



# Arklow Bank Wind Park 2

## Environmental Impact Assessment Report

Volume III, Appendix 12.14: Offshore Ornithology Technical Report -  
Kittiwake Displacement Matrices (RFI March 2026)



MacArthur  
Green

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## **1 INTRODUCTION**

1. This note provides displacement matrices for kittiwake at the proposed Arklow Bank Wind Park 2, as requested in the RFI (12c). A range of displacement and mortality rates (from 0-100%) are presented.
2. ABWP2 do not consider kittiwake to be a species that is susceptible to displacement from offshore wind farms and therefore the displacement estimates presented in this report have not been included in the impact assessments (EIAR and NIS). A review of seabird displacement guidance and monitoring studies was conducted by ABWP2 and is provided in Volume III, Appendix 12.13 Offshore Ornithology Technical Report: Evidence Review for Displacement of Kittiwake From Offshore Wind Farms (RFI March 2026).

## **2 METHODS**

3. The kittiwake displacement matrices for the three biological seasons defined for kittiwake; breeding, autumn migration and spring migration (Furness 2015) were produced following UK SNCB guidance, showing combinations of percentage displacement (0-100 at 10% increments) and percentage mortality (1-10% at 1% increments, 10-50% at 10% increments, 75% and 100%) using the seasonal peak mean abundance of bird on the water and in flight in the lease area plus 2km buffer (see Volume III, Appendix 12.03: Offshore Ornithology Monthly Seabird Abundance (Revised March 2026)).

## **3 RESULTS**

4. The combinations of displacement and mortality in each kittiwake season, using the seasonal peak mean abundance of kittiwake in the lease area and 2 km buffer are provided in Table 1 to Table 3.

**Table 1. Displacement matrix presenting the number of kittiwake within the Array Area and 2 km buffer in the spring migration season (January – April) that could be subject to mortality**

Mortality (%)	Displacement (%)										
	0	10	20	30	40	50	60	70	80	90	100
1	0	4	8	12	16	20	24	28	32	36	40
2	0	8	16	24	32	40	48	56	64	72	80
3	0	12	24	36	48	60	72	84	96	108	120
4	0	16	32	48	64	80	96	112	128	144	160
5	0	20	40	60	80	100	120	140	160	180	200
6	0	24	48	72	96	120	144	168	192	216	240
7	0	28	56	84	112	140	168	196	224	252	280
8	0	32	64	96	128	160	192	224	256	288	320
9	0	36	72	108	144	180	216	252	288	324	360
10	0	40	80	120	160	200	240	280	320	360	400
20	0	80	160	240	320	400	480	560	640	720	800
30	0	120	240	360	480	600	720	840	960	1081	1201
50	0	200	400	600	800	1001	1201	1401	1601	1801	2001
75	0	300	600	900	1201	1501	1801	2101	2401	2701	3002
100	0	400	800	1201	1601	2001	2401	2801	3202	3602	4002

**Table 2. Displacement matrix presenting the number of kittiwake within the Array Area and 2 km buffer in the breeding season (March to August) that could be subject to mortality**

Mortality (%)	Displacement (%)										
	0	10	20	30	40	50	60	70	80	90	100
1	0	0	1	1	2	2	3	3	4	4	5
2	0	1	2	3	4	5	6	7	8	9	10
3	0	1	3	4	6	7	9	10	11	13	14
4	0	2	4	6	8	10	11	13	15	17	19
5	0	2	5	7	10	12	14	17	19	21	24
6	0	3	6	9	11	14	17	20	23	26	29
7	0	3	7	10	13	17	20	23	27	30	33
8	0	4	8	11	15	19	23	27	31	34	38
9	0	4	9	13	17	21	26	30	34	39	43
10	0	5	10	14	19	24	29	33	38	43	48
20	0	10	19	29	38	48	57	67	76	86	95
30	0	14	29	43	57	72	86	100	114	129	143
50	0	24	48	72	95	119	143	167	191	215	239
75	0	36	72	107	143	179	215	250	286	322	358
100	0	48	95	143	191	239	286	334	382	429	477

**Table 3. Displacement matrix presenting the number of kittiwake within the Array Area and 2 km buffer in the autumn migration season (September to December) that could be subject to mortality**

Mortality (%)	Displacement (%)										
	0	10	20	30	40	50	60	70	80	90	100
1	0	2	4	7	9	11	13	15	17	20	22
2	0	4	9	13	17	22	26	30	35	39	43
3	0	7	13	20	26	33	39	46	52	59	65
4	0	9	17	26	35	43	52	61	69	78	87
5	0	11	22	33	43	54	65	76	87	98	108
6	0	13	26	39	52	65	78	91	104	117	130
7	0	15	30	46	61	76	91	106	121	137	152
8	0	17	35	52	69	87	104	121	139	156	173
9	0	20	39	59	78	98	117	137	156	176	195
10	0	22	43	65	87	108	130	152	173	195	217
20	0	43	87	130	173	217	260	303	347	390	433
30	0	65	130	195	260	325	390	455	520	585	650
50	0	108	217	325	433	542	650	758	867	975	1084
75	0	163	325	488	650	813	975	1138	1300	1463	1625
100	0	217	433	650	867	1084	1300	1517	1734	1950	2167

#### 4 CONCLUSION

- As requested in the RFI, this technical report provides the full range of potential displacement estimates for ABWP2. As noted above and in Volume III, Appendix 12.13 Offshore Ornithology Technical Report: Evidence Review for Displacement of Kittiwake From Offshore Wind Farms (RFI March 2026), ABWP2 considers there to be a considerable body of evidence that kittiwake are not displaced from offshore wind farms and therefore the information in this note is provided for information purposes only and has not been examined further.