

Hornsea 4



Hornsea Project Four: Preliminary Environmental Information Report (PEIR)

Volume 5, Annex 5.2: Offshore Ornithology Displacement Analysis

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Glossary

Term	Definition
Bio-season	Bird behaviour and abundance is recognised to differ across a calendar year, with particular months recognised as being part of different seasons. The biologically defined minimum population scales (BDMPS) bio-seasons used in this report are based on those in Furness (2015), hereafter referred to as bio-seasons. Separate bio-seasons are recognised in this technical report in order to establish the level of importance any seabird species has within the study area during any particular period of time.
Export cable corridor (ECC)	The specific corridor of seabed (seaward of Mean High Water Springs (MHWS)) and land (landward of MHWS) from the Hornsea Project Four array area to the Creyke Beck National Grid substation, within which the export cables will be located.
Ørsted Hornsea Project Four (UK) Ltd.	The proposed Ørsted Hornsea Project Four (UK) Ltd. offshore wind farm project; the term covers all elements within the Development Consent Order (i.e. both the offshore and onshore components). Hereafter referred to as Hornsea Four.
the Hornsea Four array area	The proposed area for Hornsea Four within which the Wind Turbine Generators (WTGs) would be installed (at PEIR stage)
SeaMaST	Seabird densities from the predicted density maps and the underlying dataset of the SeaMaST project (Seabird Mapping and Sensitivity Tool) described in Bradbury et al. (2014) was identified by Natural England, through the Evidence Plan Process (at Technical Panel Meeting 3 on 10.04.19), as the most appropriate data set for the purpose of estimating the density and abundances of red-throated divers within the ECC. The SeaMaST data were compiled from offshore boat and aerial observer surveys spanning the period 1979–2012.

Acronyms

Acronym	Definition
ECC	Export Cable Corridor
ES	Environmental Statement
PEIR	Preliminary Environmental Information Report
RIAA	Report to Inform Appropriate Assessment
RSPB	Royal Society for the Protection of Birds
SNCB	Statutory Nature Conservation Body

Units

Unit	Definition
km	Kilometre (distance)
km ²	Kilometre squared (area)

1 Introduction

1.1 Project background

1.1.1.1 Ørsted Hornsea Project Four (UK) Ltd., (hereafter the Applicant) is proposing to develop the Hornsea Project Four offshore wind farm (hereafter Hornsea Four). Hornsea Four is located approximately 65 km offshore from coastline of the East Riding of Yorkshire in the Southern North Sea and will be the fourth project to be developed in the former Hornsea Zone. The Hornsea Four Agreement for Lease (AfL) area was 848 km² at the Scoping phase of project development. In the spirit of keeping with Hornsea Four's approach to Proportionate EIA, the project is currently giving due consideration to the size and location (within the existing AfL area) of the final project that will be taken forward to consent application (DCO). This consideration is captured internally as the "Developable Area Process", which includes Physical, Biological and Human constraints in refining the developable area, balancing consenting and commercial considerations with technical feasibility for construction. Hornsea Four will include both offshore and onshore infrastructure including an offshore generating station (wind farm), export cables to landfall, and connection to the electricity transmission network.

1.1.1.2 APEM Ltd (hereafter APEM) was commissioned to undertake a study of offshore and intertidal ornithology that characterise the area that may be influenced by Hornsea Four and undertake a displacement analysis on the ornithological receptors identified.

1.2 Displacement

1.2.1.1 The presence of wind turbine generators has the potential to directly disturb and displace seabirds that would normally reside within and around the area of sea where Hornsea Four is proposed to be developed. This in effect represents indirect habitat loss, which would potentially reduce the area available for seabirds to forage, loaf and / or moult that currently occur within and around Hornsea Four that may be susceptible to displacement from such a development.

1.3 Species of Interest

1.3.1.1 Following consultation with Natural England and the Royal Society for the Protection of Birds (RSPB) through the evidence plan process (at Technical Panel Meeting 3 on 10.04.19), the following species were identified as the 'key' species for inclusion in this Hornsea Four disturbance and displacement assessment:

- Red-throated diver (*Gavia stellata*);
- Gannet (*Morus bassanus*);
- Guillemot (*Uria aalge*);
- Razorbill (*Alca torda*); and
- Puffin (*Fratacula arctica*).

1.3.1.2 This annex presents the baseline data on the five key species screened in for the assessment of potential disturbance and displacement as a result of the construction and / or operational phases of Hornsea Four.

1.4 Displacement Buffers

- 1.4.1.1 The main assessment on disturbance and displacement is found with the PEIR Chapter on offshore and intertidal ornithology ([Volume 2, Chapter 5: Offshore and Intertidal Ornithology](#)). The scale of the potential displacement applied in this report is in response to guidance in the literature (SNCBs, 2017) and comments received from Natural England and the RSPB through the Evidence Plan Process (at Technical Panel Meeting 3 on 10.04.19).
- 1.4.1.2 Following the generic guidance (SNCBs, 2017), requested by Natural England and the RPSB, this report presents displacement matrices that consider red-throated diver within a 2 km buffer surrounding a cable laying vessel in the offshore Export Cable Corridor (ECC). Red-throated diver are not considered for displacement within the Hornsea Four array area (or respective buffers), as this species was not recorded within the Hornsea Four array area and only in a single month (with an abundance of 10 individuals) within the 4 km buffer from the digital aerial survey programme ([Volume 2, Chapter 5: Offshore and Intertidal Ornithology](#)).
- 1.4.1.3 Following the same generic guidance (SNCBs, 2017), requested by Natural England and the RSPB, this report also presents displacement matrices that consider gannet and auk species (guillemot, razorbill and puffin). These matrices present abundances for each species within the Hornsea Four array area and also separately for different buffers surrounding the Hornsea Four array area, including areas that account for a buffer between 0 to 1 km from the array area and a buffer between 0 to 2 km from the array area.

1.5 Data Sources for Displacement Matrices

- 1.5.1.1 The displacement matrices presented in this annex were populated using abundances and densities recorded from 24 months of digital aerial video surveys (April 2016 to March 2018) of the Hornsea Four array area (at PEIR) and from an area that extended 4 km around the array area for gannet, guillemot, razorbill and puffin. For these four species displacement matrices are presented for the array area, a 1 km buffer and a 2 km buffer separately for each bio-season.
- 1.5.1.2 The red-throated diver displacement matrices presented in this annex were populated using densities from the predicted density map and the underlying dataset of the SeaMaST project (Seabird Mapping and Sensitivity Tool) described in Bradbury et al. (2014), identified by Natural England as the most appropriate data set for this purpose through the Evidence Plan Process (at Technical Panel Meeting 3 on 10.04.19). The SeaMaST data were compiled from offshore boat and aerial observer surveys spanning the period 1979-2012. For this species, two displacement matrices are presented representing the range in the upper and lower densities from the SeaMaST data representing the presence of this species within the ECC within a 2 km buffer surrounding cable laying activities during the non-breeding bio-season.

1.6 Data Limitations

- 1.6.1.1 The data within this report for gannet, guillemot, razorbill and puffin are reliant upon site-specific digital aerial video surveys undertaken over the Hornsea Four array area and a 4 km buffer surrounding it for a period of 24 months, collected between April 2016 to March 2018, inclusive. This data is considered to be the most reliable source for characterising the baseline environment for offshore ornithology. However, using this data to characterise the abundances for each species within individual bio-seasons or extended bio-seasons (as described in [Section 1.7](#)) is subject to interpretation due to migratory movements of birds being subject to variation between species and between years. Therefore, the data within these displacement matrices may or may not form the basis for the assessments within the Environmental Statement (ES) Chapter or the Report to Inform Appropriate Assessment (RIAA), depending upon additional factors considered when assessing the potential impacts and / or effects of displacement on these species.
- 1.6.1.2 The data within this report for red-throated diver within the ECC are reliant upon the predicted density map and the underlying dataset of the SeaMaST project described in Bradbury *et al.* (2014), identified by Natural England as the most appropriate data set for this purpose through the Evidence Plan Process (at Technical Panel Meeting 3 on 10.04.19). The limitations of these data are that they are modelled data and are reliant on predicted densities within the area of interest rather than data collected specifically for this assessment. However, this data is recognised as the industry standard for use in generic displacement assessments for areas considering displacement within ECCs and provide a level playing field for all offshore wind farm impact assessments.

1.7 Presentation of Displacement for each Bio-Season

- 1.7.1.1 In order to provide a more visual approach to presenting data on the species considered for disturbance and displacement within the tables of this report a colour coding has been used to represent different bio-seasons and combined / extended bio-seasons. Each species is subject to different months being considered to be part of different bio-seasons as well as the number of bio-seasons varying also.
- 1.7.1.2 The colours used to define the four main bio-seasons in addition to proposed combined / extended bio-seasons are presented in [Table 1](#).

Table 1: Bio-season colour coding.

Return Migration (Green)
Migration-free Breeding (Yellow)
Post-breeding Migration (Orange)
Migration-free Winter (Grey/Blue)
All Non-Breeding (Pink)
Extended Breeding (Violet)
Extended Non-breeding (Purple)

- 1.7.1.3 As described in [Section 1.3](#), the data used to underpin four species' abundance and density estimates were collected through 24 months of digital aerial video surveys completed for the Hornsea Four array area and from an area that extended 4 km around the Hornsea Four array area. For one species (red-throated diver) the data used to estimate abundance / density within the ECC were from an alternate source agreed as appropriate with Natural England and the RSPB (at Technical Panel Meeting 3 on 10.04.19), the SeaMaST data set (Bradbury *et al.*, 2014). Collectively, these data are presented in [Table 2](#), split into bio-season mean peaks, with bio-seasons based upon those presented in Furness (2015).
- 1.7.1.4 Species-specific displacement matrices for appropriately defined areas described in [Section 1.3](#) covering separate bio-seasons for each of the five species are presented in [Sections 2 to 6](#) of this annex.

Table 2: Bio-season mean peak abundance and density estimates of key bird species for Hornsea Four disturbance and displacement assessment.

Bio-season	Survey Area	Red-throated diver		Gannet		Guillemot		Razorbill		Puffin	
		Abundance estimate	Density estimate (birds / km ²)	Abundance estimate	Density estimate (birds / km ²)	Abundance estimate	Density estimate (birds / km ²)	Abundance estimate	Density estimate (birds / km ²)	Abundance estimate	Density estimate (birds / km ²)
Return Migration	Array Area	N/A		449	0.75	5,618	9.36	501	0.83	174	0.29
	1 km Buffer			75	0.60	1,317	10.52	332	2.58	21	0.17
	2 km Buffer			135	0.53	2,783	10.86	528	2.06	63	0.25
Migration-free Breeding	Array Area	N/A		1,048	1.74	6,441	10.73	361	0.60	77	0.13
	1 km Buffer			315	2.51	2,052	16.38	60	0.48	18	0.14
	2 km Buffer			529	2.06	3,363	13.13	147	0.58	25	0.1
Post-breeding Migration	Array Area	N/A		639	1.06	39,661	66.06	4,502	7.50	313	0.52
	1 km Buffer			186	1.48	10,635	84.93	532	4.25	74	0.59
	2 km Buffer			374	1.46	19,259	75.17	926	3.61	109	0.43
Migration-free Winter	Array Area	N/A	N/A			8,952	14.91	415	0.69	188	0.31
	1 km Buffer					2,931	23.41	79	0.63	49	0.39
	2 km Buffer					6,457	25.20	191	0.75	97	0.38

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Bio-season	Survey Area	Red-throated diver		Gannet		Guillemot		Razorbill		Puffin	
		Abundance estimate	Density estimate (birds / km ²)	Abundance estimate	Density estimate (birds / km ²)	Abundance estimate	Density estimate (birds / km ²)	Abundance estimate	Density estimate (birds / km ²)	Abundance estimate	Density estimate (birds / km ²)
All Non-breeding	Array Area	N/A	N/A	639	1.06	39,661	66.06	4,502	7.50	391	0.65
	1 km Buffer	N/A	N/A	186	1.48	10,635	84.93	532	4.25	92	0.74
	2 km Buffer	1-3	0.05-0.25	374	1.46	19,259	75.17	926	3.61	161	0.63
Extended Breeding	Array Area	N/A		1048	1.74	8,192	13.65	361	0.60	437	0.73
	1 km Buffer			315	2.51	2,052	16.38	72	0.58	82	0.66
	2 km Buffer			529	2.06	5,001	19.52	147	0.58	130	0.51
Extended Non-breeding	Array Area	N/A		639	1.06	39,661	66.06	4,502	7.50	188	0.31
	1 km Buffer			186	1.48	10,635	84.93	532	4.25	49	0.39
	2 km Buffer			374	1.46	19,259	75.17	926	3.61	97	0.38

Table Note: Data highlighted in bold represent the bio-season with peak abundance for each species.

2 Red-throated Diver Displacement Matrices

Table 3: Displacement matrix presenting the minimum number of red-throated divers in the ECC 2 km buffer surrounding cable laying vessel only, during the Migration-free Winter bio-season.

Displacement (%)	Mortality Rates (%)															
	0	1	2	3	4	5	10	20	30	40	50	60	70	80	90	100
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
70	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
100	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1

Table 4: Displacement matrix presenting the maximum number of red-throated divers in the ECC 2 km buffer only, during the Migration-free Winter bio-season.

Displacement (%)	Mortality Rates (%)															
	0	1	2	3	4	5	10	20	30	40	50	60	70	80	90	100
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
30	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1
40	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1
50	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	2
60	0	0	0	0	0	0	0	0	1	1	1	1	1	1	2	2
70	0	0	0	0	0	0	0	0	1	1	1	1	2	2	2	2
80	0	0	0	0	0	0	0	0	1	1	1	1	2	2	2	2
90	0	0	0	0	0	0	0	1	1	1	1	2	2	2	3	3
100	0	0	0	0	0	0	0	1	1	1	2	2	2	2	3	3

3 Gannet Displacement Matrices

Table 5: Displacement matrix presenting the number of gannets in the array area only, during the Return Migration bio-season.

Displacement (%)	Mortality Rates (%)															
	0	1	2	3	4	5	10	20	30	40	50	60	70	80	90	100
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	1	1	2	2	3	3	4	4	4
10	0	0	1	1	2	2	4	9	13	18	22	27	31	36	40	45
20	0	1	2	3	4	4	9	18	27	36	45	54	63	72	81	90
30	0	1	3	4	5	7	13	27	40	54	67	81	94	108	121	135
40	0	2	4	5	7	9	18	36	54	72	90	108	126	144	162	180
50	0	2	4	7	9	11	22	45	67	90	112	135	157	180	202	225
60	0	3	5	8	11	13	27	54	81	108	135	162	189	216	242	269
70	0	3	6	9	13	16	31	63	94	126	157	189	220	251	283	314
80	0	4	7	11	14	18	36	72	108	144	180	216	251	287	323	359
90	0	4	8	12	16	20	40	81	121	162	202	242	283	323	364	404
100	0	4	9	13	18	22	45	90	135	180	225	269	314	359	404	449

Table 6: Displacement matrix presenting the number of gannets in the 1 km Buffer only, during the Return Migration bio-season.

Displacement (%)	Mortality Rates (%)															
	0	1	2	3	4	5	10	20	30	40	50	60	70	80	90	100
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1
10	0	0	0	0	0	0	1	2	2	3	4	5	5	6	7	8
20	0	0	0	0	1	1	2	3	5	6	8	9	11	12	14	15
30	0	0	0	1	1	1	2	5	7	9	11	14	16	18	20	23
40	0	0	1	1	1	2	3	6	9	12	15	18	21	24	27	30
50	0	0	1	1	2	2	4	8	11	15	19	23	26	30	34	38
60	0	0	1	1	2	2	5	9	14	18	23	27	32	36	41	45
70	0	1	1	2	2	3	5	11	16	21	26	32	37	42	47	53
80	0	1	1	2	2	3	6	12	18	24	30	36	42	48	54	60
90	0	1	1	2	3	3	7	14	20	27	34	41	47	54	61	68
100	0	1	2	2	3	4	8	15	23	30	38	45	53	60	68	75

Table 7: Displacement matrix presenting the number of gannets in the 2 km Buffer only, during the Return Migration bio-season.

Displacement (%)	Mortality Rates (%)															
	0	1	2	3	4	5	10	20	30	40	50	60	70	80	90	100
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1
10	0	0	0	0	1	1	1	3	4	5	7	8	9	11	12	14
20	0	0	1	1	1	1	3	5	8	11	14	16	19	22	24	27
30	0	0	1	1	2	2	4	8	12	16	20	24	28	32	36	41
40	0	1	1	2	2	3	5	11	16	22	27	32	38	43	49	54
50	0	1	1	2	3	3	7	14	20	27	34	41	47	54	61	68
60	0	1	2	2	3	4	8	16	24	32	41	49	57	65	73	81
70	0	1	2	3	4	5	9	19	28	38	47	57	66	76	85	95
80	0	1	2	3	4	5	11	22	32	43	54	65	76	86	97	108
90	0	1	2	4	5	6	12	24	36	49	61	73	85	97	109	122
100	0	1	3	4	5	7	14	27	41	54	68	81	95	108	122	135

Table 8: Displacement matrix presenting the number of gannets in the array area only, during the Migration-free Breeding bio-season.

Displacement (%)	Mortality Rates (%)															
	0	1	2	3	4	5	10	20	30	40	50	60	70	80	90	100
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	1	1	2	3	4	5	6	7	8	9	10
10	0	1	2	3	4	5	10	21	31	42	52	63	73	84	94	105
20	0	2	4	6	8	10	21	42	63	84	105	126	147	168	189	210
30	0	3	6	9	13	16	31	63	94	126	157	189	220	252	283	314
40	0	4	8	13	17	21	42	84	126	168	210	252	293	335	377	419
50	0	5	10	16	21	26	52	105	157	210	262	314	367	419	472	524
60	0	6	13	19	25	31	63	126	189	252	314	377	440	503	566	629
70	0	7	15	22	29	37	73	147	220	293	367	440	514	587	660	734
80	0	8	17	25	34	42	84	168	252	335	419	503	587	671	755	838
90	0	9	19	28	38	47	94	189	283	377	472	566	660	755	849	943
100	0	10	21	31	42	52	105	210	314	419	524	629	734	838	943	1,048

Table 9: Displacement matrix presenting the number of gannets in the 1 km Buffer only, during the Migration-free Breeding bio-season.

Displacement (%)	Mortality Rates (%)															
	0	1	2	3	4	5	10	20	30	40	50	60	70	80	90	100
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	1	1	1	2	2	2	3	3	3
10	0	0	1	1	1	2	3	6	9	13	16	19	22	25	28	32
20	0	1	1	2	3	3	6	13	19	25	32	38	44	50	57	63
30	0	1	2	3	4	5	9	19	28	38	47	57	66	76	85	95
40	0	1	3	4	5	6	13	25	38	50	63	76	88	101	113	126
50	0	2	3	5	6	8	16	32	47	63	79	95	110	126	142	158
60	0	2	4	6	8	9	19	38	57	76	95	113	132	151	170	189
70	0	2	4	7	9	11	22	44	66	88	110	132	154	176	198	221
80	0	3	5	8	10	13	25	50	76	101	126	151	176	202	227	252
90	0	3	6	9	11	14	28	57	85	113	142	170	198	227	255	284
100	0	3	6	9	13	16	32	63	95	126	158	189	221	252	284	315

Table 10: Displacement matrix presenting the number of gannets in the 2 km Buffer only, during the Non-migratory Breeding bio-season.

Displacement (%)	Mortality Rates (%)															
	0	1	2	3	4	5	10	20	30	40	50	60	70	80	90	100
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	1	1	2	2	3	3	4	4	5	5
10	0	1	1	2	2	3	5	11	16	21	26	32	37	42	48	53
20	0	1	2	3	4	5	11	21	32	42	53	63	74	85	95	106
30	0	2	3	5	6	8	16	32	48	63	79	95	111	127	143	159
40	0	2	4	6	8	11	21	42	63	85	106	127	148	169	190	212
50	0	3	5	8	11	13	26	53	79	106	132	159	185	212	238	265
60	0	3	6	10	13	16	32	63	95	127	159	190	222	254	286	317
70	0	4	7	11	15	19	37	74	111	148	185	222	259	296	333	370
80	0	4	8	13	17	21	42	85	127	169	212	254	296	339	381	423
90	0	5	10	14	19	24	48	95	143	190	238	286	333	381	428	476
100	0	5	11	16	21	26	53	106	159	212	265	317	370	423	476	529

Table 11: Displacement matrix presenting the number of gannets in the array area only, during the Post-breeding bio-season.

Displacement (%)	Mortality Rates (%)															
	0	1	2	3	4	5	10	20	30	40	50	60	70	80	90	100
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	1	1	2	3	3	4	4	5	6	6
10	0	1	1	2	3	3	6	13	19	26	32	38	45	51	58	64
20	0	1	3	4	5	6	13	26	38	51	64	77	89	102	115	128
30	0	2	4	6	8	10	19	38	58	77	96	115	134	153	173	192
40	0	3	5	8	10	13	26	51	77	102	128	153	179	204	230	256
50	0	3	6	10	13	16	32	64	96	128	160	192	224	256	288	320
60	0	4	8	12	15	19	38	77	115	153	192	230	268	307	345	383
70	0	4	9	13	18	22	45	89	134	179	224	268	313	358	403	447
80	0	5	10	15	20	26	51	102	153	204	256	307	358	409	460	511
90	0	6	12	17	23	29	58	115	173	230	288	345	403	460	518	575
100	0	6	13	19	26	32	64	128	192	256	320	383	447	511	575	639

Table 12: Displacement matrix presenting the number of gannets in the 1 km Buffer only, during the Post-breeding bio-season.

Displacement (%)	Mortality Rates (%)															
	0	1	2	3	4	5	10	20	30	40	50	60	70	80	90	100
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	0	1	1	1	1	1	1	2	2
10	0	0	0	1	1	1	2	4	6	7	9	11	13	15	17	19
20	0	0	1	1	1	2	4	7	11	15	19	22	26	30	33	37
30	0	1	1	2	2	3	6	11	17	22	28	33	39	45	50	56
40	0	1	1	2	3	4	7	15	22	30	37	45	52	60	67	74
50	0	1	2	3	4	5	9	19	28	37	47	56	65	74	84	93
60	0	1	2	3	4	6	11	22	33	45	56	67	78	89	100	112
70	0	1	3	4	5	7	13	26	39	52	65	78	91	104	117	130
80	0	1	3	4	6	7	15	30	45	60	74	89	104	119	134	149
90	0	2	3	5	7	8	17	33	50	67	84	100	117	134	151	167
100	0	2	4	6	7	9	19	37	56	74	93	112	130	149	167	186

Table 13: Displacement matrix presenting the number of gannets in the 2 km Buffer only, during the Post-breeding bio-season.

Displacement (%)	Mortality Rates (%)															
	0	1	2	3	4	5	10	20	30	40	50	60	70	80	90	100
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	1	1	1	2	2	3	3	3	4
10	0	0	1	1	1	2	4	7	11	15	19	22	26	30	34	37
20	0	1	1	2	3	4	7	15	22	30	37	45	52	60	67	75
30	0	1	2	3	4	6	11	22	34	45	56	67	79	90	101	112
40	0	1	3	4	6	7	15	30	45	60	75	90	105	120	135	150
50	0	2	4	6	7	9	19	37	56	75	94	112	131	150	168	187
60	0	2	4	7	9	11	22	45	67	90	112	135	157	180	202	224
70	0	3	5	8	10	13	26	52	79	105	131	157	183	209	236	262
80	0	3	6	9	12	15	30	60	90	120	150	180	209	239	269	299
90	0	3	7	10	13	17	34	67	101	135	168	202	236	269	303	337
100	0	4	7	11	15	19	37	75	112	150	187	224	262	299	337	374

Table 14: Displacement matrix presenting the number of gannets in the array area only, during the Non-breeding bio-season.

Displacement (%)	Mortality Rates(%)															
	0	1	2	3	4	5	10	20	30	40	50	60	70	80	90	100
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	1	1	2	3	3	4	4	5	6	6
10	0	1	1	2	3	3	6	13	19	26	32	38	45	51	58	64
20	0	1	3	4	5	6	13	26	38	51	64	77	89	102	115	128
30	0	2	4	6	8	10	19	38	58	77	96	115	134	153	173	192
40	0	3	5	8	10	13	26	51	77	102	128	153	179	204	230	256
50	0	3	6	10	13	16	32	64	96	128	160	192	224	256	288	320
60	0	4	8	12	15	19	38	77	115	153	192	230	268	307	345	383
70	0	4	9	13	18	22	45	89	134	179	224	268	313	358	403	447
80	0	5	10	15	20	26	51	102	153	204	256	307	358	409	460	511
90	0	6	12	17	23	29	58	115	173	230	288	345	403	460	518	575
100	0	6	13	19	26	32	64	128	192	256	320	383	447	511	575	639

Table 15: Displacement matrix presenting the number of gannets in the 1 km Buffer only, during the Non-breeding bio-season.

Displacement (%)	Mortality Rates (%)															
	0	1	2	3	4	5	10	20	30	40	50	60	70	80	90	100
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	0	1	1	1	1	1	1	2	2
10	0	0	0	1	1	1	2	4	6	7	9	11	13	15	17	19
20	0	0	1	1	1	2	4	7	11	15	19	22	26	30	33	37
30	0	1	1	2	2	3	6	11	17	22	28	33	39	45	50	56
40	0	1	1	2	3	4	7	15	22	30	37	45	52	60	67	74
50	0	1	2	3	4	5	9	19	28	37	47	56	65	74	84	93
60	0	1	2	3	4	6	11	22	33	45	56	67	78	89	100	112
70	0	1	3	4	5	7	13	26	39	52	65	78	91	104	117	130
80	0	1	3	4	6	7	15	30	45	60	74	89	104	119	134	149
90	0	2	3	5	7	8	17	33	50	67	84	100	117	134	151	167
100	0	2	4	6	7	9	19	37	56	74	93	112	130	149	167	186

Table 16: Displacement matrix presenting the number of gannets in the 2 km Buffer only, during the Non-breeding bio-season.

Displacement (%)	Mortality Rates (%)															
	0	1	2	3	4	5	10	20	30	40	50	60	70	80	90	100
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	1	1	1	2	2	3	3	3	4
10	0	0	1	1	1	2	4	7	11	15	19	22	26	30	34	37
20	0	1	1	2	3	4	7	15	22	30	37	45	52	60	67	75
30	0	1	2	3	4	6	11	22	34	45	56	67	79	90	101	112
40	0	1	3	4	6	7	15	30	45	60	75	90	105	120	135	150
50	0	2	4	6	7	9	19	37	56	75	94	112	131	150	168	187
60	0	2	4	7	9	11	22	45	67	90	112	135	157	180	202	224
70	0	3	5	8	10	13	26	52	79	105	131	157	183	209	236	262
80	0	3	6	9	12	15	30	60	90	120	150	180	209	239	269	299
90	0	3	7	10	13	17	34	67	101	135	168	202	236	269	303	337
100	0	4	7	11	15	19	37	75	112	150	187	224	262	299	337	374

Table 17: Displacement matrix presenting the number of gannets in the array area only, during the Extended Breeding bio-season.

Displacement (%)	Mortality Rates (%)															
	0	1	2	3	4	5	10	20	30	40	50	60	70	80	90	100
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	1	1	2	3	4	5	6	7	8	9	10
10	0	1	2	3	4	5	10	21	31	42	52	63	73	84	94	105
20	0	2	4	6	8	10	21	42	63	84	105	126	147	168	189	210
30	0	3	6	9	13	16	31	63	94	126	157	189	220	252	283	314
40	0	4	8	13	17	21	42	84	126	168	210	252	293	335	377	419
50	0	5	10	16	21	26	52	105	157	210	262	314	367	419	472	524
60	0	6	13	19	25	31	63	126	189	252	314	377	440	503	566	629
70	0	7	15	22	29	37	73	147	220	293	367	440	514	587	660	734
80	0	8	17	25	34	42	84	168	252	335	419	503	587	671	755	838
90	0	9	19	28	38	47	94	189	283	377	472	566	660	755	849	943
100	0	10	21	31	42	52	105	210	314	419	524	629	734	838	943	1,048

Table 18: Displacement matrix presenting the number of gannets in the 1 km Buffer only, during the Extended Breeding bio-season.

Displacement (%)	Mortality Rates (%)															
	0	1	2	3	4	5	10	20	30	40	50	60	70	80	90	100
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	1	1	1	2	2	2	3	3	3
10	0	0	1	1	1	2	3	6	9	13	16	19	22	25	28	32
20	0	1	1	2	3	3	6	13	19	25	32	38	44	50	57	63
30	0	1	2	3	4	5	9	19	28	38	47	57	66	76	85	95
40	0	1	3	4	5	6	13	25	38	50	63	76	88	101	113	126
50	0	2	3	5	6	8	16	32	47	63	79	95	110	126	142	158
60	0	2	4	6	8	9	19	38	57	76	95	113	132	151	170	189
70	0	2	4	7	9	11	22	44	66	88	110	132	154	176	198	221
80	0	3	5	8	10	13	25	50	76	101	126	151	176	202	227	252
90	0	3	6	9	11	14	28	57	85	113	142	170	198	227	255	284
100	0	3	6	9	13	16	32	63	95	126	158	189	221	252	284	315

Table 19: Displacement matrix presenting the number of gannets in the 2 km Buffer only, during the Extended Breeding bio-season.

Displacement (%)	Mortality Rates (%)															
	0	1	2	3	4	5	10	20	30	40	50	60	70	80	90	100
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	1	1	2	2	3	3	4	4	5	5
10	0	1	1	2	2	3	5	11	16	21	26	32	37	42	48	53
20	0	1	2	3	4	5	11	21	32	42	53	63	74	85	95	106
30	0	2	3	5	6	8	16	32	48	63	79	95	111	127	143	159
40	0	2	4	6	8	11	21	42	63	85	106	127	148	169	190	212
50	0	3	5	8	11	13	26	53	79	106	132	159	185	212	238	265
60	0	3	6	10	13	16	32	63	95	127	159	190	222	254	286	317
70	0	4	7	11	15	19	37	74	111	148	185	222	259	296	333	370
80	0	4	8	13	17	21	42	85	127	169	212	254	296	339	381	423
90	0	5	10	14	19	24	48	95	143	190	238	286	333	381	428	476
100	0	5	11	16	21	26	53	106	159	212	265	317	370	423	476	529

Table 20: Displacement matrix presenting the number of gannets in the array area only, during the Extended Non-breeding bio-season.

Displacement (%)	Mortality Rates (%)															
	0	1	2	3	4	5	10	20	30	40	50	60	70	80	90	100
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	1	1	2	3	3	4	4	5	6	6
10	0	1	1	2	3	3	6	13	19	26	32	38	45	51	58	64
20	0	1	3	4	5	6	13	26	38	51	64	77	89	102	115	128
30	0	2	4	6	8	10	19	38	58	77	96	115	134	153	173	192
40	0	3	5	8	10	13	26	51	77	102	128	153	179	204	230	256
50	0	3	6	10	13	16	32	64	96	128	160	192	224	256	288	320
60	0	4	8	12	15	19	38	77	115	153	192	230	268	307	345	383
70	0	4	9	13	18	22	45	89	134	179	224	268	313	358	403	447
80	0	5	10	15	20	26	51	102	153	204	256	307	358	409	460	511
90	0	6	12	17	23	29	58	115	173	230	288	345	403	460	518	575
100	0	6	13	19	26	32	64	128	192	256	320	383	447	511	575	639

Table 21: Displacement matrix presenting the number of gannets in the 1 km Buffer, during the Extended Non-breeding bio-season.

Displacement (%)	Mortality Rates (%)															
	0	1	2	3	4	5	10	20	30	40	50	60	70	80	90	100
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	0	1	1	1	1	1	1	2	2
10	0	0	0	1	1	1	2	4	6	7	9	11	13	15	17	19
20	0	0	1	1	1	2	4	7	11	15	19	22	26	30	33	37
30	0	1	1	2	2	3	6	11	17	22	28	33	39	45	50	56
40	0	1	1	2	3	4	7	15	22	30	37	45	52	60	67	74
50	0	1	2	3	4	5	9	19	28	37	47	56	65	74	84	93
60	0	1	2	3	4	6	11	22	33	45	56	67	78	89	100	112
70	0	1	3	4	5	7	13	26	39	52	65	78	91	104	117	130
80	0	1	3	4	6	7	15	30	45	60	74	89	104	119	134	149
90	0	2	3	5	7	8	17	33	50	67	84	100	117	134	151	167
100	0	2	4	6	7	9	19	37	56	74	93	112	130	149	167	186

Table 22: Displacement matrix presenting the number of gannets in the 2 km Buffer, during the Extended Non-breeding bio-season.

Displacement (%)	Mortality Rates (%)															
	0	1	2	3	4	5	10	20	30	40	50	60	70	80	90	100
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	1	1	1	2	2	3	3	3	4
10	0	0	1	1	1	2	4	7	11	15	19	22	26	30	34	37
20	0	1	1	2	3	4	7	15	22	30	37	45	52	60	67	75
30	0	1	2	3	4	6	11	22	34	45	56	67	79	90	101	112
40	0	1	3	4	6	7	15	30	45	60	75	90	105	120	135	150
50	0	2	4	6	7	9	19	37	56	75	94	112	131	150	168	187
60	0	2	4	7	9	11	22	45	67	90	112	135	157	180	202	224
70	0	3	5	8	10	13	26	52	79	105	131	157	183	209	236	262
80	0	3	6	9	12	15	30	60	90	120	150	180	209	239	269	299
90	0	3	7	10	13	17	34	67	101	135	168	202	236	269	303	337
100	0	4	7	11	15	19	37	75	112	150	187	224	262	299	337	374

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Table 23: Displacement matrix presenting the number of guillemots in the array area only, during the Return Migration bio-season.

Displacement (%)	Mortality Rates (%)															
	0	1	2	3	4	5	10	20	30	40	50	60	70	80	90	100
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	1	1	2	2	3	6	11	17	22	28	34	39	45	51	56
10	0	6	11	17	22	28	56	112	169	225	281	337	393	449	506	562
20	0	11	22	34	45	56	112	225	337	449	562	674	787	899	1,011	1,124
30	0	17	34	51	67	84	169	337	506	674	843	1,011	1,180	1,348	1,517	1,685
40	0	22	45	67	90	112	225	449	674	899	1,124	1,348	1,573	1,798	2,022	2,247
50	0	28	56	84	112	140	281	562	843	1,124	1,405	1,685	1,966	2,247	2,528	2,809
60	0	34	67	101	135	169	337	674	1,011	1,348	1,685	2,022	2,360	2,697	3,034	3,371
70	0	39	79	118	157	197	393	787	1,180	1,573	1,966	2,360	2,753	3,146	3,539	3,933
80	0	45	90	135	180	225	449	899	1,348	1,798	2,247	2,697	3,146	3,596	4,045	4,494
90	0	51	101	152	202	253	506	1,011	1,517	2,022	2,528	3,034	3,539	4,045	4,551	5,056
100	0	56	112	169	225	281	562	1,124	1,685	2,247	2,809	3,371	3,933	4,494	5,056	5,618

Table 24: Displacement matrix presenting the number of guillemots in the 1 km Buffer only, during the Return Migration bio-season.

Displacement (%)	Mortality Rates (%)															
	0	1	2	3	4	5	10	20	30	40	50	60	70	80	90	100
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	1	1	1	3	4	5	7	8	9	11	12	13
10	0	1	3	4	5	7	13	26	40	53	66	79	92	105	119	132
20	0	3	5	8	11	13	26	53	79	105	132	158	184	211	237	263
30	0	4	8	12	16	20	40	79	119	158	198	237	277	316	356	395
40	0	5	11	16	21	26	53	105	158	211	263	316	369	421	474	527
50	0	7	13	20	26	33	66	132	198	263	329	395	461	527	593	659
60	0	8	16	24	32	40	79	158	237	316	395	474	553	632	711	790
70	0	9	18	28	37	46	92	184	277	369	461	553	645	738	830	922
80	0	11	21	32	42	53	105	211	316	421	527	632	738	843	948	1,054
90	0	12	24	36	47	59	119	237	356	474	593	711	830	948	1,067	1,185
100	0	13	26	40	53	66	132	263	395	527	659	790	922	1,054	1,185	1,317

Table 25: Displacement matrix presenting the number of guillemots in the 2 km Buffer only, during the Return Migration bio-season.

Displacement (%)	Mortality Rates (%)															
	0	1	2	3	4	5	10	20	30	40	50	60	70	80	90	100
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	1	1	1	1	3	6	8	11	14	17	19	22	25	28
10	0	3	6	8	11	14	28	56	83	111	139	167	195	223	250	278
20	0	6	11	17	22	28	56	111	167	223	278	334	390	445	501	557
30	0	8	17	25	33	42	83	167	250	334	417	501	584	668	751	835
40	0	11	22	33	45	56	111	223	334	445	557	668	779	891	1,002	1,113
50	0	14	28	42	56	70	139	278	417	557	696	835	974	1,113	1,252	1,392
60	0	17	33	50	67	83	167	334	501	668	835	1,002	1,169	1,336	1,503	1,670
70	0	19	39	58	78	97	195	390	584	779	974	1,169	1,364	1,558	1,753	1,948
80	0	22	45	67	89	111	223	445	668	891	1,113	1,336	1,558	1,781	2,004	2,226
90	0	25	50	75	100	125	250	501	751	1,002	1,252	1,503	1,753	2,004	2,254	2,505
100	0	28	56	83	111	139	278	557	835	1,113	1,392	1,670	1,948	2,226	2,505	2,783

Table 26: Displacement matrix presenting the number of guillemots in the array area only, during the Migration-free Breeding bio-season.

Displacement (%)	Mortality Rates (%)															
	0	1	2	3	4	5	10	20	30	40	50	60	70	80	90	100
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	1	1	2	3	3	6	13	19	26	32	39	45	52	58	64
10	0	6	13	19	26	32	64	129	193	258	322	386	451	515	580	644
20	0	13	26	39	52	64	129	258	386	515	644	773	902	1,031	1,159	1,288
30	0	19	39	58	77	97	193	386	580	773	966	1,159	1,353	1,546	1,739	1,932
40	0	26	52	77	103	129	258	515	773	1,031	1,288	1,546	1,803	2,061	2,319	2,576
50	0	32	64	97	129	161	322	644	966	1,288	1,610	1,932	2,254	2,576	2,898	3,221
60	0	39	77	116	155	193	386	773	1,159	1,546	1,932	2,319	2,705	3,092	3,478	3,865
70	0	45	90	135	180	225	451	902	1,353	1,803	2,254	2,705	3,156	3,607	4,058	4,509
80	0	52	103	155	206	258	515	1,031	1,546	2,061	2,576	3,092	3,607	4,122	4,638	5,153
90	0	58	116	174	232	290	580	1,159	1,739	2,319	2,898	3,478	4,058	4,638	5,217	5,797
100	0	64	129	193	258	322	644	1,288	1,932	2,576	3,221	3,865	4,509	5,153	5,797	6,441

Table 27: Displacement matrix presenting the number of guillemots in the 1 km Buffer only, during the Migration-free Breeding bio-season.

Displacement (%)	Mortality Rates (%)															
	0	1	2	3	4	5	10	20	30	40	50	60	70	80	90	100
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	1	1	1	2	4	6	8	10	12	14	16	18	21
10	0	2	4	6	8	10	21	41	62	82	103	123	144	164	185	205
20	0	4	8	12	16	21	41	82	123	164	205	246	287	328	369	410
30	0	6	12	18	25	31	62	123	185	246	308	369	431	492	554	616
40	0	8	16	25	33	41	82	164	246	328	410	492	575	657	739	821
50	0	10	21	31	41	51	103	205	308	410	513	616	718	821	923	1,026
60	0	12	25	37	49	62	123	246	369	492	616	739	862	985	1,108	1,231
70	0	14	29	43	57	72	144	287	431	575	718	862	1,005	1,149	1,293	1,436
80	0	16	33	49	66	82	164	328	492	657	821	985	1,149	1,313	1,477	1,642
90	0	18	37	55	74	92	185	369	554	739	923	1,108	1,293	1,477	1,662	1,847
100	0	21	41	62	82	103	205	410	616	821	1,026	1,231	1,436	1,642	1,847	2,052

Table 28: Displacement matrix presenting the number of guillemots in the 2 km Buffer only, during the Migration-free Breeding bio-season.

Displacement (%)	Mortality Rates (%)															
	0	1	2	3	4	5	10	20	30	40	50	60	70	80	90	100
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	1	1	1	2	3	7	10	13	17	20	24	27	30	34
10	0	3	7	10	13	17	34	67	101	135	168	202	235	269	303	336
20	0	7	13	20	27	34	67	135	202	269	336	404	471	538	605	673
30	0	10	20	30	40	50	101	202	303	404	504	605	706	807	908	1,009
40	0	13	27	40	54	67	135	269	404	538	673	807	942	1,076	1,211	1,345
50	0	17	34	50	67	84	168	336	504	673	841	1,009	1,177	1,345	1,513	1,682
60	0	20	40	61	81	101	202	404	605	807	1,009	1,211	1,412	1,614	1,816	2,018
70	0	24	47	71	94	118	235	471	706	942	1,177	1,412	1,648	1,883	2,119	2,354
80	0	27	54	81	108	135	269	538	807	1,076	1,345	1,614	1,883	2,152	2,421	2,690
90	0	30	61	91	121	151	303	605	908	1,211	1,513	1,816	2,119	2,421	2,724	3,027
100	0	34	67	101	135	168	336	673	1,009	1,345	1,682	2,018	2,354	2,690	3,027	3,363

Table 29: Displacement matrix presenting the number of guillemots in the array area only, during the Post-breeding bio-season.

Displacement (%)	Mortality Rates (%)															
	0	1	2	3	4	5	10	20	30	40	50	60	70	80	90	100
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	4	8	12	16	20	40	79	119	159	198	238	278	317	357	397
10	0	40	79	119	159	198	397	793	1,190	1,586	1,983	2,380	2,776	3,173	3,569	3,966
20	0	79	159	238	317	397	793	1,586	2,380	3,173	3,966	4,759	5,553	6,346	7,139	7,932
30	0	119	238	357	476	595	1,190	2,380	3,569	4,759	5,949	7,139	8,329	9,519	10,708	11,898
40	0	159	317	476	635	793	1,586	3,173	4,759	6,346	7,932	9,519	11,105	12,692	14,278	15,864
50	0	198	397	595	793	992	1,983	3,966	5,949	7,932	9,915	11,898	13,881	15,864	17,847	19,831
60	0	238	476	714	952	1,190	2,380	4,759	7,139	9,519	11,898	14,278	16,658	19,037	21,417	23,797
70	0	278	555	833	1,111	1,388	2,776	5,553	8,329	11,105	13,881	16,658	19,434	22,210	24,986	27,763
80	0	317	635	952	1,269	1,586	3,173	6,346	9,519	12,692	15,864	19,037	22,210	25,383	28,556	31,729
90	0	357	714	1,071	1,428	1,785	3,569	7,139	10,708	14,278	17,847	21,417	24,986	28,556	32,125	35,695
100	0	397	793	1,190	1,586	1,983	3,966	7,932	11,898	15,864	19,831	23,797	27,763	31,729	35,695	39,661

Table 30: Displacement matrix presenting the number of guillemots in the 1 km Buffer only, during the Post-breeding bio-season.

Displacement (%)	Mortality Rates (%)															
	0	1	2	3	4	5	10	20	30	40	50	60	70	80	90	100
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	1	2	3	4	5	11	21	32	43	53	64	74	85	96	106
10	0	11	21	32	43	53	106	213	319	425	532	638	744	851	957	1,064
20	0	21	43	64	85	106	213	425	638	851	1,064	1,276	1,489	1,702	1,914	2,127
30	0	32	64	96	128	160	319	638	957	1,276	1,595	1,914	2,233	2,552	2,871	3,191
40	0	43	85	128	170	213	425	851	1,276	1,702	2,127	2,552	2,978	3,403	3,829	4,254
50	0	53	106	160	213	266	532	1,064	1,595	2,127	2,659	3,191	3,722	4,254	4,786	5,318
60	0	64	128	191	255	319	638	1,276	1,914	2,552	3,191	3,829	4,467	5,105	5,743	6,381
70	0	74	149	223	298	372	744	1,489	2,233	2,978	3,722	4,467	5,211	5,956	6,700	7,445
80	0	85	170	255	340	425	851	1,702	2,552	3,403	4,254	5,105	5,956	6,806	7,657	8,508
90	0	96	191	287	383	479	957	1,914	2,871	3,829	4,786	5,743	6,700	7,657	8,614	9,572
100	0	106	213	319	425	532	1,064	2,127	3,191	4,254	5,318	6,381	7,445	8,508	9,572	10,635

Table 31: Displacement matrix presenting the number of guillemots in the 2 km Buffer only, during the Post-breeding bio-season.

Displacement (%)	Mortality Rates (%)															
	0	1	2	3	4	5	10	20	30	40	50	60	70	80	90	100
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	2	4	6	8	10	19	39	58	77	96	116	135	154	173	193
10	0	19	39	58	77	96	193	385	578	770	963	1,156	1,348	1,541	1,733	1,926
20	0	39	77	116	154	193	385	770	1,156	1,541	1,926	2,311	2,696	3,081	3,467	3,852
30	0	58	116	173	231	289	578	1,156	1,733	2,311	2,889	3,467	4,044	4,622	5,200	5,778
40	0	77	154	231	308	385	770	1,541	2,311	3,081	3,852	4,622	5,393	6,163	6,933	7,704
50	0	96	193	289	385	481	963	1,926	2,889	3,852	4,815	5,778	6,741	7,704	8,667	9,630
60	0	116	231	347	462	578	1,156	2,311	3,467	4,622	5,778	6,933	8,089	9,244	10,400	11,555
70	0	135	270	404	539	674	1,348	2,696	4,044	5,393	6,741	8,089	9,437	10,785	12,133	13,481
80	0	154	308	462	616	770	1,541	3,081	4,622	6,163	7,704	9,244	10,785	12,326	13,866	15,407
90	0	173	347	520	693	867	1,733	3,467	5,200	6,933	8,667	10,400	12,133	13,866	15,600	17,333
100	0	193	385	578	770	963	1,926	3,852	5,778	7,704	9,630	11,555	13,481	15,407	17,333	19,259

Table 32: Displacement matrix presenting the number of guillemots in the array area only, during the Migration-free Winter bio-season.

Displacement (%)	Mortality Rates (%)															
	0	1	2	3	4	5	10	20	30	40	50	60	70	80	90	100
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	1	2	3	4	4	9	18	27	36	45	54	63	72	81	90
10	0	9	18	27	36	45	90	179	269	358	448	537	627	716	806	895
20	0	18	36	54	72	90	179	358	537	716	895	1,074	1,253	1,432	1,611	1,790
30	0	27	54	81	107	134	269	537	806	1,074	1,343	1,611	1,880	2,148	2,417	2,686
40	0	36	72	107	143	179	358	716	1,074	1,432	1,790	2,148	2,507	2,865	3,223	3,581
50	0	45	90	134	179	224	448	895	1,343	1,790	2,238	2,686	3,133	3,581	4,028	4,476
60	0	54	107	161	215	269	537	1,074	1,611	2,148	2,686	3,223	3,760	4,297	4,834	5,371
70	0	63	125	188	251	313	627	1,253	1,880	2,507	3,133	3,760	4,386	5,013	5,640	6,266
80	0	72	143	215	286	358	716	1,432	2,148	2,865	3,581	4,297	5,013	5,729	6,445	7,162
90	0	81	161	242	322	403	806	1,611	2,417	3,223	4,028	4,834	5,640	6,445	7,251	8,057
100	0	90	179	269	358	448	895	1,790	2,686	3,581	4,476	5,371	6,266	7,162	8,057	8,952

Table 33: Displacement matrix presenting the number of guillemots in the 1 km Buffer only, during the Migration-free Winter bio-season.

Displacement (%)	Mortality Rates (%)															
	0	1	2	3	4	5	10	20	30	40	50	60	70	80	90	100
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	1	1	1	1	3	6	9	12	15	18	21	23	26	29
10	0	3	6	9	12	15	29	59	88	117	147	176	205	234	264	293
20	0	6	12	18	23	29	59	117	176	234	293	352	410	469	528	586
30	0	9	18	26	35	44	88	176	264	352	440	528	616	703	791	879
40	0	12	23	35	47	59	117	234	352	469	586	703	821	938	1,055	1,172
50	0	15	29	44	59	73	147	293	440	586	733	879	1,026	1,172	1,319	1,466
60	0	18	35	53	70	88	176	352	528	703	879	1,055	1,231	1,407	1,583	1,759
70	0	21	41	62	82	103	205	410	616	821	1,026	1,231	1,436	1,641	1,847	2,052
80	0	23	47	70	94	117	234	469	703	938	1,172	1,407	1,641	1,876	2,110	2,345
90	0	26	53	79	106	132	264	528	791	1,055	1,319	1,583	1,847	2,110	2,374	2,638
100	0	29	59	88	117	147	293	586	879	1,172	1,466	1,759	2,052	2,345	2,638	2,931

Table 34: Displacement matrix presenting the number of guillemots in the 2 km Buffer only, during the Migration-free Winter bio-season.

Displacement (%)	Mortality Rates (%)															
	0	1	2	3	4	5	10	20	30	40	50	60	70	80	90	100
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	1	1	2	3	3	6	13	19	26	32	39	45	52	58	65
10	0	6	13	19	26	32	65	129	194	258	323	387	452	517	581	646
20	0	13	26	39	52	65	129	258	387	517	646	775	904	1,033	1,162	1,291
30	0	19	39	58	77	97	194	387	581	775	969	1,162	1,356	1,550	1,743	1,937
40	0	26	52	77	103	129	258	517	775	1,033	1,291	1,550	1,808	2,066	2,325	2,583
50	0	32	65	97	129	161	323	646	969	1,291	1,614	1,937	2,260	2,583	2,906	3,229
60	0	39	77	116	155	194	387	775	1,162	1,550	1,937	2,325	2,712	3,099	3,487	3,874
70	0	45	90	136	181	226	452	904	1,356	1,808	2,260	2,712	3,164	3,616	4,068	4,520
80	0	52	103	155	207	258	517	1,033	1,550	2,066	2,583	3,099	3,616	4,132	4,649	5,166
90	0	58	116	174	232	291	581	1,162	1,743	2,325	2,906	3,487	4,068	4,649	5,230	5,811
100	0	65	129	194	258	323	646	1,291	1,937	2,583	3,229	3,874	4,520	5,166	5,811	6,457

Table 35: Displacement matrix presenting the number of guillemots in the array area only, during the Non-breeding bio-season.

Displacement (%)	Mortality Rates (%)															
	0	1	2	3	4	5	10	20	30	40	50	60	70	80	90	100
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	4	8	12	16	20	40	79	119	159	198	238	278	317	357	397
10	0	40	79	119	159	198	397	793	1,190	1,586	1,983	2,380	2,776	3,173	3,569	3,966
20	0	79	159	238	317	397	793	1,586	2,380	3,173	3,966	4,759	5,553	6,346	7,139	7,932
30	0	119	238	357	476	595	1,190	2,380	3,569	4,759	5,949	7,139	8,329	9,519	10,708	11,898
40	0	159	317	476	635	793	1,586	3,173	4,759	6,346	7,932	9,519	11,105	12,692	14,278	15,864
50	0	198	397	595	793	992	1,983	3,966	5,949	7,932	9,915	11,898	13,881	15,864	17,847	19,831
60	0	238	476	714	952	1,190	2,380	4,759	7,139	9,519	11,898	14,278	16,658	19,037	21,417	23,797
70	0	278	555	833	1,111	1,388	2,776	5,553	8,329	11,105	13,881	16,658	19,434	22,210	24,986	27,763
80	0	317	635	952	1,269	1,586	3,173	6,346	9,519	12,692	15,864	19,037	22,210	25,383	28,556	31,729
90	0	357	714	1,071	1,428	1,785	3,569	7,139	10,708	14,278	17,847	21,417	24,986	28,556	32,125	35,695
100	0	397	793	1,190	1,586	1,983	3,966	7,932	11,898	15,864	19,831	23,797	27,763	31,729	35,695	39,661

Table 36: Displacement matrix presenting the number of guillemots in the 1 km Buffer only, during the Non-breeding bio-season.

Displacement (%)	Mortality Rates (%)															
	0	1	2	3	4	5	10	20	30	40	50	60	70	80	90	100
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	1	2	3	4	5	11	21	32	43	53	64	74	85	96	106
10	0	11	21	32	43	53	106	213	319	425	532	638	744	851	957	1,064
20	0	21	43	64	85	106	213	425	638	851	1,064	1,276	1,489	1,702	1,914	2,127
30	0	32	64	96	128	160	319	638	957	1,276	1,595	1,914	2,233	2,552	2,871	3,191
40	0	43	85	128	170	213	425	851	1,276	1,702	2,127	2,552	2,978	3,403	3,829	4,254
50	0	53	106	160	213	266	532	1,064	1,595	2,127	2,659	3,191	3,722	4,254	4,786	5,318
60	0	64	128	191	255	319	638	1,276	1,914	2,552	3,191	3,829	4,467	5,105	5,743	6,381
70	0	74	149	223	298	372	744	1,489	2,233	2,978	3,722	4,467	5,211	5,956	6,700	7,445
80	0	85	170	255	340	425	851	1,702	2,552	3,403	4,254	5,105	5,956	6,806	7,657	8,508
90	0	96	191	287	383	479	957	1,914	2,871	3,829	4,786	5,743	6,700	7,657	8,614	9,572
100	0	106	213	319	425	532	1,064	2,127	3,191	4,254	5,318	6,381	7,445	8,508	9,572	10,635

Table 37: Displacement matrix presenting the number of guillemots in the 2 km Buffer only, during the Non-breeding bio-season.

Displacement (%)	Mortality Rates (%)															
	0	1	2	3	4	5	10	20	30	40	50	60	70	80	90	100
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	2	4	6	8	10	19	39	58	77	96	116	135	154	173	193
10	0	19	39	58	77	96	193	385	578	770	963	1,156	1,348	1,541	1,733	1,926
20	0	39	77	116	154	193	385	770	1,156	1,541	1,926	2,311	2,696	3,081	3,467	3,852
30	0	58	116	173	231	289	578	1,156	1,733	2,311	2,889	3,467	4,044	4,622	5,200	5,778
40	0	77	154	231	308	385	770	1,541	2,311	3,081	3,852	4,622	5,393	6,163	6,933	7,704
50	0	96	193	289	385	481	963	1,926	2,889	3,852	4,815	5,778	6,741	7,704	8,667	9,630
60	0	116	231	347	462	578	1,156	2,311	3,467	4,622	5,778	6,933	8,089	9,244	10,400	11,555
70	0	135	270	404	539	674	1,348	2,696	4,044	5,393	6,741	8,089	9,437	10,785	12,133	13,481
80	0	154	308	462	616	770	1,541	3,081	4,622	6,163	7,704	9,244	10,785	12,326	13,866	15,407
90	0	173	347	520	693	867	1,733	3,467	5,200	6,933	8,667	10,400	12,133	13,866	15,600	17,333
100	0	193	385	578	770	963	1,926	3,852	5,778	7,704	9,630	11,555	13,481	15,407	17,333	19,259

Table 38: Displacement matrix presenting the number of guillemots in the array area only, during the Extended Breeding bio-season.

Displacement (%)	Mortality Rates (%)															
	0	1	2	3	4	5	10	20	30	40	50	60	70	80	90	100
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	1	2	2	3	4	8	16	25	33	41	49	57	66	74	82
10	0	8	16	25	33	41	82	164	246	328	410	492	573	655	737	819
20	0	16	33	49	66	82	164	328	492	655	819	983	1,147	1,311	1,475	1,638
30	0	25	49	74	98	123	246	492	737	983	1,229	1,475	1,720	1,966	2,212	2,458
40	0	33	66	98	131	164	328	655	983	1,311	1,638	1,966	2,294	2,621	2,949	3,277
50	0	41	82	123	164	205	410	819	1,229	1,638	2,048	2,458	2,867	3,277	3,686	4,096
60	0	49	98	147	197	246	492	983	1,475	1,966	2,458	2,949	3,441	3,932	4,424	4,915
70	0	57	115	172	229	287	573	1,147	1,720	2,294	2,867	3,441	4,014	4,588	5,161	5,734
80	0	66	131	197	262	328	655	1,311	1,966	2,621	3,277	3,932	4,588	5,243	5,898	6,554
90	0	74	147	221	295	369	737	1,475	2,212	2,949	3,686	4,424	5,161	5,898	6,636	7,373
100	0	82	164	246	328	410	819	1,638	2,458	3,277	4,096	4,915	5,734	6,554	7,373	8,192

Table 39: Displacement matrix presenting the number of guillemots in the 1 km Buffer only, during the Extended Breeding bio-season.

Displacement (%)	Mortality Rates (%)															
	0	1	2	3	4	5	10	20	30	40	50	60	70	80	90	100
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	1	1	1	2	4	6	8	10	12	14	16	18	21
10	0	2	4	6	8	10	21	41	62	82	103	123	144	164	185	205
20	0	4	8	12	16	21	41	82	123	164	205	246	287	328	369	410
30	0	6	12	18	25	31	62	123	185	246	308	369	431	492	554	616
40	0	8	16	25	33	41	82	164	246	328	410	492	575	657	739	821
50	0	10	21	31	41	51	103	205	308	410	513	616	718	821	923	1,026
60	0	12	25	37	49	62	123	246	369	492	616	739	862	985	1,108	1,231
70	0	14	29	43	57	72	144	287	431	575	718	862	1,005	1,149	1,293	1,436
80	0	16	33	49	66	82	164	328	492	657	821	985	1,149	1,313	1,477	1,642
90	0	18	37	55	74	92	185	369	554	739	923	1,108	1,293	1,477	1,662	1,847
100	0	21	41	62	82	103	205	410	616	821	1,026	1,231	1,436	1,642	1,847	2,052

Table 40: Displacement matrix presenting the number of guillemots in the 2 km Buffer only, during the Extended Breeding bio-season.

Displacement (%)	Mortality Rates (%)															
	0	1	2	3	4	5	10	20	30	40	50	60	70	80	90	100
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	1	1	2	2	3	5	10	15	20	25	30	35	40	45	50
10	0	5	10	15	20	25	50	100	150	200	250	300	350	400	450	500
20	0	10	20	30	40	50	100	200	300	400	500	600	700	800	900	1,000
30	0	15	30	45	60	75	150	300	450	600	750	900	1,050	1,200	1,350	1,500
40	0	20	40	60	80	100	200	400	600	800	1,000	1,200	1,400	1,600	1,800	2,000
50	0	25	50	75	100	125	250	500	750	1,000	1,250	1,500	1,750	2,000	2,250	2,501
60	0	30	60	90	120	150	300	600	900	1,200	1,500	1,800	2,100	2,400	2,701	3,001
70	0	35	70	105	140	175	350	700	1,050	1,400	1,750	2,100	2,450	2,801	3,151	3,501
80	0	40	80	120	160	200	400	800	1,200	1,600	2,000	2,400	2,801	3,201	3,601	4,001
90	0	45	90	135	180	225	450	900	1,350	1,800	2,250	2,701	3,151	3,601	4,051	4,501
100	0	50	100	150	200	250	500	1,000	1,500	2,000	2,501	3,001	3,501	4,001	4,501	5,001

Table 41: Displacement matrix presenting the number of guillemots in the array area only, during the Extended Non-breeding bio-season.

Displacement (%)	Mortality Rates (%)															
	0	1	2	3	4	5	10	20	30	40	50	60	70	80	90	100
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	4	8	12	16	20	40	79	119	159	198	238	278	317	357	397
10	0	40	79	119	159	198	397	793	1,190	1,586	1,983	2,380	2,776	3,173	3,569	3,966
20	0	79	159	238	317	397	793	1,586	2,380	3,173	3,966	4,759	5,553	6,346	7,139	7,932
30	0	119	238	357	476	595	1,190	2,380	3,569	4,759	5,949	7,139	8,329	9,519	10,708	11,898
40	0	159	317	476	635	793	1,586	3,173	4,759	6,346	7,932	9,519	11,105	12,692	14,278	15,864
50	0	198	397	595	793	992	1,983	3,966	5,949	7,932	9,915	11,898	13,881	15,864	17,847	19,831
60	0	238	476	714	952	1,190	2,380	4,759	7,139	9,519	11,898	14,278	16,658	19,037	21,417	23,797
70	0	278	555	833	1,111	1,388	2,776	5,553	8,329	11,105	13,881	16,658	19,434	22,210	24,986	27,763
80	0	317	635	952	1,269	1,586	3,173	6,346	9,519	12,692	15,864	19,037	22,210	25,383	28,556	31,729
90	0	357	714	1,071	1,428	1,785	3,569	7,139	10,708	14,278	17,847	21,417	24,986	28,556	32,125	35,695
100	0	397	793	1,190	1,586	1,983	3,966	7,932	11,898	15,864	19,831	23,797	27,763	31,729	35,695	39,661

Table 42: Displacement matrix presenting the number of guillemots in the 1 km Buffer only, during the Extended Non-breeding bio-season.

Displacement (%)	Mortality Rates (%)															
	0	1	2	3	4	5	10	20	30	40	50	60	70	80	90	100
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	1	2	3	4	5	11	21	32	43	53	64	74	85	96	106
10	0	11	21	32	43	53	106	213	319	425	532	638	744	851	957	1,064
20	0	21	43	64	85	106	213	425	638	851	1,064	1,276	1,489	1,702	1,914	2,127
30	0	32	64	96	128	160	319	638	957	1,276	1,595	1,914	2,233	2,552	2,871	3,191
40	0	43	85	128	170	213	425	851	1,276	1,702	2,127	2,552	2,978	3,403	3,829	4,254
50	0	53	106	160	213	266	532	1,064	1,595	2,127	2,659	3,191	3,722	4,254	4,786	5,318
60	0	64	128	191	255	319	638	1,276	1,914	2,552	3,191	3,829	4,467	5,105	5,743	6,381
70	0	74	149	223	298	372	744	1,489	2,233	2,978	3,722	4,467	5,211	5,956	6,700	7,445
80	0	85	170	255	340	425	851	1,702	2,552	3,403	4,254	5,105	5,956	6,806	7,657	8,508
90	0	96	191	287	383	479	957	1,914	2,871	3,829	4,786	5,743	6,700	7,657	8,614	9,572
100	0	106	213	319	425	532	1,064	2,127	3,191	4,254	5,318	6,381	7,445	8,508	9,572	10,635

Table 43: Displacement matrix presenting the number of guillemots in the 2 km Buffer only, during the Extended Non-breeding bio-season.

Displacement (%)	Mortality Rates (%)															
	0	1	2	3	4	5	10	20	30	40	50	60	70	80	90	100
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	2	4	6	8	10	19	39	58	77	96	116	135	154	173	193
10	0	19	39	58	77	96	193	385	578	770	963	1,156	1,348	1,541	1,733	1,926
20	0	39	77	116	154	193	385	770	1,156	1,541	1,926	2,311	2,696	3,081	3,467	3,852
30	0	58	116	173	231	289	578	1,156	1,733	2,311	2,889	3,467	4,044	4,622	5,200	5,778
40	0	77	154	231	308	385	770	1,541	2,311	3,081	3,852	4,622	5,393	6,163	6,933	7,704
50	0	96	193	289	385	481	963	1,926	2,889	3,852	4,815	5,778	6,741	7,704	8,667	9,630
60	0	116	231	347	462	578	1,156	2,311	3,467	4,622	5,778	6,933	8,089	9,244	10,400	11,555
70	0	135	270	404	539	674	1,348	2,696	4,044	5,393	6,741	8,089	9,437	10,785	12,133	13,481
80	0	154	308	462	616	770	1,541	3,081	4,622	6,163	7,704	9,244	10,785	12,326	13,866	15,407
90	0	173	347	520	693	867	1,733	3,467	5,200	6,933	8,667	10,400	12,133	13,866	15,600	17,333
100	0	193	385	578	770	963	1,926	3,852	5,778	7,704	9,630	11,555	13,481	15,407	17,333	19,259

5 Razorbill Displacement Matrices

Table 44: Displacement matrix presenting the number of razorbills in the array area only, during the Return Migration bio-season.

Displacement (%)	Mortality Rates (%)															
	0	1	2	3	4	5	10	20	30	40	50	60	70	80	90	100
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	1	1	2	2	3	3	4	4	5	5
10	0	1	1	2	2	3	5	10	15	20	25	30	35	40	45	50
20	0	1	2	3	4	5	10	20	30	40	50	60	70	80	90	100
30	0	2	3	5	6	8	15	30	45	60	75	90	105	120	135	150
40	0	2	4	6	8	10	20	40	60	80	100	120	140	160	180	200
50	0	3	5	8	10	13	25	50	75	100	125	150	175	200	225	251
60	0	3	6	9	12	15	30	60	90	120	150	180	210	240	271	301
70	0	4	7	11	14	18	35	70	105	140	175	210	245	281	316	351
80	0	4	8	12	16	20	40	80	120	160	200	240	281	321	361	401
90	0	5	9	14	18	23	45	90	135	180	225	271	316	361	406	451
100	0	5	10	15	20	25	50	100	150	200	251	301	351	401	451	501

Table 45: Displacement matrix presenting the number of razorbills in the 1 km Buffer only, during the Return Migration bio-season.

Displacement (%)	Mortality Rates (%)															
	0	1	2	3	4	5	10	20	30	40	50	60	70	80	90	100
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	1	1	1	2	2	2	3	3	3
10	0	0	1	1	1	2	3	7	10	13	17	20	23	27	30	33
20	0	1	1	2	3	3	7	13	20	27	33	40	46	53	60	66
30	0	1	2	3	4	5	10	20	30	40	50	60	70	80	90	100
40	0	1	3	4	5	7	13	27	40	53	66	80	93	106	120	133
50	0	2	3	5	7	8	17	33	50	66	83	100	116	133	149	166
60	0	2	4	6	8	10	20	40	60	80	100	120	139	159	179	199
70	0	2	5	7	9	12	23	46	70	93	116	139	163	186	209	232
80	0	3	5	8	11	13	27	53	80	106	133	159	186	212	239	266
90	0	3	6	9	12	15	30	60	90	120	149	179	209	239	269	299
100	0	3	7	10	13	17	33	66	100	133	166	199	232	266	299	332

Table 46: Displacement matrix presenting the number of razorbills in the 2 km Buffer only, during the Return Migration bio-season.

Displacement (%)	Mortality Rates (%)															
	0	1	2	3	4	5	10	20	30	40	50	60	70	80	90	100
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	1	1	2	2	3	3	4	4	5	5
10	0	1	1	2	2	3	5	11	16	21	26	32	37	42	48	53
20	0	1	2	3	4	5	11	21	32	42	53	63	74	84	95	106
30	0	2	3	5	6	8	16	32	48	63	79	95	111	127	143	158
40	0	2	4	6	8	11	21	42	63	84	106	127	148	169	190	211
50	0	3	5	8	11	13	26	53	79	106	132	158	185	211	238	264
60	0	3	6	10	13	16	32	63	95	127	158	190	222	253	285	317
70	0	4	7	11	15	18	37	74	111	148	185	222	259	296	333	370
80	0	4	8	13	17	21	42	84	127	169	211	253	296	338	380	422
90	0	5	10	14	19	24	48	95	143	190	238	285	333	380	428	475
100	0	5	11	16	21	26	53	106	158	211	264	317	370	422	475	528

Table 47: Displacement matrix presenting the number of razorbills in the array area only, during the Migration-free Breeding bio-season.

Displacement (%)	Mortality Rates (%)															
	0	1	2	3	4	5	10	20	30	40	50	60	70	80	90	100
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	1	1	1	2	2	3	3	3	4
10	0	0	1	1	1	2	4	7	11	14	18	22	25	29	32	36
20	0	1	1	2	3	4	7	14	22	29	36	43	51	58	65	72
30	0	1	2	3	4	5	11	22	32	43	54	65	76	87	97	108
40	0	1	3	4	6	7	14	29	43	58	72	87	101	116	130	144
50	0	2	4	5	7	9	18	36	54	72	90	108	126	144	162	181
60	0	2	4	6	9	11	22	43	65	87	108	130	152	173	195	217
70	0	3	5	8	10	13	25	51	76	101	126	152	177	202	227	253
80	0	3	6	9	12	14	29	58	87	116	144	173	202	231	260	289
90	0	3	6	10	13	16	32	65	97	130	162	195	227	260	292	325
100	0	4	7	11	14	18	36	72	108	144	181	217	253	289	325	361

Table 48: Displacement matrix presenting the number of razorbills in the 1 km Buffer only, during the Migration-free Breeding bio-season.

Displacement (%)	Mortality Rates (%)															
	0	1	2	3	4	5	10	20	30	40	50	60	70	80	90	100
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
10	0	0	0	0	0	0	1	1	2	2	3	4	4	5	5	6
20	0	0	0	0	0	1	1	2	4	5	6	7	8	10	11	12
30	0	0	0	1	1	1	2	4	5	7	9	11	13	14	16	18
40	0	0	0	1	1	1	2	5	7	10	12	14	17	19	22	24
50	0	0	1	1	1	2	3	6	9	12	15	18	21	24	27	30
60	0	0	1	1	1	2	4	7	11	14	18	22	25	29	32	36
70	0	0	1	1	2	2	4	8	13	17	21	25	29	34	38	42
80	0	0	1	1	2	2	5	10	14	19	24	29	34	38	43	48
90	0	1	1	2	2	3	5	11	16	22	27	32	38	43	49	54
100	0	1	1	2	2	3	6	12	18	24	30	36	42	48	54	60

Table 49: Displacement matrix presenting the number of razorbills in the 2 km Buffer only, during the Migration-free Breeding bio-season.

Displacement (%)	Mortality Rates (%)															
	0	1	2	3	4	5	10	20	30	40	50	60	70	80	90	100
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1
10	0	0	0	0	1	1	1	3	4	6	7	9	10	12	13	15
20	0	0	1	1	1	1	3	6	9	12	15	18	21	24	26	29
30	0	0	1	1	2	2	4	9	13	18	22	26	31	35	40	44
40	0	1	1	2	2	3	6	12	18	24	29	35	41	47	53	59
50	0	1	1	2	3	4	7	15	22	29	37	44	51	59	66	74
60	0	1	2	3	4	4	9	18	26	35	44	53	62	71	79	88
70	0	1	2	3	4	5	10	21	31	41	51	62	72	82	93	103
80	0	1	2	4	5	6	12	24	35	47	59	71	82	94	106	118
90	0	1	3	4	5	7	13	26	40	53	66	79	93	106	119	132
100	0	1	3	4	6	7	15	29	44	59	74	88	103	118	132	147

Table 50: Displacement matrix presenting the number of razorbills in the array area only, during the Post-breeding bio-season.

Displacement (%)	Mortality Rates (%)															
	0	1	2	3	4	5	10	20	30	40	50	60	70	80	90	100
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	1	1	2	2	5	9	14	18	23	27	32	36	41	45
10	0	5	9	14	18	23	45	90	135	180	225	270	315	360	405	450
20	0	9	18	27	36	45	90	180	270	360	450	540	630	720	810	900
30	0	14	27	41	54	68	135	270	405	540	675	810	945	1,080	1,216	1,351
40	0	18	36	54	72	90	180	360	540	720	900	1,080	1,261	1,441	1,621	1,801
50	0	23	45	68	90	113	225	450	675	900	1,126	1,351	1,576	1,801	2,026	2,251
60	0	27	54	81	108	135	270	540	810	1,080	1,351	1,621	1,891	2,161	2,431	2,701
70	0	32	63	95	126	158	315	630	945	1,261	1,576	1,891	2,206	2,521	2,836	3,151
80	0	36	72	108	144	180	360	720	1,080	1,441	1,801	2,161	2,521	2,881	3,241	3,602
90	0	41	81	122	162	203	405	810	1,216	1,621	2,026	2,431	2,836	3,241	3,647	4,052
100	0	45	90	135	180	225	450	900	1,351	1,801	2,251	2,701	3,151	3,602	4,052	4,502

Table 51: Displacement matrix presenting the number of razorbills in the 1 km Buffer only, during the Post-breeding bio-season.

Displacement (%)	Mortality Rates (%)															
	0	1	2	3	4	5	10	20	30	40	50	60	70	80	90	100
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	1	1	2	2	3	3	4	4	5	5
10	0	1	1	2	2	3	5	11	16	21	27	32	37	43	48	53
20	0	1	2	3	4	5	11	21	32	43	53	64	74	85	96	106
30	0	2	3	5	6	8	16	32	48	64	80	96	112	128	144	160
40	0	2	4	6	9	11	21	43	64	85	106	128	149	170	192	213
50	0	3	5	8	11	13	27	53	80	106	133	160	186	213	239	266
60	0	3	6	10	13	16	32	64	96	128	160	192	223	255	287	319
70	0	4	7	11	15	19	37	74	112	149	186	223	261	298	335	372
80	0	4	9	13	17	21	43	85	128	170	213	255	298	340	383	426
90	0	5	10	14	19	24	48	96	144	192	239	287	335	383	431	479
100	0	5	11	16	21	27	53	106	160	213	266	319	372	426	479	532

Table 52: Displacement matrix presenting the number of razorbills in the 2 km Buffer only, during the Post-breeding bio-season.

Displacement (%)	Mortality Rates (%)															
	0	1	2	3	4	5	10	20	30	40	50	60	70	80	90	100
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	1	2	3	4	5	6	6	7	8	9
10	0	1	2	3	4	5	9	19	28	37	46	56	65	74	83	93
20	0	2	4	6	7	9	19	37	56	74	93	111	130	148	167	185
30	0	3	6	8	11	14	28	56	83	111	139	167	194	222	250	278
40	0	4	7	11	15	19	37	74	111	148	185	222	259	296	333	370
50	0	5	9	14	19	23	46	93	139	185	232	278	324	370	417	463
60	0	6	11	17	22	28	56	111	167	222	278	333	389	444	500	556
70	0	6	13	19	26	32	65	130	194	259	324	389	454	519	583	648
80	0	7	15	22	30	37	74	148	222	296	370	444	519	593	667	741
90	0	8	17	25	33	42	83	167	250	333	417	500	583	667	750	833
100	0	9	19	28	37	46	93	185	278	370	463	556	648	741	833	926

Table 53: Displacement matrix presenting the number of razorbills in the array area only, during the Migration-free Winter bio-season.

Displacement (%)	Mortality Rates (%)															
	0	1	2	3	4	5	10	20	30	40	50	60	70	80	90	100
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	1	1	2	2	2	3	3	4	4
10	0	0	1	1	2	2	4	8	12	17	21	25	29	33	37	42
20	0	1	2	2	3	4	8	17	25	33	42	50	58	66	75	83
30	0	1	2	4	5	6	12	25	37	50	62	75	87	100	112	125
40	0	2	3	5	7	8	17	33	50	66	83	100	116	133	149	166
50	0	2	4	6	8	10	21	42	62	83	104	125	145	166	187	208
60	0	2	5	7	10	12	25	50	75	100	125	149	174	199	224	249
70	0	3	6	9	12	15	29	58	87	116	145	174	203	232	261	291
80	0	3	7	10	13	17	33	66	100	133	166	199	232	266	299	332
90	0	4	7	11	15	19	37	75	112	149	187	224	261	299	336	374
100	0	4	8	12	17	21	42	83	125	166	208	249	291	332	374	415

Table 54: Displacement matrix presenting the number of razorbills in the 1 km Buffer only, during the Migration-free Winter bio-season.

Displacement (%)	Mortality Rates (%)															
	0	1	2	3	4	5	10	20	30	40	50	60	70	80	90	100
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1
10	0	0	0	0	0	0	1	2	2	3	4	5	6	6	7	8
20	0	0	0	0	1	1	2	3	5	6	8	9	11	13	14	16
30	0	0	0	1	1	1	2	5	7	9	12	14	17	19	21	24
40	0	0	1	1	1	2	3	6	9	13	16	19	22	25	28	32
50	0	0	1	1	2	2	4	8	12	16	20	24	28	32	36	40
60	0	0	1	1	2	2	5	9	14	19	24	28	33	38	43	47
70	0	1	1	2	2	3	6	11	17	22	28	33	39	44	50	55
80	0	1	1	2	3	3	6	13	19	25	32	38	44	51	57	63
90	0	1	1	2	3	4	7	14	21	28	36	43	50	57	64	71
100	0	1	2	2	3	4	8	16	24	32	40	47	55	63	71	79

Table 55: Displacement matrix presenting the number of razorbills in the 2 km Buffer only, during the Migration-free Winter bio-season.

Displacement (%)	Mortality Rates (%)															
	0	1	2	3	4	5	10	20	30	40	50	60	70	80	90	100
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	0	1	1	1	1	1	2	2	2
10	0	0	0	1	1	1	2	4	6	8	10	11	13	15	17	19
20	0	0	1	1	2	2	4	8	11	15	19	23	27	31	34	38
30	0	1	1	2	2	3	6	11	17	23	29	34	40	46	52	57
40	0	1	2	2	3	4	8	15	23	31	38	46	53	61	69	76
50	0	1	2	3	4	5	10	19	29	38	48	57	67	76	86	96
60	0	1	2	3	5	6	11	23	34	46	57	69	80	92	103	115
70	0	1	3	4	5	7	13	27	40	53	67	80	94	107	120	134
80	0	2	3	5	6	8	15	31	46	61	76	92	107	122	138	153
90	0	2	3	5	7	9	17	34	52	69	86	103	120	138	155	172
100	0	2	4	6	8	10	19	38	57	76	96	115	134	153	172	191

Table 56: Displacement matrix presenting the number of razorbills in the array area only, during the Non-breeding bio-season.

Displacement (%)	Mortality Rates (%)															
	0	1	2	3	4	5	10	20	30	40	50	60	70	80	90	100
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	1	1	2	2	5	9	14	18	23	27	32	36	41	45
10	0	5	9	14	18	23	45	90	135	180	225	270	315	360	405	450
20	0	9	18	27	36	45	90	180	270	360	450	540	630	720	810	900
30	0	14	27	41	54	68	135	270	405	540	675	810	945	1,080	1,216	1,351
40	0	18	36	54	72	90	180	360	540	720	900	1,080	1,261	1,441	1,621	1,801
50	0	23	45	68	90	113	225	450	675	900	1,126	1,351	1,576	1,801	2,026	2,251
60	0	27	54	81	108	135	270	540	810	1,080	1,351	1,621	1,891	2,161	2,431	2,701
70	0	32	63	95	126	158	315	630	945	1,261	1,576	1,891	2,206	2,521	2,836	3,151
80	0	36	72	108	144	180	360	720	1,080	1,441	1,801	2,161	2,521	2,881	3,241	3,602
90	0	41	81	122	162	203	405	810	1,216	1,621	2,026	2,431	2,836	3,241	3,647	4,052
100	0	45	90	135	180	225	450	900	1,351	1,801	2,251	2,701	3,151	3,602	4,052	4,502

Table 57: Displacement matrix presenting the number of razorbills in the 1 km Buffer only, during the Non-breeding bio-season.

Displacement (%)	Mortality Rates (%)															
	0	1	2	3	4	5	10	20	30	40	50	60	70	80	90	100
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	1	1	2	2	3	3	4	4	5	5
10	0	1	1	2	2	3	5	11	16	21	27	32	37	43	48	53
20	0	1	2	3	4	5	11	21	32	43	53	64	74	85	96	106
30	0	2	3	5	6	8	16	32	48	64	80	96	112	128	144	160
40	0	2	4	6	9	11	21	43	64	85	106	128	149	170	192	213
50	0	3	5	8	11	13	27	53	80	106	133	160	186	213	239	266
60	0	3	6	10	13	16	32	64	96	128	160	192	223	255	287	319
70	0	4	7	11	15	19	37	74	112	149	186	223	261	298	335	372
80	0	4	9	13	17	21	43	85	128	170	213	255	298	340	383	426
90	0	5	10	14	19	24	48	96	144	192	239	287	335	383	431	479
100	0	5	11	16	21	27	53	106	160	213	266	319	372	426	479	532

Table 58: Displacement matrix presenting the number of razorbills in the 2 km Buffer only, during the Non-breeding bio-season.

Displacement (%)	Mortality Rates (%)															
	0	1	2	3	4	5	10	20	30	40	50	60	70	80	90	100
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	1	2	3	4	5	6	6	7	8	9
10	0	1	2	3	4	5	9	19	28	37	46	56	65	74	83	93
20	0	2	4	6	7	9	19	37	56	74	93	111	130	148	167	185
30	0	3	6	8	11	14	28	56	83	111	139	167	194	222	250	278
40	0	4	7	11	15	19	37	74	111	148	185	222	259	296	333	370
50	0	5	9	14	19	23	46	93	139	185	232	278	324	370	417	463
60	0	6	11	17	22	28	56	111	167	222	278	333	389	444	500	556
70	0	6	13	19	26	32	65	130	194	259	324	389	454	519	583	648
80	0	7	15	22	30	37	74	148	222	296	370	444	519	593	667	741
90	0	8	17	25	33	42	83	167	250	333	417	500	583	667	750	833
100	0	9	19	28	37	46	93	185	278	370	463	556	648	741	833	926

Table 59: Displacement matrix presenting the number of razorbills in the array area only, during the Extended Breeding bio-season.

Displacement (%)	Mortality Rates (%)															
	0	1	2	3	4	5	10	20	30	40	50	60	70	80	90	100
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	1	1	1	2	2	3	3	3	4
10	0	0	1	1	1	2	4	7	11	14	18	22	25	29	32	36
20	0	1	1	2	3	4	7	14	22	29	36	43	51	58	65	72
30	0	1	2	3	4	5	11	22	32	43	54	65	76	87	97	108
40	0	1	3	4	6	7	14	29	43	58	72	87	101	116	130	144
50	0	2	4	5	7	9	18	36	54	72	90	108	126	144	162	181
60	0	2	4	6	9	11	22	43	65	87	108	130	152	173	195	217
70	0	3	5	8	10	13	25	51	76	101	126	152	177	202	227	253
80	0	3	6	9	12	14	29	58	87	116	144	173	202	231	260	289
90	0	3	6	10	13	16	32	65	97	130	162	195	227	260	292	325
100	0	4	7	11	14	18	36	72	108	144	181	217	253	289	325	361

Table 60: Displacement matrix presenting the number of razorbills in the 1 km Buffer only, during the Extended Breeding bio-season.

Displacement (%)	Mortality Rates (%)															
	0	1	2	3	4	5	10	20	30	40	50	60	70	80	90	100
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
10	0	0	0	0	0	0	1	1	2	3	4	4	5	6	6	7
20	0	0	0	0	1	1	1	3	4	6	7	9	10	12	13	14
30	0	0	0	1	1	1	2	4	6	9	11	13	15	17	19	22
40	0	0	1	1	1	1	3	6	9	12	14	17	20	23	26	29
50	0	0	1	1	1	2	4	7	11	14	18	22	25	29	32	36
60	0	0	1	1	2	2	4	9	13	17	22	26	30	35	39	43
70	0	1	1	2	2	3	5	10	15	20	25	30	35	40	45	50
80	0	1	1	2	2	3	6	12	17	23	29	35	40	46	52	58
90	0	1	1	2	3	3	6	13	19	26	32	39	45	52	58	65
100	0	1	1	2	3	4	7	14	22	29	36	43	50	58	65	72

Table 61: Displacement matrix presenting the number of razorbills in the 2 km Buffer only, during the Extended Breeding bio-season.

Displacement (%)	Mortality Rates(%)															
	0	1	2	3	4	5	10	20	30	40	50	60	70	80	90	100
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1
10	0	0	0	0	1	1	1	3	4	6	7	9	10	12	13	15
20	0	0	1	1	1	1	3	6	9	12	15	18	21	24	26	29
30	0	0	1	1	2	2	4	9	13	18	22	26	31	35	40	44
40	0	1	1	2	2	3	6	12	18	24	29	35	41	47	53	59
50	0	1	1	2	3	4	7	15	22	29	37	44	51	59	66	74
60	0	1	2	3	4	4	9	18	26	35	44	53	62	71	79	88
70	0	1	2	3	4	5	10	21	31	41	51	62	72	82	93	103
80	0	1	2	4	5	6	12	24	35	47	59	71	82	94	106	118
90	0	1	3	4	5	7	13	26	40	53	66	79	93	106	119	132
100	0	1	3	4	6	7	15	29	44	59	74	88	103	118	132	147

Table 62: Displacement matrix presenting the number of razorbills in the array area only, during the Extended Non-breeding bio-season.

Displacement (%)	Mortality Rates (%)															
	0	1	2	3	4	5	10	20	30	40	50	60	70	80	90	100
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	1	1	2	2	5	9	14	18	23	27	32	36	41	45
10	0	5	9	14	18	23	45	90	135	180	225	270	315	360	405	450
20	0	9	18	27	36	45	90	180	270	360	450	540	630	720	810	900
30	0	14	27	41	54	68	135	270	405	540	675	810	945	1,080	1,216	1,351
40	0	18	36	54	72	90	180	360	540	720	900	1,080	1,261	1,441	1,621	1,801
50	0	23	45	68	90	113	225	450	675	900	1,126	1,351	1,576	1,801	2,026	2,251
60	0	27	54	81	108	135	270	540	810	1,080	1,351	1,621	1,891	2,161	2,431	2,701
70	0	32	63	95	126	158	315	630	945	1,261	1,576	1,891	2,206	2,521	2,836	3,151
80	0	36	72	108	144	180	360	720	1,080	1,441	1,801	2,161	2,521	2,881	3,241	3,602
90	0	41	81	122	162	203	405	810	1,216	1,621	2,026	2,431	2,836	3,241	3,647	4,052
100	0	45	90	135	180	225	450	900	1,351	1,801	2,251	2,701	3,151	3,602	4,052	4,502

Table 63: Displacement matrix presenting the number of razorbills in the 1 km Buffer only, during the Extended Non-breeding bio-season.

Displacement (%)	Mortality Rates (%)															
	0	1	2	3	4	5	10	20	30	40	50	60	70	80	90	100
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	1	1	2	2	3	3	4	4	5	5
10	0	1	1	2	2	3	5	11	16	21	27	32	37	43	48	53
20	0	1	2	3	4	5	11	21	32	43	53	64	74	85	96	106
30	0	2	3	5	6	8	16	32	48	64	80	96	112	128	144	160
40	0	2	4	6	9	11	21	43	64	85	106	128	149	170	192	213
50	0	3	5	8	11	13	27	53	80	106	133	160	186	213	239	266
60	0	3	6	10	13	16	32	64	96	128	160	192	223	255	287	319
70	0	4	7	11	15	19	37	74	112	149	186	223	261	298	335	372
80	0	4	9	13	17	21	43	85	128	170	213	255	298	340	383	426
90	0	5	10	14	19	24	48	96	144	192	239	287	335	383	431	479
100	0	5	11	16	21	27	53	106	160	213	266	319	372	426	479	532

Table 64: Displacement matrix presenting the number of razorbills in the 2 km Buffer only, during the Extended Non-breeding bio-season.

Displacement (%)	Mortality Rates (%)															
	0	1	2	3	4	5	10	20	30	40	50	60	70	80	90	100
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	1	2	3	4	5	6	6	7	8	9
10	0	1	2	3	4	5	9	19	28	37	46	56	65	74	83	93
20	0	2	4	6	7	9	19	37	56	74	93	111	130	148	167	185
30	0	3	6	8	11	14	28	56	83	111	139	167	194	222	250	278
40	0	4	7	11	15	19	37	74	111	148	185	222	259	296	333	370
50	0	5	9	14	19	23	46	93	139	185	232	278	324	370	417	463
60	0	6	11	17	22	28	56	111	167	222	278	333	389	444	500	556
70	0	6	13	19	26	32	65	130	194	259	324	389	454	519	583	648
80	0	7	15	22	30	37	74	148	222	296	370	444	519	593	667	741
90	0	8	17	25	33	42	83	167	250	333	417	500	583	667	750	833
100	0	9	19	28	37	46	93	185	278	370	463	556	648	741	833	926

6 Puffin Displacement Matrices

Table 65: Displacement matrix presenting the number of puffins in the array area only, during the Return Migration bio-season.

Displacement (%)	Mortality Rates (%)															
	0	1	2	3	4	5	10	20	30	40	50	60	70	80	90	100
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	0	1	1	1	1	1	1	2	2
10	0	0	0	1	1	1	2	3	5	7	9	10	12	14	16	17
20	0	0	1	1	1	2	3	7	10	14	17	21	24	28	31	35
30	0	1	1	2	2	3	5	10	16	21	26	31	37	42	47	52
40	0	1	1	2	3	3	7	14	21	28	35	42	49	56	63	70
50	0	1	2	3	3	4	9	17	26	35	44	52	61	70	78	87
60	0	1	2	3	4	5	10	21	31	42	52	63	73	84	94	104
70	0	1	2	4	5	6	12	24	37	49	61	73	85	97	110	122
80	0	1	3	4	6	7	14	28	42	56	70	84	97	111	125	139
90	0	2	3	5	6	8	16	31	47	63	78	94	110	125	141	157
100	0	2	3	5	7	9	17	35	52	70	87	104	122	139	157	174

Table 66: Displacement matrix presenting the number of puffins in the 1 km Buffer only, during the Return Migration bio-season.

Displacement (%)	Mortality Rates (%)															
	0	1	2	3	4	5	10	20	30	40	50	60	70	80	90	100
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	1	1	1	1	1	2	2	2
20	0	0	0	0	0	0	0	1	1	2	2	3	3	3	4	4
30	0	0	0	0	0	0	1	1	2	3	3	4	4	5	6	6
40	0	0	0	0	0	0	1	2	3	3	4	5	6	7	8	8
50	0	0	0	0	0	1	1	2	3	4	5	6	7	8	9	11
60	0	0	0	0	1	1	1	3	4	5	6	8	9	10	11	13
70	0	0	0	0	1	1	1	3	4	6	7	9	10	12	13	15
80	0	0	0	1	1	1	2	3	5	7	8	10	12	13	15	17
90	0	0	0	1	1	1	2	4	6	8	9	11	13	15	17	19
100	0	0	0	1	1	1	2	4	6	8	11	13	15	17	19	21

Table 67: Displacement matrix presenting the number of puffins in the 2 km Buffer only, during the Return Migration bio-season.

Displacement (%)	Mortality Rates (%)															
	0	1	2	3	4	5	10	20	30	40	50	60	70	80	90	100
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
10	0	0	0	0	0	0	1	1	2	3	3	4	4	5	6	6
20	0	0	0	0	1	1	1	3	4	5	6	8	9	10	11	13
30	0	0	0	1	1	1	2	4	6	8	9	11	13	15	17	19
40	0	0	1	1	1	1	3	5	8	10	13	15	18	20	23	25
50	0	0	1	1	1	2	3	6	9	13	16	19	22	25	28	32
60	0	0	1	1	2	2	4	8	11	15	19	23	26	30	34	38
70	0	0	1	1	2	2	4	9	13	18	22	26	31	35	40	44
80	0	1	1	2	2	3	5	10	15	20	25	30	35	40	45	50
90	0	1	1	2	2	3	6	11	17	23	28	34	40	45	51	57
100	0	1	1	2	3	3	6	13	19	25	32	38	44	50	57	63

Table 68: Displacement matrix presenting the number of puffins in the array area only, during the Migration-free Breeding bio-season.

Displacement (%)	Mortality Rates (%)															
	0	1	2	3	4	5	10	20	30	40	50	60	70	80	90	100
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1
10	0	0	0	0	0	0	1	2	2	3	4	5	5	6	7	8
20	0	0	0	0	1	1	2	3	5	6	8	9	11	12	14	15
30	0	0	0	1	1	1	2	5	7	9	12	14	16	18	21	23
40	0	0	1	1	1	2	3	6	9	12	15	18	22	25	28	31
50	0	0	1	1	2	2	4	8	12	15	19	23	27	31	35	39
60	0	0	1	1	2	2	5	9	14	18	23	28	32	37	42	46
70	0	1	1	2	2	3	5	11	16	22	27	32	38	43	49	54
80	0	1	1	2	2	3	6	12	18	25	31	37	43	49	55	62
90	0	1	1	2	3	3	7	14	21	28	35	42	49	55	62	69
100	0	1	2	2	3	4	8	15	23	31	39	46	54	62	69	77

Table 69: Displacement matrix presenting the number of puffins in the 1 km Buffer only, during the Migration-free Breeding bio-season.

Displacement (%)	Mortality Rates (%)															
	0	1	2	3	4	5	10	20	30	40	50	60	70	80	90	100
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	1	1	1	1	1	1	2	2
20	0	0	0	0	0	0	0	1	1	1	2	2	3	3	3	4
30	0	0	0	0	0	0	1	1	2	2	3	3	4	4	5	5
40	0	0	0	0	0	0	1	1	2	3	4	4	5	6	6	7
50	0	0	0	0	0	0	1	2	3	4	5	5	6	7	8	9
60	0	0	0	0	0	1	1	2	3	4	5	6	8	9	10	11
70	0	0	0	0	1	1	1	3	4	5	6	8	9	10	11	13
80	0	0	0	0	1	1	1	3	4	6	7	9	10	12	13	14
90	0	0	0	0	1	1	2	3	5	6	8	10	11	13	15	16
100	0	0	0	1	1	1	2	4	5	7	9	11	13	14	16	18

Table 70: Displacement matrix presenting the number of puffins in the 2 km Buffer only, during the Migration-free Breeding bio-season.

Displacement (%)	Mortality Rates (%)															
	0	1	2	3	4	5	10	20	30	40	50	60	70	80	90	100
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	1	1	1	1	2	2	2	2	3
20	0	0	0	0	0	0	1	1	2	2	3	3	4	4	5	5
30	0	0	0	0	0	0	1	2	2	3	4	5	5	6	7	8
40	0	0	0	0	0	1	1	2	3	4	5	6	7	8	9	10
50	0	0	0	0	1	1	1	3	4	5	6	8	9	10	11	13
60	0	0	0	0	1	1	2	3	5	6	8	9	11	12	14	15
70	0	0	0	1	1	1	2	4	5	7	9	11	12	14	16	18
80	0	0	0	1	1	1	2	4	6	8	10	12	14	16	18	20
90	0	0	0	1	1	1	2	5	7	9	11	14	16	18	20	23
100	0	0	1	1	1	1	3	5	8	10	13	15	18	20	23	25

Table 71: Displacement matrix presenting the number of puffins in the array area only, during the Post-breeding bio-season.

Displacement (%)	Mortality Rates (%)															
	0	1	2	3	4	5	10	20	30	40	50	60	70	80	90	100
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	1	1	1	2	2	2	3	3	3
10	0	0	1	1	1	2	3	6	9	13	16	19	22	25	28	31
20	0	1	1	2	3	3	6	13	19	25	31	38	44	50	56	63
30	0	1	2	3	4	5	9	19	28	38	47	56	66	75	85	94
40	0	1	3	4	5	6	13	25	38	50	63	75	88	100	113	125
50	0	2	3	5	6	8	16	31	47	63	78	94	110	125	141	157
60	0	2	4	6	8	9	19	38	56	75	94	113	131	150	169	188
70	0	2	4	7	9	11	22	44	66	88	110	131	153	175	197	219
80	0	3	5	8	10	13	25	50	75	100	125	150	175	200	225	250
90	0	3	6	8	11	14	28	56	85	113	141	169	197	225	254	282
100	0	3	6	9	13	16	31	63	94	125	157	188	219	250	282	313

Table 72: Displacement matrix presenting the number of puffins in the 1 km Buffer only, during the Post-breeding bio-season.

Displacement (%)	Mortality Rates (%)															
	0	1	2	3	4	5	10	20	30	40	50	60	70	80	90	100
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1
10	0	0	0	0	0	0	1	1	2	3	4	4	5	6	7	7
20	0	0	0	0	1	1	1	3	4	6	7	9	10	12	13	15
30	0	0	0	1	1	1	2	4	7	9	11	13	16	18	20	22
40	0	0	1	1	1	1	3	6	9	12	15	18	21	24	27	30
50	0	0	1	1	1	2	4	7	11	15	19	22	26	30	33	37
60	0	0	1	1	2	2	4	9	13	18	22	27	31	36	40	44
70	0	1	1	2	2	3	5	10	16	21	26	31	36	41	47	52
80	0	1	1	2	2	3	6	12	18	24	30	36	41	47	53	59
90	0	1	1	2	3	3	7	13	20	27	33	40	47	53	60	67
100	0	1	1	2	3	4	7	15	22	30	37	44	52	59	67	74

Table 73: Displacement matrix presenting the number of puffins in the 2 km Buffer only, during the Post-breeding bio-season.

Displacement (%)	Mortality Rates (%)															
	0	1	2	3	4	5	10	20	30	40	50	60	70	80	90	100
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1
10	0	0	0	0	0	1	1	2	3	4	5	7	8	9	10	11
20	0	0	0	1	1	1	2	4	7	9	11	13	15	17	20	22
30	0	0	1	1	1	2	3	7	10	13	16	20	23	26	29	33
40	0	0	1	1	2	2	4	9	13	17	22	26	31	35	39	44
50	0	1	1	2	2	3	5	11	16	22	27	33	38	44	49	55
60	0	1	1	2	3	3	7	13	20	26	33	39	46	52	59	65
70	0	1	2	2	3	4	8	15	23	31	38	46	53	61	69	76
80	0	1	2	3	3	4	9	17	26	35	44	52	61	70	78	87
90	0	1	2	3	4	5	10	20	29	39	49	59	69	78	88	98
100	0	1	2	3	4	5	11	22	33	44	55	65	76	87	98	109

Table 74: Displacement matrix presenting the number of puffins in the array area only, during the Migration-free Winter bio-season.

Displacement (%)	Mortality Rates (%)															
	0	1	2	3	4	5	10	20	30	40	50	60	70	80	90	100
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	0	1	1	1	1	1	2	2	2
10	0	0	0	1	1	1	2	4	6	8	9	11	13	15	17	19
20	0	0	1	1	2	2	4	8	11	15	19	23	26	30	34	38
30	0	1	1	2	2	3	6	11	17	23	28	34	39	45	51	56
40	0	1	2	2	3	4	8	15	23	30	38	45	53	60	68	75
50	0	1	2	3	4	5	9	19	28	38	47	56	66	75	85	94
60	0	1	2	3	5	6	11	23	34	45	56	68	79	90	102	113
70	0	1	3	4	5	7	13	26	39	53	66	79	92	105	118	132
80	0	2	3	5	6	8	15	30	45	60	75	90	105	120	135	150
90	0	2	3	5	7	8	17	34	51	68	85	102	118	135	152	169
100	0	2	4	6	8	9	19	38	56	75	94	113	132	150	169	188

Table 75: Displacement matrix presenting the number of puffins in the 1 km Buffer only, during the Migration-free Winter bio-season.

Displacement (%)	Mortality Rates (%)															
	0	1	2	3	4	5	10	20	30	40	50	60	70	80	90	100
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	1	1	2	2	3	3	4	4	5
20	0	0	0	0	0	0	1	2	3	4	5	6	7	8	9	10
30	0	0	0	0	1	1	1	3	4	6	7	9	10	12	13	15
40	0	0	0	1	1	1	2	4	6	8	10	12	14	16	18	20
50	0	0	0	1	1	1	2	5	7	10	12	15	17	20	22	25
60	0	0	1	1	1	1	3	6	9	12	15	18	21	24	26	29
70	0	0	1	1	1	2	3	7	10	14	17	21	24	27	31	34
80	0	0	1	1	2	2	4	8	12	16	20	24	27	31	35	39
90	0	0	1	1	2	2	4	9	13	18	22	26	31	35	40	44
100	0	0	1	1	2	2	5	10	15	20	25	29	34	39	44	49

Table 76: Displacement matrix presenting the number of puffins in the 2 km Buffer only, during the Migration-free Winter bio-season.

Displacement (%)	Mortality Rates (%)															
	0	1	2	3	4	5	10	20	30	40	50	60	70	80	90	100
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1
10	0	0	0	0	0	0	1	2	3	4	5	6	7	8	9	10
20	0	0	0	1	1	1	2	4	6	8	10	12	14	16	17	19
30	0	0	1	1	1	1	3	6	9	12	15	17	20	23	26	29
40	0	0	1	1	2	2	4	8	12	16	19	23	27	31	35	39
50	0	0	1	1	2	2	5	10	15	19	24	29	34	39	44	49
60	0	1	1	2	2	3	6	12	17	23	29	35	41	47	52	58
70	0	1	1	2	3	3	7	14	20	27	34	41	48	54	61	68
80	0	1	2	2	3	4	8	16	23	31	39	47	54	62	70	78
90	0	1	2	3	3	4	9	17	26	35	44	52	61	70	79	87
100	0	1	2	3	4	5	10	19	29	39	49	58	68	78	87	97

Table 77: Displacement matrix presenting the number of puffins in the array area only, during the Non-breeding bio-season.

Displacement (%)	Mortality Rates (%)															
	0	1	2	3	4	5	10	20	30	40	50	60	70	80	90	100
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	1	1	2	2	2	3	3	4	4
10	0	0	1	1	2	2	4	8	12	16	20	23	27	31	35	39
20	0	1	2	2	3	4	8	16	23	31	39	47	55	63	70	78
30	0	1	2	4	5	6	12	23	35	47	59	70	82	94	106	117
40	0	2	3	5	6	8	16	31	47	63	78	94	109	125	141	156
50	0	2	4	6	8	10	20	39	59	78	98	117	137	156	176	196
60	0	2	5	7	9	12	23	47	70	94	117	141	164	188	211	235
70	0	3	5	8	11	14	27	55	82	109	137	164	192	219	246	274
80	0	3	6	9	13	16	31	63	94	125	156	188	219	250	282	313
90	0	4	7	11	14	18	35	70	106	141	176	211	246	282	317	352
100	0	4	8	12	16	20	39	78	117	156	196	235	274	313	352	391

Table 78: Displacement matrix presenting the number of puffins in the 1 km Buffer only, during the Non-breeding bio-season.

Displacement (%)	Mortality Rates (%)															
	0	1	2	3	4	5	10	20	30	40	50	60	70	80	90	100
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1
10	0	0	0	0	0	0	1	2	3	4	5	6	6	7	8	9
20	0	0	0	1	1	1	2	4	6	7	9	11	13	15	17	18
30	0	0	1	1	1	1	3	6	8	11	14	17	19	22	25	28
40	0	0	1	1	1	2	4	7	11	15	18	22	26	29	33	37
50	0	0	1	1	2	2	5	9	14	18	23	28	32	37	41	46
60	0	1	1	2	2	3	6	11	17	22	28	33	39	44	50	55
70	0	1	1	2	3	3	6	13	19	26	32	39	45	52	58	64
80	0	1	1	2	3	4	7	15	22	29	37	44	52	59	66	74
90	0	1	2	2	3	4	8	17	25	33	41	50	58	66	75	83
100	0	1	2	3	4	5	9	18	28	37	46	55	64	74	83	92

Table 79: Displacement matrix presenting the number of puffins in the 2 km Buffer only, during the Non-breeding bio-season.

Displacement (%)	Mortality Rates (%)															
	0	1	2	3	4	5	10	20	30	40	50	60	70	80	90	100
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	2
10	0	0	0	0	1	1	2	3	5	6	8	10	11	13	14	16
20	0	0	1	1	1	2	3	6	10	13	16	19	23	26	29	32
30	0	0	1	1	2	2	5	10	14	19	24	29	34	39	43	48
40	0	1	1	2	3	3	6	13	19	26	32	39	45	52	58	64
50	0	1	2	2	3	4	8	16	24	32	40	48	56	64	72	81
60	0	1	2	3	4	5	10	19	29	39	48	58	68	77	87	97
70	0	1	2	3	5	6	11	23	34	45	56	68	79	90	101	113
80	0	1	3	4	5	6	13	26	39	52	64	77	90	103	116	129
90	0	1	3	4	6	7	14	29	43	58	72	87	101	116	130	145
100	0	2	3	5	6	8	16	32	48	64	81	97	113	129	145	161

Table 80: Displacement matrix presenting the number of puffins in the array area only, during the Extended Breeding bio-season.

Displacement (%)	Mortality Rates (%)															
	0	1	2	3	4	5	10	20	30	40	50	60	70	80	90	100
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	1	1	2	2	3	3	3	4	4
10	0	0	1	1	2	2	4	9	13	17	22	26	31	35	39	44
20	0	1	2	3	3	4	9	17	26	35	44	52	61	70	79	87
30	0	1	3	4	5	7	13	26	39	52	66	79	92	105	118	131
40	0	2	3	5	7	9	17	35	52	70	87	105	122	140	157	175
50	0	2	4	7	9	11	22	44	66	87	109	131	153	175	197	219
60	0	3	5	8	10	13	26	52	79	105	131	157	184	210	236	262
70	0	3	6	9	12	15	31	61	92	122	153	184	214	245	275	306
80	0	3	7	10	14	17	35	70	105	140	175	210	245	280	315	350
90	0	4	8	12	16	20	39	79	118	157	197	236	275	315	354	393
100	0	4	9	13	17	22	44	87	131	175	219	262	306	350	393	437

Table 81: Displacement matrix presenting the number of puffins in the 1 km Buffer only, during the Extended Breeding bio-season.

Displacement (%)	Mortality Rates (%)															
	0	1	2	3	4	5	10	20	30	40	50	60	70	80	90	100
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1
10	0	0	0	0	0	0	1	2	2	3	4	5	6	7	7	8
20	0	0	0	0	1	1	2	3	5	7	8	10	11	13	15	16
30	0	0	0	1	1	1	2	5	7	10	12	15	17	20	22	25
40	0	0	1	1	1	2	3	7	10	13	16	20	23	26	30	33
50	0	0	1	1	2	2	4	8	12	16	21	25	29	33	37	41
60	0	0	1	1	2	2	5	10	15	20	25	30	34	39	44	49
70	0	1	1	2	2	3	6	11	17	23	29	34	40	46	52	57
80	0	1	1	2	3	3	7	13	20	26	33	39	46	52	59	66
90	0	1	1	2	3	4	7	15	22	30	37	44	52	59	66	74
100	0	1	2	2	3	4	8	16	25	33	41	49	57	66	74	82

Table 82: Displacement matrix presenting the number of puffins in the 2 km Buffer only, during the Extended Breeding bio-season.

Displacement (%)	Mortality Rates (%)															
	0	1	2	3	4	5	10	20	30	40	50	60	70	80	90	100
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1
10	0	0	0	0	1	1	1	3	4	5	7	8	9	10	12	13
20	0	0	1	1	1	1	3	5	8	10	13	16	18	21	23	26
30	0	0	1	1	2	2	4	8	12	16	20	23	27	31	35	39
40	0	1	1	2	2	3	5	10	16	21	26	31	36	42	47	52
50	0	1	1	2	3	3	7	13	20	26	33	39	46	52	59	65
60	0	1	2	2	3	4	8	16	23	31	39	47	55	62	70	78
70	0	1	2	3	4	5	9	18	27	36	46	55	64	73	82	91
80	0	1	2	3	4	5	10	21	31	42	52	62	73	83	94	104
90	0	1	2	4	5	6	12	23	35	47	59	70	82	94	105	117
100	0	1	3	4	5	7	13	26	39	52	65	78	91	104	117	130

Table 83: Displacement matrix presenting the number of puffins in the array area only, during the Extended Non-breeding bio-season.

Displacement (%)	Mortality Rates (%)															
	0	1	2	3	4	5	10	20	30	40	50	60	70	80	90	100
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	0	1	1	1	1	1	2	2	2
10	0	0	0	1	1	1	2	4	6	8	9	11	13	15	17	19
20	0	0	1	1	2	2	4	8	11	15	19	23	26	30	34	38
30	0	1	1	2	2	3	6	11	17	23	28	34	39	45	51	56
40	0	1	2	2	3	4	8	15	23	30	38	45	53	60	68	75
50	0	1	2	3	4	5	9	19	28	38	47	56	66	75	85	94
60	0	1	2	3	5	6	11	23	34	45	56	68	79	90	102	113
70	0	1	3	4	5	7	13	26	39	53	66	79	92	105	118	132
80	0	2	3	5	6	8	15	30	45	60	75	90	105	120	135	150
90	0	2	3	5	7	8	17	34	51	68	85	102	118	135	152	169
100	0	2	4	6	8	9	19	38	56	75	94	113	132	150	169	188

Table 84: Displacement matrix presenting the number of puffins in the 1 km Buffer only, during the Extended Non-breeding bio-season.

Displacement (%)	Mortality Rates (%)															
	0	1	2	3	4	5	10	20	30	40	50	60	70	80	90	100
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	1	1	2	2	3	3	4	4	5
20	0	0	0	0	0	0	1	2	3	4	5	6	7	8	9	10
30	0	0	0	0	1	1	1	3	4	6	7	9	10	12	13	15
40	0	0	0	1	1	1	2	4	6	8	10	12	14	16	18	20
50	0	0	0	1	1	1	2	5	7	10	12	15	17	20	22	25
60	0	0	1	1	1	1	3	6	9	12	15	18	21	24	26	29
70	0	0	1	1	1	2	3	7	10	14	17	21	24	27	31	34
80	0	0	1	1	2	2	4	8	12	16	20	24	27	31	35	39
90	0	0	1	1	2	2	4	9	13	18	22	26	31	35	40	44
100	0	0	1	1	2	2	5	10	15	20	25	29	34	39	44	49

Table 85: Displacement matrix presenting the number of puffins in the 2 km Buffer only, during the Extended Non-breeding bio-season.

Displacement (%)	Mortality Rates (%)															
	0	1	2	3	4	5	10	20	30	40	50	60	70	80	90	100
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1
10	0	0	0	0	0	0	1	2	3	4	5	6	7	8	9	10
20	0	0	0	1	1	1	2	4	6	8	10	12	14	16	17	19
30	0	0	1	1	1	1	3	6	9	12	15	17	20	23	26	29
40	0	0	1	1	2	2	4	8	12	16	19	23	27	31	35	39
50	0	0	1	1	2	2	5	10	15	19	24	29	34	39	44	49
60	0	1	1	2	2	3	6	12	17	23	29	35	41	47	52	58
70	0	1	1	2	3	3	7	14	20	27	34	41	48	54	61	68
80	0	1	2	2	3	4	8	16	23	31	39	47	54	62	70	78
90	0	1	2	3	3	4	9	17	26	35	44	52	61	70	79	87
100	0	1	2	3	4	5	10	19	29	39	49	58	68	78	87	97

7 References

Bradbury, G., Trinder, M., Furness, B., Banks, A.N., Caldow, R.W.G. and Hume, D. (2014). Mapping Seabird Sensitivity to Offshore Wind Farms. PLoS ONE 9(9) e106366. doi:10.1371/journal.pone.0106366.

Furness, R.W. (2015). Non-breeding season populations of seabirds in UK waters; Population sizes for Biologically Defined Minimum Population Scales (BDMPS). Natural England Commissioned Reports, Number 164.

Statutory Nature Conservation Bodies (2017). Advice on how to present assessment information on the extent and potential consequences of seabird displacement from Offshore Wind Farm (OWF) developments.