrastructure Projects and smaller scale projects (EclAs or ecological appraisals).

He continually embraces new and innovative methods of predicting potential impacts from proposed developments on key species and exploring new mitigation and compensation to reduce the impacts identified and adapting developments to both address species specific issues and overall impacts. He also has a wealth of experience in stakeholder engagement and communications, from leading community and specialist consultations to appearing as Expert Witness during planning inspections multiple times, an integral part of both managing individual projects and pursuing new business opportunities.



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Acronyms

Term	Definition
ABWP1	Arklow Bank Wind Park 1
ABWP2	Arklow Bank Wind Park 2
CRM	Collision Risk Modelling
HWM	High Water Mark
KM	Kilometres
km ²	Kilometres Squared
m	Metres
MAC	Maritime Area Consent
NPWS	National Parks and Wildlife Service
OSP	Offshore Substation Platform
OWF	Offshore Wind Farm
QA	Quality Assured
RFI	Request for Information
RSH	Rotor Swept Height
SPA	Special Protection Area
SPL	Sure Partners Limited
VP	Vantage Point
WTG	Wind Turbine Generator



Executive Summary

Following receipt of the Request for Information from An Bord Pleanála (now referred to as An Coimisiún Pleanála) and the submission from the Development Applications Unit for the Arklow Bank Wind Park 2 offshore wind farm (i.e. the Proposed Development), GoBe Consultants Ltd. was commissioned by Sure Partners Ltd. to undertake boat-based black-legged kittiwake *Rissa tridactyla* flight height surveys within the Proposed Development Array Area (hereafter referred to as the 'Array Area'). The monitoring programme consisted of surveyors using a rangefinder and visual assessment to record the flight heights of kittiwake into pre-defined height bands. This report presents the data captured during the survey programme.

Seven boat-based flight height surveys were undertaken following a pre-defined route of 14 line transects within the Array Area between early September 2025 and mid-January 2026. Kittiwake were the target species for the surveys, with surveyors estimating the height of all individuals encountered within 300 metres (m) of the vessel using a combination of visual estimation and a Nikon Forestry Pro II rangefinder to increase accuracy, where possible.

The results show that the kittiwake recorded within the Array Area during the surveys were primarily flying within flight height bands A (0-5m) or B (5-20m) (2,287 individuals totalling 99.69% of records), with the remainder (seven individuals totalling 0.31% of records) flying in flight height band C (20-40 m). No kittiwake were recorded within flight height band D (40 m+) during these surveys.



1 Introduction

1.1 Proposed Development Background

- 1.1.1 ABWP2 is a proposed OWF located off the coast of Co. Wicklow and Co. Wexford on the east coast of Ireland. A Maritime Area Consent (MAC) (Ref 2022-MAC-002) was granted in December 2022 for the construction and operation of an OWF and associated infrastructure (including decommissioning and other works) on and around the Arklow Bank in the Irish Sea. Collectively, the constituent parts of the ABWP2 OWF seaward of the high-water mark (HWM) are hereafter referred to as “Proposed Development”.
- 1.1.2 The Proposed Development comprises of an Array Area (the area within which the Wind Turbine Generators (WTGs), the Offshore Substation Platforms (OSPs) and associated cables (export, inter-array and interconnector cabling) and foundations will be installed), as well as an (export) Cable Corridor and Working Area. The overall Proposed Development site area is 139.4 kilometres squared (km²). The Array Area is located approximately 6 km to 15 km off the east Irish coast and covers an area of 63.4 km². The Cable Corridor and Working Area extend from the Array Area to the HWM at Johnstown North, north of Arklow Town, Co. Wicklow, where the offshore export cables make landfall (the “Landfall Site”). The area of the Cable Corridor and Working Area is 76.0 km².
- 1.1.3 An application for the Proposed Development was made to An Bord Pleanála (now referred to as An Coimisiún Pleanála) in June 2024 with a RFI subsequently received in relation to that application on 10 April 2025. This document has been prepared to support the response for the RFI.

1.2 Document Scope

- 1.2.1 Flight height surveys have been undertaken to gather site-specific data for the purpose of supporting the kittiwake collision risk modelling (CRM).
- 1.2.2 The monitoring programme consisted of surveyors using a rangefinder and visual assessment to monitor the height of flying kittiwakes within the proposed ABWP2 Array Area. This report presents the data captured during the survey programme comprising of seven visits between early September 2025 and mid-January 2026.



2 Methodology

2.1 Statement of Authority

2.1.1 All survey work was undertaken by local subcontractors Niall Keogh, Cian Cardiff, and Nick Veale. All are extremely experienced professional ornithologists with an in-depth knowledge both of Ireland's bird species (including abundance, distribution and conservation status) and environmental legislation pertaining to birds in Ireland, as well as the survey methods employed and the equipment used.

2.2 Flight Height Surveys

2.2.1 Seven boat-based flight height surveys were undertaken following a pre-defined route of 14 transects within the Array Area, as presented in Figure 2.1. The survey vessel departed from and returned to either Arklow Harbour or Wicklow Harbour, depending on vessel location. Survey dates and the environmental conditions at the beginning and end of each survey are provided in Table 2.1. The survey schedule was designed to have a two to three week gap between visits to facilitate even coverage of the survey period, with exact visit dates determined by weather and vessel availability.

2.2.2 Due to their risk of collision from being high-flying seabirds, kittiwake were the target species for the surveys, with the surveyors estimating the height of all individuals observed within 300 m of the vessel into pre-defined height bands using a combination of visual estimation and a Nikon Forestry Pro II rangefinder. The use of the rangefinder was attempted on the first survey, however, vessel movement and rapid bird flight resulted in the rangefinders being unreliable and inaccurate. Due to the difficulty of accurately reporting flight heights on a moving vessel, the boat was periodically stopped to allow for more accurate recordings from rangefinders. However, the movements of the boats due to swells and waves was found to make the stability worse than when moving, and this was not undertaken again after the first survey. Due to the variability in kittiwake flight height during the observations, results have been recorded and classified, as defined below.

2.2.3 For each record, the following data were captured:

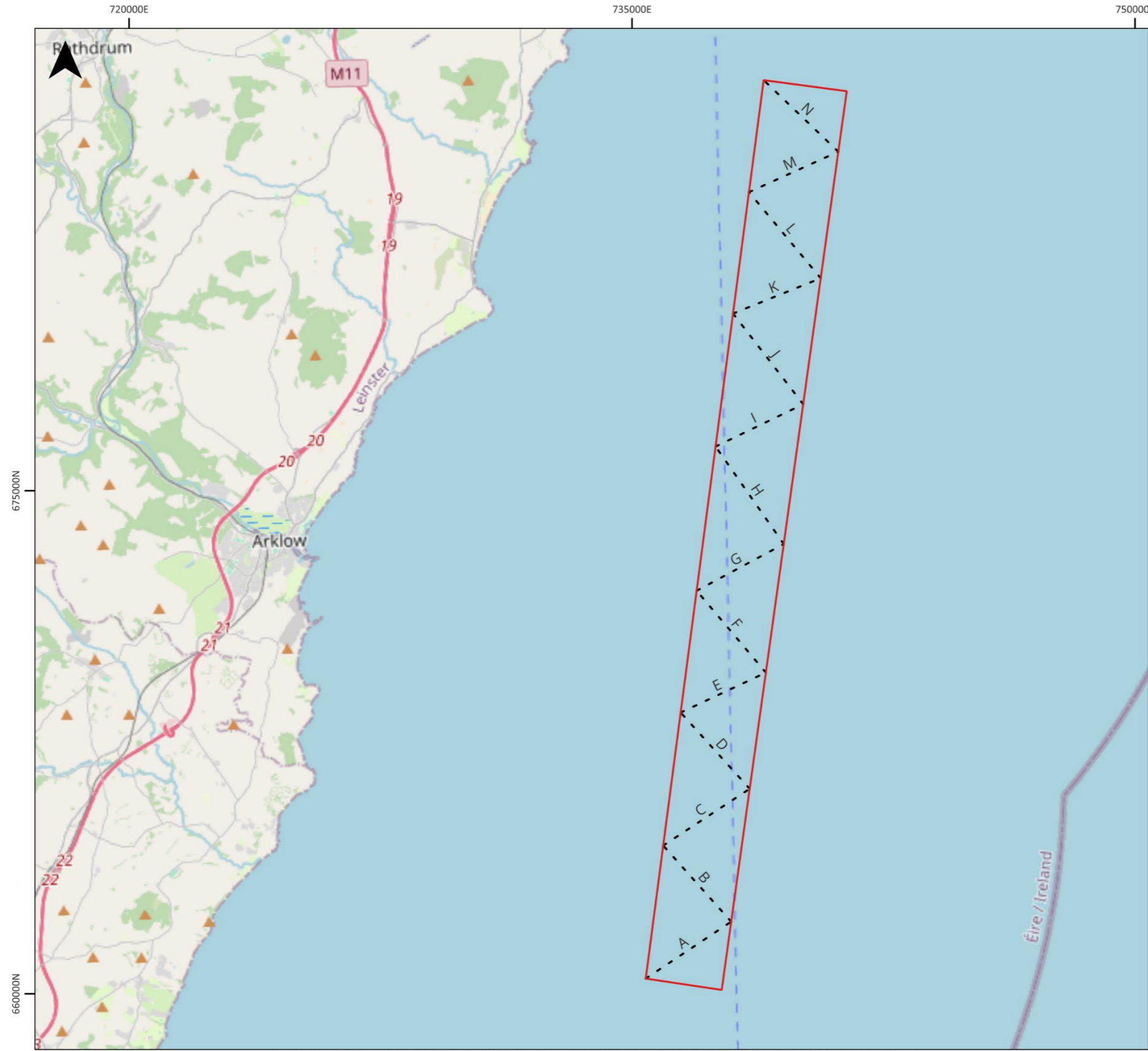
- Transect line;
- Time;
- Count;
- Direction of flight;
- Flight height band;
- Age; and
- Behaviour.

2.2.4 Flight height bands were classified as follows¹:

- A: 0-5 m;
- B: 5-20 m;
- C: 20-40; and
- D: 40 m+.

¹ To ensure that the most accurate data possible was obtained, the number of flight height bands has been limited to reduce the amount of possible error. Specifically, the flight bands for 5-20m and 20-40m were selected to consider the potential air gap associated with the Proposed Development as well as accurate visual estimation given the existing turbines and mast on site were used to help gauge these bands.





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ABWP2: Kittiwake Flight Height Survey Report 2025

P18987

Kittiwake Flight Height Survey Transects

Legend

- ABWP2 Proposed Array Area
- - Flight Height Survey Transects (ID: A - N)



0 3 6 9 km

Scale: 1: 155,500 Date: 22/01/2026 Drawn by: MR

Coordinate System:
IRENET95 / Irish Transverse
Mercator

Basemap: OpenStreetMap © URL:
<https://www.openstreetmap.org/copyright>

Figure 2.1: Flight Height Survey Transects



Table 2.1 Flight height survey visit dates, times and environmental conditions (September to January)

Visit	Date	Start time	End time	Start wind speed (BF) ²	End wind speed (BF)	Start wind direction	End wind direction	Start rain	End rain	Start temp. (°C)	End temp. (°C)	Start visibility	End visibility	Start cloud cover (x/8)	End cloud cover (x/8)	Start Douglas sea state ³	End Douglas sea state
1	02/09/25	08:25	10:52	2	2	SW	SW	None	None	14	15	Excellent	Excellent	6-7	6	2	2
2	23/09/25	12:19	15:55	2	3	E	E	None	None	14	13	Excellent	Excellent	3	6	2	2
3	15/10/25	08:59	11:18	2	1	NE	ENE	None	None	11	11	Good	Good	8	8	2	1
4	07/11/25	11:50	14:06	6	6	SE	SE	Heavy rain	Moderate rain	15	14	Poor	Moderate	8	8	5	5
5	18/11/25	10:26	12:45	4	5	W	W	None	None	6	10	Excellent	Excellent	3	3	4	4-5
6	04/12/25	09:56	12:23	4	4	W	W	None	None	4	7	Excellent	Excellent	2	3	4	4
7	13/01/26	08:25	10:30	4	4	NW	NW	None	None	6	8	Good	Good	8	3	4	4

² Beaufort scale	Wind speed (km)	Wave height (m)	Wind and sea description
0	<1	0	Calm, glassy
1	1-3	0	Light airs, glassy
2	4-6	0.1	Light breeze, smooth
3	7-10	0.4	Gentle breeze, slight
4	11-16	1	Moderate breeze, slight to moderate
5	17-21	2	Fresh breeze, moderate
6	22-27	3	Strong breeze, rough
7	29-33	4	Moderate gale, rough to very rough
8	34-40	5.5	Fresh gale, rough to high

³ Sea state	Wave height (m)	Description
0	no wave	Calm (Glassy)
1	0-0.10	Calm (rippled)
2	0.10-0.50	Smooth
3	0.50-1.25	Slight
4	1.25-2.50	Moderate
5	2.50-4.00	Rough
6	4.00-6.00	Very rough
7	6.00-9.00	High
8	9.00-14.00	Very high
9	>14.00	Phenomenal



3 Results

3.1 Flight height surveys

- 3.1.1 A total of 2,294 kittiwake were recorded within the survey area across the seven visits, with the majority (2,287, equating to 99.69% of the total records) recorded flying at heights of between 0 m and 20 m (Flight Height Bands A and B).
- 3.1.2 Of these, 1,544 individuals (67.31% of the total records) were recorded flying between 0 and 5 m (Flight Height Band A), with 284 individuals (12.38% of the total records) recorded at flight heights of between 5 m and 20 m (Flight Height Band B).
- 3.1.3 The remaining 459 kittiwake recorded in flight between 0 m and 20 m (20.01% of the total records) were flying in large flocks that moved between Flight Height Bands A and B at the time of recording. These birds, exhibiting flight behaviour between both Flight Height Bands A and B, were observed on Visit 6 (4th December 2025) only.
- 3.1.4 Across the survey programme, seven individual kittiwake (0.31% of the total records) were recorded flying between 20 m and 40 m (Flight Height Band C), whilst no individuals were observed flying at 40 m+ (Flight Height Band D).
- 3.1.5 An overview of the flight height survey results is presented in Table 3.1, along with the results from Johnston *et al.* (2014), the industry standard seabird flight height dataset used to inform kittiwake CRM. The full flight height survey results presented in Appendix 0.



Table 3.1 Flight height survey results overview

Visit	Date	No. recorded kittiwake	Flight Height Band A	Flight Height Band B	Moving between Flight Height Bands A and B	Flight Height Band C	Flight Height Band D	Total
1	2 September 2025	46	35	11	-	-	-	46
			76.09%	23.91%	-	-	-	100.00%
2	23 September 2025	48	20	28	-	-	-	48
			41.67%	58.33%	-	-	-	100.00%
3	15 October 2025	103	32	66	-	5	-	103
			31.07%	64.08%	-	4.85%	-	100.00%
4	7 November 2025	110	105	4	-	1	-	110
			95.45%	3.64%	-	0.91%	-	100.00%
5	18 November 2025	13	7	5	1	-	-	13
			53.85%	38.46%	7.69%	-	-	100.00%
6	4 December 2025	802	310	34	458	-	-	802
			38.65%	4.24%	57.11%	-	-	100.00%
7	13 January 2026	1,172	1,035	136	-	1	-	1,172
			88.31%	11.60%	-	0.09%	-	100.00%
Total		1,122	1,544	284	459	7	-	2,294
			67.31%	12.38%	20.01%	0.31%	-	100.00%
Johnston <i>et al.</i> (2014) results		62,939	37.76%	47.28%	-	12.76%	2.20%	100.00%



4 Discussion and Conclusion

- 4.1.1 The results indicate the kittiwake recorded within the survey area during the survey programme (2nd September 2025 to 13th January 2026) were primarily (2,287 individuals, 99.69% of those recorded) flying below 20 m, with the remainder (seven individuals, 0.31% of the total) recorded at heights of between 20 m and 40 m and none noted at 40 m+.
- 4.1.2 The proportion of kittiwake recorded flying at above 20 m during this study (0.31%) is less than reported in Johnston *et al.* (2014), the industry standard seabird flight height literature, which reports 14.96% of kittiwake flying at 20 m or higher. However, the results presented herein are considered to represent the real-world, local conditions present within the survey area, which cannot be replicate when using the multi-site Johnston *et al.* (2014) dataset.



5 References

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Appendix A: Full Survey Results

The following tables present complete results from the kittiwake flight height surveys.



Table 5.1 Full Survey Results: Visit 1 (2nd September 2025)

Date	Transect	Time	Count	Direction	Height band	Age ⁴	Behaviour
02/09/2025	A	08:30	1	E	B	JUV	Direct flight
02/09/2025	A	08:36	20	VAR ⁵	A	MIX AD + JUV	Foraging
02/09/2025	C	08:49	1	SE	B	AD	Direct flight
02/09/2025	C	08:53	10	VAR	A	-	Foraging
02/09/2025	D	08:59	2	VAR	A	AD	Foraging
02/09/2025	D	09:03	1	E	B	AD	Direct flight
02/09/2025	D	09:06	1	SE	B	AD	Direct flight
02/09/2025	E	09:15	4	E	B	AD	Direct flight
02/09/2025	F	09:18	1	SE	B	AD	Direct flight
02/09/2025	F	09:23	1	N	A	AD	Direct flight
02/09/2025	J	10:08	1	W	B	AD	Direct flight
02/09/2025	J	10:08	1	S	B	AD	Direct flight
02/09/2025	L	10:27	1	S	A	AD	Direct flight
02/09/2025	M	10:35	1	SW	A	AD	Direct flight

⁴ AD: Adult bird

JUV: Juvenile bird

1W: First winter bird

⁵ VAR: Various directions



Table 5.2 Full Survey Results: Visit 2 (23rd September 2025)

Date	Transect	Time	Count	Direction	Height band	Age ⁴	Behaviour
23/09/2025	A	12:19	1	S	B	AD	Direct flight
23/09/2025	A	12:25	1	Circling	A	AD	Foraging
23/09/2025	B	12:31	2	S	B	AD	Direct flight
23/09/2025	B	12:35	1	S	B	AD	Direct flight
23/09/2025	C	12:44	1	WNW	A	AD	Direct flight
23/09/2025	E	13:02	2	Circling	A	AD	Foraging
23/09/2025	E	13:04	1	SW	B	JUV	Direct flight
23/09/2025	E	13:05	1	SW	B	AD	Direct flight
23/09/2025	G	13:26	1	N	B	AD	Direct flight
23/09/2025	G	13:28	2	N	B	AD	Foraging
23/09/2025	H	13:42	11	Circling	A	AD	Direct flight
23/09/2025	H	13:43	1	E	A	AD	Direct flight
23/09/2025	H	13:45	1	NE	A	AD	Direct flight
23/09/2025	I	13:52	3	NE	A	AD	Direct flight
23/09/2025	I	13:53	1	S	B	AD	Direct flight
23/09/2025	I	13:57	3	N	B	AD	Direct flight
23/09/2025	J	14:00	1	SE	B	AD	Direct flight
23/09/2025	J	14:00	2	S	B	AD	Direct flight
23/09/2025	J	14:03	1	N	A	AD	Direct flight
23/09/2025	J	14:04	2	N	B	AD	Direct flight
23/09/2025	L	14:27	2	NE	B	AD	Direct flight
23/09/2025	L	14:28	1	N	B	AD	Direct flight
23/09/2025	L	14:31	2	NE	B	1AD + 1JUV	Direct flight
23/09/2025	M	14:41	1	N	B	AD	Direct flight
23/09/2025	N	14:48	1	E	B	AD	Direct flight
23/09/2025	N	14:53	1	NE	B	AD	Direct flight
23/09/2025	N	14:54	1	E	B	AD	Direct flight
23/09/2025	N	14:55	1	E	B	AD	Direct flight



Table 5.3 Full Survey Results: Visit 3 (15th October 2025)

Date	Transect	Time	Count	Direction	Height band	Age ⁴	Behaviour
15/10/2025	A	08:59	1	S	B	AD	Direct flight
15/10/2025	A	08:59	1	S	A	AD	Direct flight
15/10/2025	A	09:01	8	SE	A	AD	Direct flight
15/10/2025	A	09:01	1	SE	A	AD	Direct flight
15/10/2025	A	09:03	3	S	B	AD	Direct flight
15/10/2025	A	09:04	2	E	B	AD	Direct flight
15/10/2025	A	09:05	2	E	B	AD	Direct flight
15/10/2025	A	09:06	2	Circling	C	AD	Foraging
15/10/2025	A	09:06	1	E	B	AD	Direct flight
15/10/2025	B	09:11	1	E	A	AD	Direct flight
15/10/2025	B	09:12	7	S	B	AD	Direct flight
15/10/2025	B	09:12	2	Circling	A	AD	Foraging
15/10/2025	B	09:15	1	S	B	1W	Direct flight
15/10/2025	B	09:16	2	E	B	AD	Direct flight
15/10/2025	B	09:17	1	E	B	AD	Direct flight
15/10/2025	B	09:18	10	S	B	AD	Direct flight
15/10/2025	B	09:18	1	NE	B	AD	Direct flight
15/10/2025	B	09:18	9	S	A	AD	Direct flight
15/10/2025	C	09:21	2	E	B	AD	Direct flight
15/10/2025	C	09:22	2	E	A	1W	Direct flight
15/10/2025	C	09:22	6	E	A	AD	Direct flight
15/10/2025	C	09:24	1	W	B	AD	Direct flight
15/10/2025	D	09:25	1	Circling	C	AD	Foraging
15/10/2025	D	09:30	4	E	B	AD	Direct flight
15/10/2025	D	09:32	2	S	B	AD	Direct flight
15/10/2025	D	09:34	3	SE	B	-	Direct flight
15/10/2025	D	09:35	2	NE	B	AD	Direct flight
15/10/2025	D	09:36	1	N	B	AD	Direct flight
15/10/2025	D	09:36	1	S	B	AD	Direct flight



Date	Transect	Time	Count	Direction	Height band	Age ⁴	Behaviour
15/10/2025	D	09:37	1	N	B	AD	Direct flight
15/10/2025	E	09:43	1	SE	B	AD	Direct flight
15/10/2025	F	09:50	4	Circling	B	AD	Foraging
15/10/2025	F	09:53	1	NE	B	AD	Direct flight
15/10/2025	G	10:04	2	S	C	AD	Direct flight
15/10/2025	G	10:05	1	S	B	AD	Direct flight
15/10/2025	H	10:12	2	Circling	A	AD + 1W	Foraging
15/10/2025	H	10:13	1	N	B	AD	Direct flight
15/10/2025	I	10:24	1	S	B	AD	Direct flight
15/10/2025	J	10:34	1	W	B	AD	Direct flight
15/10/2025	K	10:43	2	E	B	AD	Direct flight
15/10/2025	K	10:47	1	SW	B	AD	Direct flight
15/10/2025	L	10:50	1	Circling	B	AD	Foraging
15/10/2025	L	10:57	1	N	B	AD	Direct flight
15/10/2025	L	11:01	2	S	B	AD	Direct flight
15/10/2025	N	11:18	1	NE	B	AD	Direct flight



Table 5.4 Full Survey Results: Visit 4 (7th November 2025)

Date	Transect	Time	Count	Direction	Height band	Age ⁴	Behaviour
07/11/2025	B	12:04	21	Circling	A	AD	Foraging
07/11/2025	C	12:12	5	Circling	A	AD	Foraging
07/11/2025	C	12:17	1	Circling	A	AD	Foraging
07/11/2025	D	12:20	6	Circling	A	4AD + 1W	Foraging
07/11/2025	D	12:22	6	Circling	A	AD	Foraging
07/11/2025	D	12:23	1	Circling	A	AD	Foraging
07/11/2025	E	12:28	2	S	A	AD	Direct flight
07/11/2025	E	12:29	6	S	A	4AD + 1W	Direct flight
07/11/2025	E	12:30	1	Circling	A	AD	Foraging
07/11/2025	E	12:31	1	N	A	AD	Direct flight
07/11/2025	F	12:36	1	S	A	AD	Direct flight
07/11/2025	F	12:36	3	A	A	AD	Direct flight
07/11/2025	G	12:46	1	Circling	B	AD	Foraging
07/11/2025	G	12:48	1	Circling	B	AD	Foraging
07/11/2025	G	12:49	1	N	B	AD	Direct flight
07/11/2025	G	12:50	1	NE	A	AD	Foraging
07/11/2025	H	12:54	1	E	A	AD	Direct flight
07/11/2025	H	12:57	1	SE	B	AD	Direct flight
07/11/2025	H	12:58	1	S	A	AD	Direct flight
07/11/2025	I	13:05	1	SE	A	AD	Direct flight
07/11/2025	I	13:07	3	Circling	A	-	Foraging
07/11/2025	K	13:23	9	Circling	A	AD	Foraging
07/11/2025	K	13:25	30	Circling	A	-	Foraging
07/11/2025	L	13:33	2	Circling	A	AD	Foraging
07/11/2025	L	13:34	2	Circling	A	AD	Foraging
07/11/2025	N	13:39	1	Circling	A	AD	Foraging



Date	Transect	Time	Count	Direction	Height band	Age ⁴	Behaviour
07/11/2025	N	13:52	1	NW	C	AD	Direct flight

Table 5.5 Full Survey Results: Visit 5 (18th November 2025)

Date	Transect	Time	Count	Direction	Height band	Age ⁴	Behaviour
18/11/2025	B	10:41	1	N	A	AD	Direct flight
18/11/2025	E	11:14	1	N	B	AD	Direct flight
18/11/2025	F	11:22	1	N	A	AD	Direct flight
18/11/2025	G	11:35	1	N	B	AD	Direct flight
18/11/2025	H	11:42	3	N	A	AD	Direct flight
18/11/2025	H	11:46	1	N	A	AD	Direct flight
18/11/2025	I	11:57	1	S	B	AD	Direct flight
18/11/2025	J	12:08	1	Circling	A/B	AD	Foraging
18/11/2025	K	12:16	1	N	B	AD	Direct flight
18/11/2025	K	12:17	1	S	A	AD	Direct flight
18/11/2025	L	12:28	1	N	B	AD	Direct flight



Table 5.6 Full Survey Results: Visit 6 (4th December 2025)

Date	Transect	Time	Count	Direction	Height band	Age ⁴	Behaviour
04/12/2025	A	09:56	2	SW	B	AD	Direct flight
04/12/2025	A	09:58	1	W	B	AD	Direct flight
04/12/2025	A	09:59	1	S	A	AD	Direct flight
04/12/2025	A	10:03	1	S	A	AD	Direct flight
04/12/2025	A	10:04	1	S	B	AD	Direct flight
04/12/2025	A	10:06	4	S	B	AD	Direct flight
04/12/2025	B	10:07	1	S	B	AD	Direct flight
04/12/2025	B	10:11	2	S	A/B	AD	Direct flight
04/12/2025	B	10:11	3	S	A/B	AD	Direct flight
04/12/2025	B	10:12	10	S	A/B	AD	Direct flight
04/12/2025	B	10:14	8	S	A/B	AD	Direct flight
04/12/2025	C	10:16	12	VAR	A	10AD + 1W	Foraging
04/12/2025	C	10:21	1	W	A	AD	Direct flight
04/12/2025	C	10:25	2	W	A	AD	Direct flight
04/12/2025	D	10:28	8	W	A	AD	Foraging
04/12/2025	E	10:40	77	W	A	75AD + 1W	Foraging
04/12/2025	F	10:57	70	W	A	AD	Foraging
04/12/2025	G	10:59	39	VAR	A	AD	Foraging
04/12/2025	G	11:02	4	SW	A	AD	Direct flight
04/12/2025	G	11:02	2	S	A	AD	Direct flight
04/12/2025	H	11:08	41	VAR	A	AD	Foraging
04/12/2025	I	11:21	38	VAR	A	AD	Foraging
04/12/2025	I	11:26	1	N	B	AD	Direct flight
04/12/2025	J	11:34	13	S	A	12AD + 1W	Foraging
04/12/2025	K	11:43	400	VAR	A/B	AD	Foraging
04/12/2025	L	11:56	35	VAR	A/B	AD	Foraging



Date	Transect	Time	Count	Direction	Height band	Age ⁴	Behaviour
04/12/2025	M	12:03	3	N	B	AD	Direct flight
04/12/2025	M	12:08	4	N	B	AD	Direct flight
04/12/2025	M	12:09	5	N	B	AD	Direct flight
04/12/2025	M	12:09	1	N	B	AD	Direct flight
04/12/2025	N	12:14	1	N	B	AD	Direct flight
04/12/2025	N	12:14	1	N	B	AD	Direct flight
04/12/2025	N	12:16	2	N	B	AD	Direct flight
04/12/2025	N	12:16	1	S	A	AD	Direct flight
04/12/2025	N	12:18	7	N	B	AD	Direct flight



Table 5.7 Full Survey Results: Visit 7 (13th January 2026)

Date	Transect	Time	Count	Direction	Height band	Age ⁴	Behaviour
13/01/2026	A	08:28	1	N	A	AD	Direct flight
13/01/2026	B	08:37	1	N	A	AD	Direct flight
13/01/2026	B	08:38	1	N	A	AD	Direct flight
13/01/2026	B	08:43	38	Circling	A	AD	Foraging
13/01/2026	C	08:47	120	Circling	A	AD	Foraging
13/01/2026	C	08:50	10	S	A	AD	Direct flight
13/01/2026	C	08:50	11	S	A	AD	Direct flight
13/01/2026	C	08:52	40	S	A	AD	Direct flight
13/01/2026	D	08:57	1	S	B	AD	Direct flight
13/01/2026	D	08:57	1	S	A	AD	Direct flight
13/01/2026	D	08:58	1	S	A	AD	Direct flight
13/01/2026	D	08:58	2	S	A	AD	Direct flight
13/01/2026	D	09:02	1	S	B	AD	Direct flight
13/01/2026	E	09:05	1	S	A	AD	Direct flight
13/01/2026	E	09:05	1	S	A	AD	Direct flight
13/01/2026	E	09:06	3	S	A	AD	Direct flight
13/01/2026	F	09:14	4	S	A	AD	Direct flight
13/01/2026	F	09:15	1	S	B	AD	Direct flight
13/01/2026	F	09:19	10	N	A	AD	Direct flight
13/01/2026	G	09:23	1	S	C	AD	Direct flight
13/01/2026	G	09:26	40	Circling	A	AD	Foraging
13/01/2026	H	09:35	2	S	B	AD	Direct flight
13/01/2026	H	09:37	500	Circling	A	495AD + 1W	Foraging
13/01/2026	I	09:47	2	S	A	AD	Direct flight
13/01/2026	I	09:49	34	S	A	AD	Direct flight
13/01/2026	I	09:57	3	S	A	AD	Direct flight



Date	Transect	Time	Count	Direction	Height band	Age ⁴	Behaviour
13/01/2026	I	09:57	6	S	A	AD	Direct flight
13/01/2026	I	09:58	200	Circling	A	199AD + 1W	Foraging
13/01/2026	K	10:07	38	S	B	AD	Direct flight
13/01/2026	L	10:17	50	Circling	B	49AD + 1W	Foraging
13/01/2026	M	10:25	40	Circling	B	AD	Foraging
13/01/2026	M	10:29	2	S	A	AD	Direct flight
13/01/2026	M	10:30	1	S	B	AD	Direct flight
13/01/2026	N	10:31	2	N	A	AD	Direct flight
13/01/2026	N	10:32	1	N	A	AD	Direct flight
13/01/2026	N	10:32	1	S	B	AD	Direct flight
13/01/2026	N	10:33	1	N	B	AD	Direct flight



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