

BERWICK BANK WIND FARM OFFSHORE ENVIRONMENTAL IMPACT ASSESSMENT

**APPENDIX 11.1, ANNEX B:
DESIGN-BASED ANALYSIS –
MONTHLY POPULATION
ESTIMATES (BERWICK BANK
DEVELOPMENT AREA PLUS
16KM BUFFER)**

Document Status

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NOTE

This annex provides both apportioned (detections assigned from species groups to species) and unapportioned (detections assigned to species only) density and population estimates for all species on a survey-by-survey basis within the Offshore Ornithology Study Area. Estimates presented for auk species do not account for availability bias. Further EIA/HRA assessments should rely on those that have this correction applied (see the Baseline Report and Annex F)

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Table 1: Unapportioned density and population estimates of species groups in the Offshore Ornithology Study Area during Survey 1 on 28 March 2019

Category	Density Estimate (birds/km ²)	Lower 95% CI (birds/km ²)	Upper 95% CI (birds/km ²)	Population Estimate (number)	Lower 95% CI (number)	Upper 95% CI (number)	SD	CV
Broad category								
All birds	20.41	14.6	27.6	81170	58070	109782	13047	16.07%
Species group								
Grebe species	0	0	0	7	0	20	7	91.19%
Wader species	0.03	0	0.07	120	11	268	70	58.24%
Small gull species	11.74	7.14	17.17	46682	28404	68281	10172	21.79%
Black-backed gull species	0	0	0	7	0	19	7	96.49%
Large gull species	0.01	0	0.01	25	6	51	12	47.42%
Gull species	0.01	0.01	0.02	56	21	97	20	35.51%
Large auk	6.81	5.2	8.52	27091	20690	33869	3579	13.21%
Small auk	0.38	0.23	0.52	1522	932	2084	302	19.80%
Auk species	1.29	1.07	1.54	5151	4269	6122	475	9.20%
Auk / small gull	0.03	0.02	0.05	130	72	198	33	25.20%
Fulmar / gull species	0.21	0.13	0.31	829	537	1248	189	22.72%
Gannet species	0.25	0.18	0.34	992	715	1345	166	16.73%
Passerine species	0	0	0.01	19	0	49	14	73.36%

Table 2: Unapportioned density and population estimates of species in the Offshore Ornithology Study Area during Survey 1 on 28 March 2019

Category	Density Estimate (birds/km ²)	Lower 95% CI (birds/km ²)	Upper 95% CI (birds/km ²)	Population Estimate (number)	Lower 95% CI (number)	Upper 95% CI (number)	SD	CV
Species								
Wood pigeon	0	0	0	7	0	19	6	87.51%
Red-necked grebe	0	0	0	6	0	19	6	93.70%
Golden plover	0.02	0	0.06	91	0	222	58	63.46%
Curlew	0	0	0.01	7	0	21	6	91.70%
Kittiwake	11.81	7.09	17.24	46965	28202	68584	10136	21.58%
Common gull	0.01	0	0.02	31	7	63	15	48.28%
Great black-backed gull	0	0	0.01	13	0	30	9	67.02%
Herring gull	0	0	0.01	19	0	39	10	52.53%
Little auk	0	0	0.01	13	0	31	9	66.62%
Guillemot	5.72	4.44	7.11	22761	17673	28289	2766	12.15%

Category	Density Estimate (birds/km ²)	Lower 95% CI (birds/km ²)	Upper 95% CI (birds/km ²)	Population Estimate (number)	Lower 95% CI (number)	Upper 95% CI (number)	SD	CV
Species								
Razorbill	0.93	0.68	1.24	3705	2686	4932	581	15.68%
Puffin	1.02	0.78	1.26	4070	3103	5023	514	12.62%
Fulmar	0.16	0.12	0.21	634	461	828	92	14.46%
Gannet	0.25	0.17	0.34	982	657	1359	178	18.04%

Table 3: Apportioned density and population estimates of species in the Offshore Ornithology Study Area during Survey 1 on 28 March 2019

Category	Density Estimate (birds/km ²)	Lower 95% CI (birds/km ²)	Upper 95% CI (birds/km ²)	Population Estimate (number)	Lower 95% CI (number)	Upper 95% CI (number)	SD	CV
Species								
Wood pigeon	0	0	0.01	20	0	48	14	69.19%
Red-necked grebe	0	0	0.01	7	0	21	7	96.82%
Golden plover	0.03	0	0.07	113	0	262	72	63.46%
Curlew	0	0	0.01	8	0	21	7	83.91%
Kittiwake	11.76	7.34	16.82	46777	29188	66887	9961	21.29%
Common gull	0.01	0	0.02	31	7	61	15	45.67%
Great black-backed gull	0	0	0.01	14	0	32	9	66.33%
Herring gull	0	0	0.01	19	0	39	10	52.95%
Little auk	0	0	0.01	19	5	36	9	46.31%
Guillemot	6.09	4.72	7.59	24236	18757	30172	3029	12.50%
Razorbill	1	0.75	1.32	3992	2982	5266	581	14.54%
Puffin	1.37	1.12	1.62	5468	4453	6463	529	9.67%
Fulmar	0.16	0.11	0.21	639	456	817	97	15.18%
Gannet	0.25	0.17	0.34	999	683	1370	180	17.94%

Table 4: Unapportioned density and population estimates of species groups in the Offshore Ornithology Study Area during Survey 2 on 14 May 2019

Category	Density Estimate (birds/km ²)	Lower 95% CI (birds/km ²)	Upper 95% CI (birds/km ²)	Population Estimate (number)	Lower 95% CI (number)	Upper 95% CI (number)	SD	CV
Broad category								
All birds	26.22	22.59	30.08	104283	89843	119637	8049	7.72%
Species								
Small gull species	2.49	1.95	3.09	9918	7768	12297	1172	11.81%
Black-backed gull species	0	0	0.01	8	0	24	8	106.78%
Large gull species	0.01	0	0.02	25	0	64	18	72.38%
Gull species	0.01	0	0.02	32	0	95	30	92.21%

Category	Density Estimate (birds/km ²)	Lower 95% CI (birds/km ²)	Upper 95% CI (birds/km ²)	Population Estimate (number)	Lower 95% CI (number)	Upper 95% CI (number)	SD	CV
Broad category								
Arctic / common tern	0.03	0.01	0.06	110	24	221	52	47.11%
Skua species	0	0	0.01	17	0	40	11	65.02%
Large auk	20.53	16.82	23.76	81643	66881	94495	7169	8.78%
Small auk	0.65	0.5	0.82	2593	1970	3250	320	12.31%
Auk species	1.69	1.48	1.9	6725	5895	7549	434	6.44%
Auk / small gull	0.1	0.07	0.14	396	267	557	75	18.92%
Large auk / diver species	0.01	0	0.02	48	16	87	18	36.81%
Auk / shearwater species	0.01	0	0.02	25	0	64	17	68.90%
Diver species	0.01	0	0.02	33	0	80	20	60.84%
Fulmar / gull species	0.08	0.05	0.11	317	217	455	61	19.22%
Gannet species	0.68	0.52	0.88	2710	2053	3486	352	12.97%
Passerine species	0	0	0.01	8	0	24	8	102.57%
Small bird species	0	0	0.01	17	0	40	11	62.64%

Table 5: Unapportioned density and population estimates of species in the Offshore Ornithology Study Area during Survey 2 on 14 May 2019

Category	Density Estimate (birds/km ²)	Lower 95% CI (birds/km ²)	Upper 95% CI (birds/km ²)	Population Estimate (number)	Lower 95% CI (number)	Upper 95% CI (number)	SD	CV
Species								
Wood pigeon	0	0	0.01	9	0	24	9	100.78%
Kittiwake	2.52	1.93	3.14	10032	7666	12475	1243	12.38%
Common gull	0	0	0.01	9	0	24	9	101.82%
Herring gull	0	0	0.01	17	0	48	17	98.90%
Lesser black-backed gull	0	0	0.01	17	0	40	11	67.49%
Arctic tern	0	0	0.01	8	0	24	8	95.99%
Great skua	0	0	0.01	8	0	24	8	99.44%
Arctic skua	0	0	0.01	9	0	24	8	96.66%
Guillemot	19.38	16.18	22.68	77091	64367	90192	6733	8.73%
Razorbill	1.02	0.84	1.23	4072	3360	4895	398	9.77%
Puffin	1.43	1.22	1.61	5680	4853	6398	392	6.90%
Red-throated diver	0.01	0	0.02	41	8	87	20	49.26%
Fulmar	0.07	0.05	0.1	289	180	414	62	21.23%
Gannet	0.69	0.53	0.89	2743	2092	3546	366	13.31%

Table 6: Apportioned density and population estimates of species in the Offshore Ornithology Study Area during Survey 2 on 14 May 2019

Category	Density Estimate (birds/km ²)	Lower 95% CI (birds/km ²)	Upper 95% CI (birds/km ²)	Population Estimate (number)	Lower 95% CI (number)	Upper 95% CI (number)	SD	CV
Species								
Wood pigeon	0	0	0.01	8	0	24	8	103.98%
Kittiwake	2.55	1.91	3.12	10128	7603	12405	1210	11.95%
Common gull	0	0	0.01	9	0	25	9	94%
Herring gull	0	0	0.01	17	0	48	17	99.13%
Lesser black-backed gull	0	0	0.01	15	0	40	12	74.05%
Arctic tern	0.02	0	0.04	78	16	170	43	55.53%
Great skua	0	0	0.01	8	0	24	8	93.54%
Arctic skua	0	0	0.01	9	0	24	8	91.86%
Guillemot	20	16.42	23.77	79527	65308	94550	7364	9.26%
Razorbill	1.12	0.91	1.33	4458	3610	5308	419	9.40%
Puffin	1.8	1.59	2.01	7177	6317	7979	429	5.98%
Red-throated diver	0.01	0.01	0.02	57	22	98	21	35.93%
Fulmar	0.08	0.05	0.11	303	200	429	61	19.96%
Gannet	0.68	0.5	0.87	2688	2002	3475	368	13.69%

Table 7: Unapportioned density and population estimates of species groups in the Offshore Ornithology Study Area during Survey 3 on 21 June 2019

Category	Density Estimate (birds/km ²)	Lower 95% CI (birds/km ²)	Upper 95% CI (birds/km ²)	Population Estimate (number)	Lower 95% CI (number)	Upper 95% CI (number)	SD	CV
Broad category								
All birds	10.13	8.16	12.12	40299	32440	48223	4119	10.22%
Species								
Duck species	0	0	0.01	16	0	48	16	100.34%
Small gull species	2	1.59	2.48	7968	6315	9849	946	11.87%
Black-backed gull species	0.03	0.01	0.05	102	24	216	54	52.71%
Large gull species	0.48	0.32	0.67	1910	1271	2658	357	18.67%
Gull species	0.09	0.04	0.15	370	151	609	116	31.28%
Arctic / common tern	0.02	0.01	0.05	98	32	180	40	40.82%
Tern species	0	0	0.01	17	0	40	12	73.24%
Tern / small gull species	0	0	0.01	8	0	24	8	94.09%
Skua species excluding great	0	0	0.01	8	0	24	8	96.09%
Large auk	4.22	3.19	5.38	16798	12685	21405	2117	12.60%
Small auk	0.53	0.22	0.95	2126	857	3765	738	34.72%
Auk species	1.35	0.79	1.87	5351	3152	7425	1109	20.72%
Auk / small gull	0.05	0.02	0.07	182	93	295	54	29.25%

Category	Density Estimate (birds/km ²)	Lower 95% CI (birds/km ²)	Upper 95% CI (birds/km ²)	Population Estimate (number)	Lower 95% CI (number)	Upper 95% CI (number)	SD	CV
Broad category								
Auk / shearwater species	0	0	0.01	8	0	24	8	99.49%
Diver species	0	0	0.01	17	0	40	11	68.10%
Fulmar / gull species	0.1	0.06	0.15	407	246	598	94	23.12%
Shearwater species	0.02	0	0.04	74	12	147	36	47.82%
Gannet species	1.18	0.98	1.42	4683	3913	5639	439	9.36%
Cormorant / shag	0.01	0	0.02	25	0	94	25	102.74%

Table 8: Unapportioned density and population estimates of species in the Offshore Ornithology Study Area during Survey 3 on 21 June 2019

Category	Density Estimate (birds/km ²)	Lower 95% CI (birds/km ²)	Upper 95% CI (birds/km ²)	Population Estimate (number)	Lower 95% CI (number)	Upper 95% CI (number)	SD	CV
Species								
Common scoter	0	0	0.01	16	0	48	16	100.26%
Kittiwake	2.05	1.58	2.63	8153	6292	10464	1012	12.41%
Great black-backed gull	0.03	0.01	0.06	117	24	256	62	52.89%
Herring gull	0.47	0.27	0.68	1874	1060	2688	405	21.59%
Lesser black-backed gull	0.04	0.02	0.06	144	72	233	41	27.90%
Sandwich tern	0	0	0.01	9	0	28	9	99.04%
Arctic skua	0	0	0.01	8	0	24	8	98.03%
Guillemot	4.2	3.23	5.18	16704	12830	20607	2024	12.12%
Razorbill	0.27	0.16	0.38	1074	626	1509	228	21.19%
Puffin	1.11	0.55	1.8	4422	2200	7158	1320	29.84%
Red-throated diver	0	0	0.01	17	0	40	12	67.73%
Fulmar	0.04	0.01	0.09	177	48	359	84	47.53%
Manx shearwater	0.02	0	0.04	73	16	146	35	47.41%
Gannet	1.19	0.99	1.4	4738	3929	5574	435	9.18%
Shag	0.01	0	0.02	24	0	72	25	103.39%

Table 9: Apportioned density and population estimates of species in the Offshore Ornithology Study Area during Survey 3 on 21 June 2019

Category	Density Estimate (birds/km ²)	Lower 95% CI (birds/km ²)	Upper 95% CI (birds/km ²)	Population Estimate (number)	Lower 95% CI (number)	Upper 95% CI (number)	SD	CV
Species								
Common scoter	0	0	0.01	16	0	48	16	101.96%
Kittiwake	2.09	1.65	2.65	8302	6577	10534	1029	12.39%
Great black-backed gull	0.03	0.01	0.07	129	26	280	67	51.36%
Herring gull	0.51	0.34	0.73	2036	1344	2912	396	19.43%
Lesser black-backed gull	0.04	0.02	0.06	168	94	251	41	24.06%
Sandwich tern	0	0	0.01	8	0	24	8	101.36%
Arctic tern	0.02	0	0.03	71	16	133	31	42.96%
Arctic skua	0	0	0.01	8	0	24	8	102.77%
Guillemot	4.47	3.47	5.5	17765	13813	21878	2165	12.18%
Razorbill	0.3	0.19	0.43	1207	762	1714	248	20.56%
Puffin	1.28	0.63	2.17	5079	2488	8624	1550	30.51%
Red-throated diver	0	0	0.01	18	0	40	12	66.88%
Fulmar	0.06	0.03	0.12	253	127	462	84	33.03%
Manx shearwater	0.02	0	0.04	72	16	150	36	49.23%
Gannet	1.19	1	1.44	4751	3982	5713	448	9.42%
Shag	0.01	0	0.02	23	0	72	24	106.55%

Table 10: Unapportioned density and population estimates of species groups in the Offshore Ornithology Study Area during Survey 4 on 23 July 2019

Category	Density Estimate (birds/km ²)	Lower 95% CI (birds/km ²)	Upper 95% CI (birds/km ²)	Population Estimate (number)	Lower 95% CI (number)	Upper 95% CI (number)	SD	CV
Broad category								
All birds	32.55	26.21	38.35	129473	104244	152536	12311	9.51%
Species								
Wader species	0.01	0	0.02	24	0	76	24	97.07%
Small gull species	3.67	3.12	4.39	14607	12421	17460	1348	9.23%
Black-backed gull species	0.01	0	0.03	58	16	108	25	42.03%
Large gull species	0.26	0.19	0.33	1036	741	1311	147	14.19%
Gull species	0.06	0.03	0.1	238	130	385	64	26.79%
Arctic / common tern	1.64	1.28	2	6514	5090	7952	717	11%
Tern species	0.02	0.01	0.03	64	25	109	23	34.46%
Tern / small gull species	0.03	0.01	0.05	105	47	184	36	33.78%
Skua species	0.01	0	0.02	34	9	62	15	42.32%

Category	Density Estimate (birds/km ²)	Lower 95% CI (birds/km ²)	Upper 95% CI (birds/km ²)	Population Estimate (number)	Lower 95% CI (number)	Upper 95% CI (number)	SD	CV
Broad category								
Large auk	20.3	14.9	25.52	80721	59280	101513	11101	13.75%
Small auk	0.45	0.32	0.6	1802	1290	2389	285	15.77%
Auk species	3.21	2.45	4.15	12755	9761	16513	1683	13.19%
Auk / small gull	0.03	0.01	0.04	104	35	178	38	36.52%
Large auk / diver species	0	0	0.01	17	0	37	11	61.30%
Fulmar / gull species	0.08	0.06	0.11	335	243	439	52	15.44%
Gannet species	3.14	2.79	3.49	12483	11116	13881	708	5.67%
Passerine species	0	0	0.01	8	0	26	8	96.31%

Table 11: Unapportioned density and population estimates of species in the Offshore Ornithology Study Area during Survey 4 on 23 July 2019

Category	Density Estimate (birds/km ²)	Lower 95% CI (birds/km ²)	Upper 95% CI (birds/km ²)	Population Estimate (number)	Lower 95% CI (number)	Upper 95% CI (number)	SD	CV
Species								
Rock dove	0	0	0.01	9	0	27	8	95.19%
Kittiwake	3.69	3.16	4.48	14685	12560	17822	1317	8.97%
Little gull	0.01	0	0.02	41	15	71	16	37.17%
Common gull	0.01	0	0.02	33	0	75	19	55.36%
Great black-backed gull	0.01	0	0.02	32	0	65	17	50.89%
Herring gull	0.21	0.14	0.28	822	576	1111	138	16.74%
Lesser black-backed gull	0.06	0.04	0.08	248	172	338	43	17.20%
Common tern	0.01	0	0.02	24	0	75	24	98.65%
Arctic tern	0.08	0.05	0.13	327	184	517	85	25.86%
Great skua	0.01	0	0.01	32	9	57	14	41.96%
Guillemot	17.21	12.88	21.55	68441	51216	85717	8983	13.12%
Razorbill	1.6	0.84	2.34	6350	3336	9308	1539	24.22%
Puffin	2.22	1.64	3.04	8822	6520	12077	1456	16.49%
Fulmar	0.05	0.04	0.07	211	142	284	39	18.12%
Gannet	3.14	2.8	3.5	12499	11138	13929	693	5.54%

Table 12: Apportioned density and population estimates of species in the Offshore Ornithology Study Area during Survey 4 on 23 July 2019

Category	Density Estimate (birds/km ²)	Lower 95% CI (birds/km ²)	Upper 95% CI (birds/km ²)	Population Estimate (number)	Lower 95% CI (number)	Upper 95% CI (number)	SD	CV
Species								
Rock dove	0	0	0.01	8	0	26	8	99.27%
Kittiwake	3.72	3.12	4.43	14796	12415	17614	1311	8.86%
Little gull	0.01	0	0.02	42	12	73	16	37.29%
Common gull	0.01	0	0.02	33	1	70	18	52.06%
Great black-backed gull	0.01	0	0.02	34	2	75	18	53.49%
Herring gull	0.23	0.17	0.31	910	657	1219	140	15.36%
Lesser black-backed gull	0.06	0.04	0.09	258	178	341	43	16.60%
Common tern	0.07	0.04	0.09	264	176	364	48	18.16%
Arctic tern	0.95	0.71	1.26	3777	2825	4999	574	15.17%
Great skua	0.01	0	0.01	32	8	60	14	43.42%
Guillemot	18.95	13.81	23.55	75387	54911	93650	10276	13.63%
Razorbill	1.78	0.89	2.6	7069	3535	10355	1723	24.37%
Puffin	3.33	2.57	4.25	13237	10221	16917	1629	12.30%
Fulmar	0.07	0.05	0.09	265	194	347	40	14.75%
Gannet	3.15	2.83	3.5	12522	11274	13921	681	5.43%

Table 13: Unapportioned density and population estimates of species groups in the Offshore Ornithology Study Area during Survey 5 on 06 August 2019

Category	Density Estimate (birds/km ²)	Lower 95% CI (birds/km ²)	Upper 95% CI (birds/km ²)	Population Estimate (number)	Lower 95% CI (number)	Upper 95% CI (number)	SD	CV
Broad category								
All birds	50.82	38.39	64.38	202145	152696	256041	27122	13.42%
Wader species								
Wader species	0.06	0	0.16	236	16	642	184	77.93%
Small gull species								
Small gull species	8.21	6.79	9.62	32670	27000	38264	2914	8.92%
Black-backed gull species								
Black-backed gull species	0.01	0	0.02	41	9	69	16	39.22%
Large gull species								
Large gull species	0.21	0.12	0.32	843	486	1289	212	25.08%
Gull species								
Gull species	0.05	0.02	0.09	185	80	363	73	39.11%
Arctic / common tern								
Arctic / common tern	2.76	2.24	3.42	10995	8892	13587	1271	11.55%
Tern species								
Tern species	0.09	0.04	0.14	352	161	574	104	29.48%
Tern / small gull species								
Tern / small gull species	0.05	0.02	0.09	212	80	360	73	34.19%
Large auk								
Large auk	31.84	22.58	42.62	126632	89806	169503	20681	16.33%
Small auk								
Small auk	0.28	0.14	0.46	1122	560	1812	311	27.70%
Auk species								
Auk species	3.05	2.27	3.92	12121	9014	15600	1686	13.91%

Category	Density Estimate (birds/km ²)	Lower 95% CI (birds/km ²)	Upper 95% CI (birds/km ²)	Population Estimate (number)	Lower 95% CI (number)	Upper 95% CI (number)	SD	CV
Broad category								
Auk / small gull	0.08	0.04	0.13	330	164	518	95	28.76%
Auk / shearwater species	0	0	0.01	16	0	41	12	72.16%
Fulmar / gull species	0.08	0.05	0.11	321	218	437	56	17.31%
Shearwater species	0	0	0.01	9	0	31	9	97.07%
Gannet species	4.08	3.42	4.73	16214	13613	18799	1381	8.52%
Small bird species	0.03	0	0.06	109	17	247	63	57.67%
Wader species	0.06	0	0.16	236	16	642	184	77.93%

Table 14: Unapportioned density and population estimates of species in the Offshore Ornithology Study Area during Survey 5 on 06 August 2019

Category	Density Estimate (birds/km ²)	Lower 95% CI (birds/km ²)	Upper 95% CI (birds/km ²)	Population Estimate (number)	Lower 95% CI (number)	Upper 95% CI (number)	SD	CV
Species								
Curlew	0	0	0.01	9	0	25	8	95.65%
Kittiwake	8.25	6.8	9.71	32806	27033	38625	2915	8.89%
Little gull	0.02	0.01	0.03	66	25	114	24	35.98%
Common gull	0.01	0	0.01	24	0	56	14	56.18%
Great black-backed gull	0	0	0.01	9	0	26	8	91.40%
Herring gull	0.2	0.1	0.32	788	384	1254	228	28.94%
Lesser black-backed gull	0.03	0.02	0.05	129	70	199	34	25.63%
Sandwich tern	0.02	0	0.04	65	0	165	41	61.92%
Common tern	0.01	0	0.02	32	8	61	14	43.74%
Arctic tern	0.07	0.04	0.1	271	155	410	66	24.16%
Guillemot	28.86	19.86	38.97	114798	78987	155001	19209	16.73%
Razorbill	1.85	1.26	2.5	7378	5022	9942	1300	17.62%
Puffin	1.76	1.26	2.33	6999	5029	9252	1068	15.26%
Fulmar	0.06	0.04	0.08	225	152	303	40	17.62%
Manx shearwater	0	0	0.01	9	0	25	8	95.01%
Gannet	4.08	3.43	4.77	16223	13624	18981	1402	8.64%

Table 15: Apportioned density and population estimates of species in the Offshore Ornithology Study Area during Survey 5 on 06 August 2019

Category	Density Estimate (birds/km ²)	Lower 95% CI (birds/km ²)	Upper 95% CI (birds/km ²)	Population Estimate (number)	Lower 95% CI (number)	Upper 95% CI (number)	SD	CV
Species								
Curlew	0.06	0	0.16	227	8	648	199	87.50%
Kittiwake	8.29	7.03	9.59	32962	27947	38159	2735	8.30%
Little gull	0.03	0.01	0.06	137	57	222	45	32.34%
Common gull	0.01	0	0.01	25	0	55	14	55.19%
Great black-backed gull	0	0	0.01	9	0	29	9	94.38%
Herring gull	0.22	0.12	0.34	876	472	1343	233	26.58%
Lesser black-backed gull	0.03	0.02	0.05	133	71	197	32	23.57%
Sandwich tern	0.04	0.01	0.07	148	53	262	54	35.91%
Common tern	0.13	0.1	0.16	520	410	625	58	11.08%
Arctic tern	1.61	1.32	1.93	6415	5239	7668	636	9.90%
Guillemot	30	20.36	41.59	119331	80995	165429	21920	18.37%
Razorbill	1.99	1.35	2.63	7909	5389	10471	1340	16.94%
Puffin	2.84	2.11	3.66	11302	8392	14554	1570	13.89%
Fulmar	0.07	0.05	0.1	273	187	379	50	18.34%
Manx shearwater	0	0	0.01	18	0	45	13	71.87%
Gannet	4.06	3.42	4.79	16143	13600	19033	1376	8.52%

Table 16: Unapportioned density and population estimates of species groups in the Offshore Ornithology Study Area during Survey 6 on 15 September 2019

Category	Density Estimate (birds/km ²)	Lower 95% CI (birds/km ²)	Upper 95% CI (birds/km ²)	Population Estimate (number)	Lower 95% CI (number)	Upper 95% CI (number)	SD	CV
Broad category								
All birds	11.31	10.31	12.31	44989	41025	48979	1997	4.44%
Species								
Goose species	0.03	0	0.1	138	0	406	133	96.16%
Wader species	0.09	0.02	0.18	377	75	728	172	45.61%
Small gull species	1.62	1.21	2.03	6440	4822	8093	863	13.39%
Large gull species	0	0	0.01	16	0	40	11	67.64%
Gull species	0.01	0	0.02	40	0	86	22	55.08%
Arctic / common tern	0.02	0	0.03	65	20	115	25	37.43%
Skua species	0	0	0.01	17	0	40	12	71.80%
Large auk	5.64	5.09	6.3	22434	20245	25038	1257	5.60%
Small auk	0.22	0.11	0.37	882	429	1455	258	29.24%
Auk species	1.25	0.89	1.64	4983	3541	6535	758	15.20%

Category	Density Estimate (birds/km ²)	Lower 95% CI (birds/km ²)	Upper 95% CI (birds/km ²)	Population Estimate (number)	Lower 95% CI (number)	Upper 95% CI (number)	SD	CV
Broad category								
Auk / small gull	0.01	0	0.02	40	0	96	26	64.80%
Auk / shearwater species	0.01	0	0.02	41	0	96	26	62.02%
Fulmar / gull species	0.05	0.03	0.07	206	126	296	46	21.89%
Gannet species	2.31	2.03	2.59	9181	8082	10285	571	6.21%
Small bird species	0	0	0.01	9	0	32	9	93.53%

Table 17: Unapportioned density and population estimates of species in the Offshore Ornithology Study Area during Survey 6 on 15 September 2019

Category	Density Estimate (birds/km ²)	Lower 95% CI (birds/km ²)	Upper 95% CI (birds/km ²)	Population Estimate (number)	Lower 95% CI (number)	Upper 95% CI (number)	SD	CV
Species								
Pink-footed goose	0.04	0	0.1	141	0	406	136	96.67%
Golden plover	0.08	0.01	0.17	318	51	661	156	48.89%
Kittiwake	1.62	1.17	2.05	6459	4669	8168	930	14.39%
Great black-backed gull	0	0	0.01	8	0	24	8	101.85%
Herring gull	0	0	0.01	8	0	24	8	99.32%
Lesser black-backed gull	0	0	0.01	17	0	48	16	95.67%
Great skua	0	0	0.01	16	0	40	11	68.21%
Guillemot	3.63	3.12	4.21	14450	12408	16748	1111	7.69%
Razorbill	1.04	0.83	1.22	4130	3317	4871	403	9.75%
Puffin	0.79	0.52	1.11	3130	2061	4415	629	20.08%
Fulmar	0.05	0.03	0.07	183	103	264	42	22.92%
Manx shearwater	0.01	0	0.02	22	0	71	22	99.63%
Gannet	2.3	2.02	2.58	9160	8029	10264	595	6.49%

Table 18: Apportioned density and population estimates of species in the Offshore Ornithology Study Area during Survey 6 on 15 September 2019

Category	Density Estimate (birds/km ²)	Lower 95% CI (birds/km ²)	Upper 95% CI (birds/km ²)	Population Estimate (number)	Lower 95% CI (number)	Upper 95% CI (number)	SD	CV
Species								
Pink-footed goose	0.03	0	0.13	139	0	530	148	106.57%

Category	Density Estimate (birds/km ²)	Lower 95% CI (birds/km ²)	Upper 95% CI (birds/km ²)	Population Estimate (number)	Lower 95% CI (number)	Upper 95% CI (number)	SD	CV
Species								
Golden plover	0.09	0.02	0.19	369	87	762	173	46.92%
Kittiwake	1.6	1.2	2.03	6368	4775	8070	884	13.88%
Little gull	0	0	0	1	0	1	1	72.36%
Great black-backed gull	0	0	0.01	8	0	24	8	105.09%
Herring gull	0	0	0.01	8	0	28	9	105.49%
Lesser black-backed gull	0.01	0	0.02	25	0	61	17	68.37%
Great skua	0	0	0.01	16	0	40	12	69.91%
Guillemot	4.54	3.97	5.14	18071	15797	20458	1159	6.41%
Razorbill	1.27	1.06	1.49	5032	4223	5943	432	8.57%
Puffin	1.31	0.9	1.75	5218	3587	6948	842	16.13%
Fulmar	0.05	0.03	0.07	209	130	296	44	20.66%
Manx shearwater	0.01	0	0.03	37	0	101	26	70.09%
Gannet	2.3	2.03	2.59	9159	8082	10299	565	6.17%

Table 19: Unapportioned density and population estimates of species groups in the Offshore Ornithology Study Area during Survey 7 on 17 October 2019

Category	Density Estimate (birds/km ²)	Lower 95% CI (birds/km ²)	Upper 95% CI (birds/km ²)	Population Estimate (number)	Lower 95% CI (number)	Upper 95% CI (number)	SD	CV
Broad category								
All birds	10.71	5.89	17.82	42583	23444	70860	12151	28.53%
Species								
Duck species	0.01	0	0.02	24	0	63	18	74.20%
Small gull species	1.35	0.68	2.45	5382	2701	9733	1871	34.77%
Gull species	0.02	0	0.03	66	15	133	31	45.97%
Skua species excluding great	0	0	0.01	16	0	40	11	71.16%
Large auk	7.13	3.52	12.41	28344	14012	49374	8845	31.20%
Small auk	0.09	0.04	0.15	364	157	617	118	32.28%
Auk species	0.68	0.5	0.9	2715	1971	3592	422	15.54%
Auk / small gull	0.04	0.02	0.06	152	74	242	44	28.69%
Auk / shearwater species	0.01	0	0.02	31	0	95	29	94.31%
Diver species	0	0	0.01	8	0	24	8	94.52%
Fulmar / gull species	0.02	0.01	0.03	70	31	106	20	27.66%
Gannet species	1.32	0.83	1.97	5259	3283	7833	1224	23.26%

Category	Density Estimate (birds/km ²)	Lower 95% CI (birds/km ²)	Upper 95% CI (birds/km ²)	Population Estimate (number)	Lower 95% CI (number)	Upper 95% CI (number)	SD	CV
Broad category								
Passerine species	0.08	0	0.24	305	0	968	270	88.42%
Small bird species	0.02	0	0.05	69	0	196	59	85.86%

Table 20: Unapportioned density and population estimates of species in the Offshore Ornithology Study Area during Survey 7 on 17 October 2019

Category	Density Estimate (birds/km ²)	Lower 95% CI (birds/km ²)	Upper 95% CI (birds/km ²)	Population Estimate (number)	Lower 95% CI (number)	Upper 95% CI (number)	SD	CV
Species								
Teal	0	0	0.01	15	0	49	15	99.83%
Goosander	0	0	0.01	8	0	26	8	105.24%
Kittiwake	1.34	0.7	2.58	5341	2799	10258	1925	36.04%
Common gull	0.03	0.01	0.06	125	41	251	55	44.06%
Herring gull	0	0	0.01	8	0	23	7	92.96%
Arctic skua	0	0	0.01	16	0	41	11	65.91%
Little auk	0.01	0	0.01	23	0	58	16	70.47%
Guillemot	4.33	2.24	7.33	17217	8920	29136	5134	29.82%
Razorbill	2.17	0.93	3.52	8622	3716	14016	2828	32.80%
Puffin	0.19	0.11	0.28	738	456	1101	167	22.54%
Red-throated diver	0	0	0.01	8	0	25	8	96.78%
Fulmar	0.01	0	0.02	53	20	87	18	32.72%
Gannet	1.33	0.85	2.02	5291	3379	8015	1224	23.13%
Redwing	0.06	0	0.21	247	0	853	268	108.53%

Table 21: Apportioned density and population estimates of species in the Offshore Ornithology Study Area during Survey 7 on 17 October 2019

Category	Density Estimate (birds/km ²)	Lower 95% CI (birds/km ²)	Upper 95% CI (birds/km ²)	Population Estimate (number)	Lower 95% CI (number)	Upper 95% CI (number)	SD	CV
Species								
Teal	0	0	0.01	17	0	56	17	100.69%
Goosander	0	0	0.01	8	0	25	8	98.42%
Kittiwake	1.34	0.7	2.34	5325	2792	9326	1806	33.91%
Black-headed gull	0	0	0	1	0	1	1	51.02%
Common gull	0.03	0.01	0.07	123	31	266	58	46.92%
Herring gull	0	0	0.01	7	0	23	7	98.26%
Arctic skua	0	0	0.01	16	0	37	10	65.08%
Little auk	0.01	0	0.02	41	17	75	16	37.48%
Guillemot	4.86	2.49	8.25	19314	9889	32829	6081	31.48%
Razorbill	2.75	1.2	4.56	10947	4768	18144	3571	32.62%

Category	Density Estimate (birds/km ²)	Lower 95% CI (birds/km ²)	Upper 95% CI (birds/km ²)	Population Estimate (number)	Lower 95% CI (number)	Upper 95% CI (number)	SD	CV
Species								
Puffin	0.35	0.24	0.5	1375	970	1973	260	18.89%
Red-throated diver	0	0	0.01	8	0	25	8	98.22%
Fulmar	0.02	0.01	0.03	67	30	105	20	29.80%
Gannet	1.33	0.85	2.04	5275	3392	8119	1275	24.16%
Redwing	0.08	0	0.22	326	7	878	259	79.47%

Table 22: Unapportioned density and population estimates of species groups in the Offshore Ornithology Study Area during Survey 8 on 19 November 2019

Category	Density Estimate (birds/km ²)	Lower 95% CI (birds/km ²)	Upper 95% CI (birds/km ²)	Population Estimate (number)	Lower 95% CI (number)	Upper 95% CI (number)	SD	CV
Broad category								
All birds	3.6	2.19	5.33	14311	8729	21203	3332	23.28%
Species								
Small gull species	0.56	0.29	0.88	2210	1171	3507	627	28.37%
Black-backed gull species	0.02	0	0.06	95	8	225	58	61.43%
Large gull species	0.4	0.09	0.86	1610	340	3429	791	49.10%
Gull species	0.09	0.04	0.17	363	145	662	137	37.71%
Large auk	1.89	1.1	2.72	7525	4370	10836	1715	22.79%
Small auk	0.01	0	0.02	41	8	82	20	49.40%
Auk species	0.17	0.09	0.27	674	354	1087	184	27.24%
Auk / small gull	0.02	0.01	0.04	85	33	147	29	34.30%
Auk / shearwater species	0	0	0.01	8	0	24	8	99.34%
Diver species	0	0	0.01	8	0	25	8	95.40%
Fulmar / gull species	0.15	0.1	0.2	593	417	784	96	16.06%
Gannet species	0.26	0.13	0.41	1039	520	1650	295	28.34%

Table 23: Unapportioned density and population estimates of species in the Offshore Ornithology Study Area during Survey 8 on 19 November 2019

Category	Density Estimate (birds/km ²)	Lower 95% CI (birds/km ²)	Upper 95% CI (birds/km ²)	Population Estimate (number)	Lower 95% CI (number)	Upper 95% CI (number)	SD	CV
Species								
Kittiwake	0.44	0.25	0.71	1759	981	2819	490	27.82%
Little gull	0	0	0.01	16	0	45	15	93.92%
Common gull	0.09	0.03	0.16	373	137	631	124	33.19%
Great black-backed gull	0.06	0.02	0.12	252	78	460	102	40.47%
Herring gull	0.36	0.05	0.76	1443	205	3039	726	50.32%
Little auk	0.02	0	0.04	66	8	147	37	55.76%
Guillemot	1.39	0.95	2.03	5534	3797	8079	1071	19.34%
Razorbill	0.32	0.07	0.67	1289	263	2652	629	48.76%
Puffin	0.02	0	0.03	70	16	137	32	45.49%
Red-throated diver	0	0	0.01	8	0	25	8	96.38%
Fulmar	0.13	0.09	0.18	528	367	706	92	17.30%
Gannet	0.26	0.13	0.41	1030	507	1650	297	28.84%

Table 24: Apportioned density and population estimates of species in the Offshore Ornithology Study Area during Survey 8 on 19 November 2019

Category	Density Estimate (birds/km ²)	Lower 95% CI (birds/km ²)	Upper 95% CI (birds/km ²)	Population Estimate (number)	Lower 95% CI (number)	Upper 95% CI (number)	SD	CV
Species								
Kittiwake	0.48	0.26	0.79	1903	1031	3128	558	29.31%
Black-headed gull	0	0	0	1	0	1	1	54.38%
Little gull	0	0	0.01	17	1	52	15	88.51%
Common gull	0.13	0.05	0.22	507	204	881	169	33.23%
Great black-backed gull	0.07	0.02	0.12	264	87	487	106	39.95%
Herring gull	0.42	0.09	0.87	1685	350	3464	840	49.85%
Lesser black-backed gull	0	0	0	1	0	1	1	52.79%
Little auk	0.03	0.01	0.05	109	42	204	44	40.64%
Guillemot	1.64	1.1	2.3	6511	4385	9131	1201	18.45%
Razorbill	0.39	0.11	0.75	1543	446	2996	653	42.29%
Puffin	0.05	0.02	0.08	190	98	306	53	27.48%
Red-throated diver	0	0	0.01	8	0	25	8	98.22%
Fulmar	0.15	0.11	0.2	605	420	809	102	16.83%
Gannet	0.26	0.14	0.41	1043	550	1614	276	26.43%

Table 25: Unapportioned density and population estimates of species groups in the Offshore Ornithology Study Area during Survey 9 on 07 December 2019

Category	Density Estimate (birds/km ²)	Lower 95% CI (birds/km ²)	Upper 95% CI (birds/km ²)	Population Estimate (number)	Lower 95% CI (number)	Upper 95% CI (number)	SD	CV
Broad category								
All birds	4.64	2.77	7.02	18449	11003	27937	4246	23.01%
Species								
Small gull species	0.6	0.3	1.05	2397	1186	4190	740	30.85%
Black-backed gull species	0.01	0	0.02	38	0	96	25	64.99%
Large gull species	0.18	0.02	0.43	706	74	1711	450	63.66%
Gull species	0.03	0.01	0.08	131	21	329	85	64.87%
Large auk	3.4	1.97	5.13	13543	7835	20387	3249	23.98%
Small auk	0	0	0.01	8	0	24	8	106.15%
Auk species	0.23	0.14	0.33	919	565	1312	198	21.46%
Auk / small gull	0.02	0.01	0.04	76	23	146	34	43.86%
Large auk / diver species	0	0	0.01	9	0	30	8	96.92%
Fulmar / gull species	0.14	0.1	0.19	558	385	738	95	16.97%
Gannet species	0.03	0	0.07	102	7	291	78	76.47%
Small bird species	0	0	0.01	8	0	23	7	94.41%

Table 26: Unapportioned density and population estimates of species groups in the Offshore Ornithology Study Area during Survey 9 on 07 December 2019

Category	Density Estimate (birds/km ²)	Lower 95% CI (birds/km ²)	Upper 95% CI (birds/km ²)	Population Estimate (number)	Lower 95% CI (number)	Upper 95% CI (number)	SD	CV
Species								
Kittiwake	0.52	0.26	0.86	2080	1025	3428	649	31.18%
Common gull	0.07	0.02	0.14	291	74	577	135	46.17%
Great black-backed gull	0.02	0	0.03	63	15	123	31	48.43%
Herring gull	0.16	0.01	0.41	643	46	1628	453	70.43%
Little auk	0	0	0.01	15	0	38	11	70.17%
Guillemot	2.58	1.52	3.97	10264	6065	15770	2524	24.59%
Razorbill	0.56	0.29	0.88	2242	1154	3512	636	28.36%
Fulmar	0.13	0.09	0.17	507	358	682	86	16.80%
Gannet	0.03	0	0.08	105	8	306	80	76.43%

Table 27: Apportioned density and population estimates of species in the Offshore Ornithology Study Area during Survey 9 on 07 December 2019

Category	Density Estimate (birds/km ²)	Lower 95% CI (birds/km ²)	Upper 95% CI (birds/km ²)	Population Estimate (number)	Lower 95% CI (number)	Upper 95% CI (number)	SD	CV
Species								
Kittiwake	0.54	0.26	0.91	2140	1025	3621	705	32.95%
Black-headed gull	0	0	0	6	0	15	5	72.75%
Common gull	0.08	0.02	0.16	299	97	624	136	45.21%
Great black-backed gull	0.02	0	0.03	62	9	133	31	50.18%
Herring gull	0.16	0.01	0.42	645	52	1672	460	71.26%
Little auk	0.02	0.01	0.03	78	41	120	22	27.43%
Guillemot	2.79	1.57	4.17	11090	6263	16580	2534	22.85%
Razorbill	0.78	0.43	1.18	3098	1720	4688	777	25.08%
Fulmar	0.14	0.1	0.19	557	396	738	91	16.32%
Gannet	0.03	0	0.07	102	8	275	77	75.96%

Table 28: Unapportioned density and population estimates of species groups in the Offshore Ornithology Study Area during Survey 10 on 05 February 2020

Category	Density Estimate (birds/km ²)	Lower 95% CI (birds/km ²)	Upper 95% CI (birds/km ²)	Population Estimate (number)	Lower 95% CI (number)	Upper 95% CI (number)	SD	CV
Broad category								
All birds	13.52	10.16	17.17	53763	40395	68297	7061	13.13%
Species								
Duck species	0	0	0.01	8	0	26	8	98.48%
Small gull species	2.1	1.42	2.82	8335	5661	11231	1438	17.25%
Large gull species	0.01	0	0.02	41	8	82	20	47.96%
Gull species	0.02	0	0.05	93	8	206	52	56.21%
Large auk	10.4	7.72	13.45	41359	30713	53498	5912	14.29%
Small auk	0.04	0.01	0.08	155	25	322	82	52.33%
Auk species	0.77	0.52	1.03	3051	2057	4105	520	17.03%
Auk / small gull	0.02	0.01	0.04	93	37	163	33	35.59%
Large auk / diver species	0	0	0.01	9	0	25	8	95.32%
Diver species	0	0	0.01	17	0	42	11	64.34%
Fulmar / gull species	0.14	0.1	0.18	545	389	718	87	15.92%
Gannet species	0.01	0	0.02	33	8	71	17	50.81%
Small bird species	0.01	0.01	0.03	59	23	109	24	39.62%

Table 29: Unapportioned density and population estimates of species in the Offshore Ornithology Study Area during Survey 10 on 05 February 2020

Category	Density Estimate (birds/km ²)	Lower 95% CI (birds/km ²)	Upper 95% CI (birds/km ²)	Population Estimate (number)	Lower 95% CI (number)	Upper 95% CI (number)	SD	CV
Species								
Common scoter	0	0	0.01	9	0	27	9	94.56%
Kittiwake	2.09	1.34	2.92	8322	5336	11612	1541	18.52%
Little gull	0	0	0.01	17	0	48	15	87.76%
Common gull	0.01	0	0.02	51	16	94	22	42.97%
Herring gull	0.01	0	0.02	41	8	85	21	49.95%
Little auk	0.03	0.01	0.06	135	59	231	43	31.81%
Guillemot	8.6	6.6	10.79	34194	26257	42930	4554	13.32%
Razorbill	0.95	0.64	1.29	3784	2564	5144	684	18.07%
Puffin	0.01	0	0.03	58	16	105	25	43.10%
Fulmar	0.12	0.09	0.16	494	344	634	75	15.15%
Gannet	0.01	0	0.02	35	8	72	18	50.23%

Table 30: Apportioned density and population estimates of species in the Offshore Ornithology Study Area during Survey 10 on 05 February 2020

Category	Density Estimate (birds/km ²)	Lower 95% CI (birds/km ²)	Upper 95% CI (birds/km ²)	Population Estimate (number)	Lower 95% CI (number)	Upper 95% CI (number)	SD	CV
Species								
Common scoter	0	0	0.01	9	0	28	9	98.41%
Kittiwake	2.08	1.39	2.95	8270	5538	11718	1540	18.62%
Little gull	0	0	0.01	18	1	48	15	85.30%
Common gull	0.01	0	0.02	49	11	96	22	43.57%
Herring gull	0.02	0	0.04	63	13	145	35	55.28%
Little auk	0.08	0.05	0.13	322	180	508	84	26.05%
Guillemot	9.74	7.27	12.61	38754	28927	50159	5460	14.09%
Razorbill	1.36	0.95	1.82	5402	3770	7225	917	16.97%
Puffin	0.04	0.02	0.06	161	88	257	44	27.07%
Fulmar	0.14	0.1	0.18	539	392	703	83	15.41%
Gannet	0.01	0	0.02	34	0	72	18	52.70%

Table 31: Unapportioned density and population estimates of species groups in the Offshore Ornithology Study Area during Survey 11 on 19 February 2020

Category	Density Estimate (birds/km ²)	Lower 95% CI (birds/km ²)	Upper 95% CI (birds/km ²)	Population Estimate (number)	Lower 95% CI (number)	Upper 95% CI (number)	SD	CV
Broad category								
All birds	7.83	6.65	9.24	31145	26456	36762	2749	8.82%
Species								
Small gull species	1.34	1.01	1.76	5327	4000	7014	805	15.11%
Large gull species	0.01	0	0.02	41	8	72	16	39.66%
Gull species	0.01	0	0.01	24	0	55	14	56.09%
Large auk	5.97	4.81	7.3	23762	19129	29027	2572	10.82%
Small auk	0.02	0.01	0.05	95	32	182	39	40.06%
Auk species	0.3	0.23	0.37	1189	932	1464	136	11.41%
Auk / small gull	0.16	0.09	0.27	649	341	1086	200	30.78%
Large auk / diver species	0.01	0	0.01	24	0	55	14	55.07%
Diver species	0	0	0.01	8	0	24	8	100.88%
Fulmar / gull species	0.05	0.03	0.08	202	120	303	47	22.93%
Gannet species	0	0	0.01	17	0	40	12	68.85%
Small bird species	0.01	0	0.01	24	0	48	13	54.94%

Table 32: Unapportioned density and population estimates of species in the Offshore Ornithology Study Area during Survey 11 on 19 February 2020

Category	Density Estimate (birds/km ²)	Lower 95% CI (birds/km ²)	Upper 95% CI (birds/km ²)	Population Estimate (number)	Lower 95% CI (number)	Upper 95% CI (number)	SD	CV
Species								
Kittiwake	1.31	0.97	1.77	5227	3860	7048	837	16.01%
Little gull	0.01	0	0.02	26	0	67	18	67.37%
Common gull	0.03	0.01	0.05	118	55	206	39	32.91%
Great black-backed gull	0	0	0.01	17	0	40	11	68.32%
Herring gull	0.01	0	0.01	25	0	55	14	56.76%
Little auk	0.03	0.01	0.05	113	32	210	45	39.74%
Guillemot	4.86	3.91	5.94	19321	15562	23622	2087	10.80%
Razorbill	0.58	0.42	0.75	2308	1672	2991	337	14.58%
Puffin	0.04	0.02	0.06	168	95	255	41	24.01%
Red-throated diver	0	0	0.01	8	0	24	8	95.37%
Fulmar	0.04	0.02	0.06	167	91	247	41	24.57%

Category	Density Estimate (birds/km ²)	Lower 95% CI (birds/km ²)	Upper 95% CI (birds/km ²)	Population Estimate (number)	Lower 95% CI (number)	Upper 95% CI (number)	SD	CV
Species								
Gannet	0	0	0.01	17	0	40	11	61.96%

Table 33: Apportioned density and population estimates of species in the Offshore Ornithology Study Area during Survey 11 on 19 February 2020

Category	Density Estimate (birds/km ²)	Lower 95% CI (birds/km ²)	Upper 95% CI (birds/km ²)	Population Estimate (number)	Lower 95% CI (number)	Upper 95% CI (number)	SD	CV
Species								
Kittiwake	1.46	1.1	1.92	5807	4356	7627	849	14.62%
Little gull	0.01	0	0.02	25	0	64	18	69.56%
Common gull	0.03	0.01	0.05	125	55	216	41	32.25%
Great black-backed gull	0	0	0.01	17	0	40	11	67.15%
Herring gull	0.01	0	0.02	35	10	71	15	42.77%
Little auk	0.08	0.06	0.11	331	235	442	56	16.71%
Guillemot	5.38	4.36	6.46	21387	17356	25679	2197	10.27%
Razorbill	0.65	0.49	0.83	2592	1957	3309	339	13.08%
Puffin	0.17	0.13	0.22	688	521	874	88	12.74%
Red-throated diver	0	0	0.01	8	0	24	8	97.82%
Fulmar	0.05	0.03	0.07	201	104	293	47	23.25%
Gannet	0	0	0.01	18	0	40	12	67.32%

Table 34: Unapportioned density and population estimates of species groups in the Offshore Ornithology Study Area during Survey 12 on 21 March 2020

Category	Density Estimate (birds/km ²)	Lower 95% CI (birds/km ²)	Upper 95% CI (birds/km ²)	Population Estimate (number)	Lower 95% CI (number)	Upper 95% CI (number)	SD	CV
Broad category								
All birds	27.41	21.55	32.78	109007	85723	130383	11446	10.50%
Species								
Small gull species	5.32	3.6	7.16	21154	14317	28489	3832	18.11%
Large gull species	0	0	0.01	17	0	41	11	64.04%
Gull species	0.01	0	0.03	50	0	111	30	60.04%
Skua species	0	0	0.01	9	0	25	9	94.60%
Large auk	20.87	16.26	25.65	82990	64662	102024	10007	12.06%
Small auk	0.19	0.11	0.29	774	418	1163	196	25.23%
Auk species	0.61	0.46	0.8	2421	1821	3167	338	13.95%
Auk / small gull	0.02	0.01	0.04	83	25	164	37	44%

Category	Density Estimate (birds/km ²)	Lower 95% CI (birds/km ²)	Upper 95% CI (birds/km ²)	Population Estimate (number)	Lower 95% CI (number)	Upper 95% CI (number)	SD	CV
Broad category								
Large auk / diver species	0	0	0.01	10	0	25	9	92.81%
Fulmar / gull species	0.1	0.06	0.14	383	237	540	83	21.63%
Gannet species	0.2	0.14	0.27	788	565	1060	129	16.36%

Table 35: Unapportioned density and population estimates of species in the Offshore Ornithology Study Area during Survey 12 on 21 March 2020

Category	Density Estimate (birds/km ²)	Lower 95% CI (birds/km ²)	Upper 95% CI (birds/km ²)	Population Estimate (number)	Lower 95% CI (number)	Upper 95% CI (number)	SD	CV
Species								
Kittiwake	5.35	3.72	7.43	21272	14776	29570	3823	17.97%
Common gull	0	0	0.01	9	0	25	9	98.17%
Great black-backed gull	0	0	0.01	9	0	25	9	99.97%
Herring gull	0	0	0.01	9	0	25	9	97.10%
Great skua	0	0	0.01	8	0	25	8	99.28%
Guillemot	16.22	12.53	20	64525	49827	79544	7555	11.71%
Razorbill	3.11	2.23	3.98	12386	8854	15844	1741	14.05%
Puffin	0.39	0.24	0.55	1562	960	2199	318	20.33%
Fulmar	0.08	0.05	0.12	321	199	462	71	21.96%
Gannet	0.2	0.13	0.27	788	535	1067	131	16.53%

Table 36: Apportioned density and population estimates of species in the Offshore Ornithology Study Area during Survey 12 on 21 March 2020

Category	Density Estimate (birds/km ²)	Lower 95% CI (birds/km ²)	Upper 95% CI (birds/km ²)	Population Estimate (number)	Lower 95% CI (number)	Upper 95% CI (number)	SD	CV
Species								
Kittiwake	5.36	3.58	7.5	21334	14228	29836	4021	18.85%
Common gull	0	0	0.01	9	1	26	9	104.14%
Great black-backed gull	0	0	0.01	9	0	25	8	94.51%
Herring gull	0	0	0.01	9	0	25	9	95.52%
Great skua	0	0	0.01	8	0	25	8	100.34%
Guillemot	17.56	13.9	21.42	69853	55296	85203	7936	11.36%
Razorbill	3.4	2.55	4.33	13532	10151	17230	1878	13.88%
Puffin	0.63	0.47	0.85	2516	1853	3375	402	15.94%
Fulmar	0.1	0.06	0.14	379	243	540	81	21.29%
Gannet	0.2	0.14	0.26	781	554	1024	123	15.66%

Table 37: Unapportioned density and population estimates of species groups in the Offshore Ornithology Study Area during Survey 13 on 05 May 2020

Category	Density Estimate (birds/km ²)	Lower 95% CI (birds/km ²)	Upper 95% CI (birds/km ²)	Population Estimate (number)	Lower 95% CI (number)	Upper 95% CI (number)	SD	CV
Broad category								
All birds	29.28	24.16	33.63	116440	96082	133749	9464	8.13%
Species								
Small gull species	2.59	1.65	3.66	10287	6560	14567	2055	19.98%
Large gull species	0.01	0	0.02	30	0	68	18	58.24%
Gull species	0.08	0.01	0.19	305	23	762	222	72.71%
Arctic / common tern	0.01	0.01	0.02	57	21	100	22	37.80%
Large auk	24.23	19.92	28.42	96388	79222	113038	8608	8.93%
Small auk	0.06	0.03	0.1	252	127	389	68	26.81%
Auk species	1.41	1.02	1.81	5589	4045	7180	775	13.86%
Auk / small gull	0.15	0.05	0.25	581	190	998	215	36.96%
Fulmar / gull species	0.09	0.05	0.15	365	196	590	101	27.71%
Gannet species	0.59	0.46	0.74	2362	1846	2933	287	12.12%
Passerine species	0	0	0.01	8	0	23	7	95.21%

Table 38: Unapportioned density and population estimates of species in the Offshore Ornithology Study Area during Survey 13 on 05 May 2020

Category	Density Estimate (birds/km ²)	Lower 95% CI (birds/km ²)	Upper 95% CI (birds/km ²)	Population Estimate (number)	Lower 95% CI (number)	Upper 95% CI (number)	SD	CV
Species								
Kittiwake	2.67	1.71	3.78	10623	6807	15045	2137	20.11%
Herring gull	0	0	0.01	8	0	23	8	101.56%
Lesser black-backed gull	0.01	0	0.02	22	0	76	22	99.61%
Common tern	0	0	0.01	8	0	22	7	98.49%
Arctic tern	0	0	0.01	8	0	22	7	90.98%
Guillemot	22.48	18.36	26.41	89407	73006	105044	8233	9.21%
Razorbill	0.92	0.69	1.18	3673	2732	4696	521	14.18%
Puffin	0.76	0.52	1.05	3026	2071	4180	533	17.61%
Fulmar	0.05	0.02	0.07	180	93	290	50	27.41%
Gannet	0.6	0.46	0.75	2380	1849	2991	291	12.20%
Redstart	0	0	0.01	8	0	27	8	99.26%

Table 39: Apportioned density and population estimates of species in the Offshore Ornithology Study Area during Survey 13 on 05 May 2020

Category	Density Estimate (birds/km ²)	Lower 95% CI (birds/km ²)	Upper 95% CI (birds/km ²)	Population Estimate (number)	Lower 95% CI (number)	Upper 95% CI (number)	SD	CV
Species								
Kittiwake	2.87	1.57	4.27	11416	6259	16984	2657	23.27%
Herring gull	0	0	0.01	14	0	36	10	70.53%
Lesser black-backed gull	0.01	0	0.02	23	0	67	21	94.37%
Common tern	0	0	0.01	19	5	36	9	43.18%
Arctic tern	0.01	0	0.02	31	5	60	16	49.16%
Guillemot	23.14	19.02	26.98	92053	75632	107304	8578	9.32%
Razorbill	0.98	0.71	1.24	3896	2812	4920	551	14.14%
Puffin	1.42	1.02	1.81	5646	4048	7183	796	14.09%
Fulmar	0.06	0.03	0.09	243	139	361	57	23.50%
Gannet	0.6	0.48	0.76	2387	1928	3042	282	11.80%
Redstart	0	0	0.01	8	0	22	7	91.29%

Table 40: Unapportioned density and population estimates of species groups in the Offshore Ornithology Study Area during Survey 14 on 16 May 2020

Category	Density Estimate (birds/km ²)	Lower 95% CI (birds/km ²)	Upper 95% CI (birds/km ²)	Population Estimate (number)	Lower 95% CI (number)	Upper 95% CI (number)	SD	CV
Broad category								
All birds	26.85	22.2	31.59	106790	88292	125639	8914	8.35%
Species group								
Wader species	0.03	0	0.08	112	0	334	110	97.71%
Small gull species	5.72	4.63	6.79	22736	18409	26998	2080	9.15%
Large gull species	0	0	0.01	8	0	24	8	100.77%
Gull species	0.01	0	0.02	34	0	87	25	72.32%
Arctic / common tern	0.17	0.07	0.31	662	287	1237	262	39.61%
Tern species	0	0	0.01	9	0	28	9	99.58%
Tern / small gull species	0	0	0.01	16	0	40	11	66.70%
Large auk	18.94	15.35	22.68	75337	61044	90185	7353	9.76%
Small auk	0.08	0.05	0.11	299	188	440	69	23.01%
Auk species	0.59	0.46	0.73	2354	1834	2900	283	12.01%
Auk / small gull	0.08	0.05	0.11	318	210	432	58	18.07%
Diver species	0.01	0	0.02	31	0	79	20	63.25%
Fulmar / gull species	0.03	0.02	0.06	137	71	228	41	29.44%

Category	Density Estimate (birds/km ²)	Lower 95% CI (birds/km ²)	Upper 95% CI (birds/km ²)	Population Estimate (number)	Lower 95% CI (number)	Upper 95% CI (number)	SD	CV
Broad category								
Gannet species	1.11	0.88	1.34	4417	3481	5336	466	10.54%

Table 41: Unapportioned density and population estimates of species in the Offshore Ornithology Study Area during Survey 14 on 16 May 2020

Category	Density Estimate (birds/km ²)	Lower 95% CI (birds/km ²)	Upper 95% CI (birds/km ²)	Population Estimate (number)	Lower 95% CI (number)	Upper 95% CI (number)	SD	CV
Species								
Kittiwake	5.75	4.74	6.77	22876	18853	26924	2102	9.19%
Common gull	0	0	0.01	9	0	24	9	100.33%
Herring gull	0	0	0.01	8	0	24	8	96.19%
Common tern	0	0	0.01	9	0	24	8	90.67%
Arctic tern	0.02	0	0.04	64	8	145	36	55.44%
Guillemot	17.75	14.53	21.28	70583	57777	84638	7364	10.43%
Razorbill	0.66	0.43	0.9	2613	1728	3590	488	18.66%
Puffin	0.27	0.21	0.33	1076	839	1324	129	11.91%
Red-throated diver	0.01	0	0.02	33	0	79	20	60.90%
Fulmar	0.03	0.02	0.05	131	63	210	38	28.42%
Gannet	1.1	0.89	1.31	4380	3552	5218	427	9.74%

Table 42: Apportioned density and population estimates of species in the Offshore Ornithology Study Area during Survey 14 on 16 May 2020

Category	Density Estimate (birds/km ²)	Lower 95% CI (birds/km ²)	Upper 95% CI (birds/km ²)	Population Estimate (number)	Lower 95% CI (number)	Upper 95% CI (number)	SD	CV
Species								
Kittiwake	5.76	4.81	6.83	22928	19141	27153	2066	9.01%
Common gull	0	0	0.01	8	0	24	8	100.92%
Herring gull	0	0	0.01	8	0	24	8	101.09%
Common tern	0.01	0	0.01	31	17	53	10	31.88%
Arctic tern	0.08	0.05	0.12	320	194	466	71	22.18%
Guillemot	18.33	14.82	21.68	72896	58936	86211	7281	9.99%
Razorbill	0.74	0.51	0.96	2929	2041	3810	475	16.21%
Puffin	0.55	0.45	0.66	2179	1788	2638	230	10.54%
Red-throated diver	0.01	0	0.02	34	0	80	20	59.03%
Fulmar	0.03	0.02	0.06	138	64	225	40	28.80%
Gannet	1.1	0.89	1.34	4382	3530	5317	465	10.60%

Table 43: Unapportioned density and population estimates of species groups in the Offshore Ornithology Study Area during Survey 15 on 09 June 2020

Category	Density Estimate (birds/km ²)	Lower 95% CI (birds/km ²)	Upper 95% CI (birds/km ²)	Population Estimate (number)	Lower 95% CI (number)	Upper 95% CI (number)	SD	CV
Broad category								
All birds	29.5	25.71	33.38	117346	102240	132775	7546	6.43%
Small gull species	5.03	4.26	5.8	20000	16933	23080	1566	7.83%
Black-backed gull species	0.01	0	0.02	32	0	73	20	61.66%
Large gull species	0.06	0.01	0.11	226	49	453	109	48.01%
Gull species	0	0	0.01	8	0	25	9	100.56%
Arctic / common tern	0.02	0.01	0.03	66	24	120	28	41.40%
Tern / small gull species	0	0	0.01	9	0	25	8	96.23%
Skua species	0	0	0.01	8	0	25	8	101.57%
Large auk	21.97	18.88	25	87364	75087	99447	6204	7.10%
Small auk	0.02	0.01	0.03	74	24	136	29	39.26%
Auk species	0.89	0.7	1.1	3528	2793	4364	416	11.77%
Auk / small gull	0.04	0.02	0.06	156	75	247	45	28.74%
Large auk / diver species	0	0	0.01	9	0	25	8	95.64%
Auk / shearwater species	0.03	0.01	0.06	125	47	238	48	38.44%
Fulmar / gull species	0.07	0.05	0.1	291	191	414	57	19.50%
Shearwater species	0.01	0	0.01	25	0	48	13	49.49%
Gannet species	1.33	1.06	1.68	5283	4231	6667	618	11.69%

Table 44: Unapportioned density and population estimates of species in the Offshore Ornithology Study Area during Survey 15 on 09 June 2020

Category	Density Estimate (birds/km ²)	Lower 95% CI (birds/km ²)	Upper 95% CI (birds/km ²)	Population Estimate (number)	Lower 95% CI (number)	Upper 95% CI (number)	SD	CV
Species								
Kittiwake	5.04	4.27	5.8	20047	16989	23051	1575	7.85%
Great black-backed gull	0	0	0.01	9	0	24	8	95.28%
Herring gull	0.05	0.01	0.1	195	47	410	92	47.06%

Category	Density Estimate (birds/km ²)	Lower 95% CI (birds/km ²)	Upper 95% CI (birds/km ²)	Population Estimate (number)	Lower 95% CI (number)	Upper 95% CI (number)	SD	CV
Species								
Lesser black-backed gull	0.01	0	0.03	49	8	104	27	54.19%
Arctic tern	0.01	0	0.02	47	16	91	21	44.20%
Great skua	0	0	0.01	9	0	24	8	94.86%
Guillemot	20.99	17.97	24.07	83464	71485	95746	6132	7.35%
Razorbill	0.58	0.45	0.72	2320	1809	2849	263	11.33%
Puffin	0.45	0.32	0.61	1803	1272	2414	284	15.72%
Fulmar	0.07	0.05	0.09	273	183	364	47	16.94%
Manx shearwater	0.01	0.01	0.02	56	24	95	19	32.33%
Gannet	1.33	1.05	1.69	5272	4174	6708	644	12.22%

Table 45: Apportioned density and population estimates of species in the Offshore Ornithology Study Area during Survey 15 on 09 June 2020

Category	Density Estimate (birds/km ²)	Lower 95% CI (birds/km ²)	Upper 95% CI (birds/km ²)	Population Estimate (number)	Lower 95% CI (number)	Upper 95% CI (number)	SD	CV
Species								
Kittiwake	5.07	4.32	5.74	20178	17191	22825	1485	7.36%
Great black-backed gull	0	0	0.01	9	0	24	8	94.44%
Herring gull	0.05	0.01	0.1	200	56	398	90	44.86%
Lesser black-backed gull	0.01	0	0.03	48	8	110	28	57.33%
Arctic tern	0.02	0	0.03	64	16	124	27	41.83%
Great skua	0	0	0.01	8	0	25	8	102.74%
Guillemot	21.46	18.67	24.63	85344	74257	97974	6355	7.45%
Razorbill	0.63	0.5	0.8	2510	2007	3163	289	11.48%
Puffin	0.75	0.56	0.93	2983	2243	3709	373	12.48%
Fulmar	0.07	0.05	0.1	290	185	415	58	19.81%
Manx shearwater	0.04	0.02	0.07	153	63	268	52	33.88%
Gannet	1.32	1.09	1.64	5266	4326	6508	593	11.25%

Table 46: Unapportioned density and population estimates of species groups in the Offshore Ornithology Study Area during Survey 16 on 12 July 2020

Category	Density Estimate (birds/km ²)	Lower 95% CI (birds/km ²)	Upper 95% CI (birds/km ²)	Population Estimate (number)	Lower 95% CI (number)	Upper 95% CI (number)	SD	CV
Broad category								
All birds	21.79	19.13	25.09	86657	76091	99804	6241	7.20%
Small gull species	6.29	5.04	7.67	25030	20041	30504	2658	10.62%
Black-backed gull species	0.07	0.04	0.09	266	171	357	48	18.05%

Category	Density Estimate (birds/km ²)	Lower 95% CI (birds/km ²)	Upper 95% CI (birds/km ²)	Population Estimate (number)	Lower 95% CI (number)	Upper 95% CI (number)	SD	CV
Broad category								
Large gull species	1.12	0.75	1.55	4471	2977	6177	839	18.76%
Gull species	0.19	0.09	0.32	769	377	1270	234	30.32%
Arctic / common tern	0.08	0.04	0.13	336	178	523	90	26.60%
Large auk	9.05	7.41	10.74	35988	29490	42710	3472	9.65%
Small auk	0.52	0.27	0.88	2056	1071	3497	618	30.04%
Auk species	1.12	0.87	1.41	4471	3460	5597	563	12.58%
Auk / small gull	0.04	0.02	0.06	150	80	224	38	25.31%
Auk / shearwater species	0.03	0	0.08	119	0	304	80	66.95%
Fulmar / gull species	0.08	0.05	0.12	318	201	458	66	20.78%
Shearwater species	0	0	0.01	8	0	24	8	95.87%
Gannet species	3.27	2.86	3.67	13009	11379	14592	852	6.54%
Small bird species	0	0	0.01	8	0	24	8	98.39%

Table 47: Unapportioned density and population estimates of species in the Offshore Ornithology Study Area during Survey 16 on 12 July 2020

Category	Density Estimate (birds/km ²)	Lower 95% CI (birds/km ²)	Upper 95% CI (birds/km ²)	Population Estimate (number)	Lower 95% CI (number)	Upper 95% CI (number)	SD	CV
Species								
Kittiwake	6.31	5.01	7.6	25101	19924	30245	2636	10.50%
Little gull	0.01	0	0.02	31	0	91	26	81.05%
Common gull	0.01	0	0.01	24	0	48	13	54.36%
Great black-backed gull	0.02	0.01	0.04	75	24	143	31	40.46%
Herring gull	1.1	0.69	1.5	4364	2763	5984	840	19.25%
Lesser black-backed gull	0.22	0.16	0.28	875	638	1111	120	13.64%
Common tern	0.01	0	0.04	55	0	157	47	86.61%
Arctic tern	0.02	0.01	0.04	90	24	167	40	44.51%
Guillemot	7.26	5.92	8.71	28862	23543	34652	2866	9.93%
Razorbill	1.41	0.97	1.86	5621	3840	7385	898	15.96%
Puffin	1.04	0.71	1.46	4138	2836	5825	792	19.13%
Fulmar	0.05	0.03	0.07	185	112	265	41	21.87%
Manx shearwater	0.01	0	0.03	40	0	110	32	80.93%
Gannet	3.24	2.85	3.68	12901	11318	14644	843	6.53%

Table 48: Apportioned density and population estimates of species in the Offshore Ornithology Study Area during Survey 16 on 12 July 2020

Category	Density Estimate (birds/km ²)	Lower 95% CI (birds/km ²)	Upper 95% CI (birds/km ²)	Population Estimate (number)	Lower 95% CI (number)	Upper 95% CI (number)	SD	CV
Species								
Kittiwake	6.3	5.03	7.63	25057	19988	30351	2648	10.57%
Little gull	0.01	0	0.02	33	1	99	27	81.02%
Common gull	0.01	0	0.01	24	1	52	13	53.61%
Great black-backed gull	0.02	0.01	0.03	74	27	129	29	38.75%
Herring gull	1.18	0.79	1.65	4675	3147	6553	862	18.43%
Lesser black-backed gull	0.23	0.17	0.29	901	675	1141	119	13.11%
Common tern	0.03	0.01	0.06	119	42	221	51	42.47%
Arctic tern	0.05	0.03	0.09	216	110	357	64	29.20%
Guillemot	7.87	6.62	9.3	31309	26340	36995	2854	9.12%
Razorbill	1.56	1.11	2.01	6185	4406	8008	933	15.08%
Puffin	1.32	0.93	1.79	5235	3705	7138	883	16.86%
Fulmar	0.05	0.03	0.07	199	123	281	41	20.56%
Manx shearwater	0.01	0	0.03	43	0	117	34	80.07%
Gannet	3.27	2.88	3.68	13018	11455	14647	804	6.17%

Table 49: Unapportioned density and population estimates of species groups in the Offshore Ornithology Study Area during Survey 17 on 09 August 2020

Category	Density Estimate (birds/km ²)	Lower 95% CI (birds/km ²)	Upper 95% CI (birds/km ²)	Population Estimate (number)	Lower 95% CI (number)	Upper 95% CI (number)	SD	CV
Broad category								
All birds	43.24	37.15	49.16	171967	147746	195523	12692	7.38%
Species								
Wader species	0	0	0.01	9	0	24	9	95.14%
Small gull species	9.37	7.54	11.34	37257	29987	45083	3864	10.37%
Black-backed gull species	0.02	0.01	0.04	88	32	159	33	37.36%
Large gull species	0.19	0.1	0.31	765	389	1218	212	27.70%
Gull species	0.05	0.03	0.08	200	106	332	57	28.47%
Arctic / common tern	1.9	1.22	2.68	7567	4843	10673	1488	19.67%
Tern species	0.05	0.02	0.09	185	72	346	68	36.40%
Tern / small gull species	0.07	0.04	0.1	263	140	392	66	24.97%
Skua species	0	0	0.01	17	0	40	11	63.96%
Large auk	26.94	23.06	30.85	107142	91730	122697	8055	7.52%
Small auk	0.39	0.25	0.55	1553	979	2206	332	21.35%
Auk species	2.16	1.71	2.66	8611	6806	10571	1001	11.62%

Category	Density Estimate (birds/km ²)	Lower 95% CI (birds/km ²)	Upper 95% CI (birds/km ²)	Population Estimate (number)	Lower 95% CI (number)	Upper 95% CI (number)	SD	CV
Broad category								
Auk / small gull	0.06	0.03	0.09	225	124	343	55	24.32%
Auk / shearwater species	0.09	0	0.23	360	16	932	256	70.99%
Diver species	0	0	0.01	8	0	24	8	101.21%
Fulmar / gull species	0.11	0.07	0.15	425	264	596	85	19.96%
Gannet species	1.83	1.48	2.19	7270	5878	8707	753	10.35%

Table 50: Unapportioned density and population estimates of species in the Offshore Ornithology Study Area during Survey 17 on 09 August 2020

Category	Density Estimate (birds/km ²)	Lower 95% CI (birds/km ²)	Upper 95% CI (birds/km ²)	Population Estimate (number)	Lower 95% CI (number)	Upper 95% CI (number)	SD	CV
Species								
Oyster-catcher	0	0	0.01	9	0	24	8	94.96%
Kittiwake	9.24	7.41	11.33	36743	29488	45071	4045	11.01%
Little gull	0.06	0.03	0.11	255	112	449	85	33.19%
Common gull	0.04	0.03	0.06	176	104	254	38	21.20%
Great black-backed gull	0	0	0.01	17	0	40	12	68.65%
Herring gull	0.16	0.07	0.26	640	273	1052	203	31.68%
Lesser black-backed gull	0.06	0.03	0.11	246	103	458	91	36.87%
Sandwich tern	0	0	0.01	8	0	24	8	101.28%
Common tern	0.07	0.02	0.13	272	80	529	117	42.93%
Arctic tern	0.05	0.01	0.11	184	40	425	111	60.27%
Great skua	0	0	0.01	17	0	40	11	64.79%
Guillemot	23.79	20.24	27.94	94631	80517	111134	7715	8.15%
Razorbill	2.41	1.79	3.12	9594	7135	12416	1349	14.06%
Puffin	1.26	1	1.52	4996	3997	6029	523	10.47%
Fulmar	0.09	0.06	0.12	354	229	487	64	17.95%
Manx shearwater	0.02	0	0.06	68	0	221	62	90.65%
Gannet	1.83	1.48	2.22	7296	5898	8844	750	10.27%

Table 51: Apportioned density and population estimates of species in the Offshore Ornithology Study Area during Survey 17 on 09 August 2020

Category	Density Estimate (birds/km ²)	Lower 95% CI (birds/km ²)	Upper 95% CI (birds/km ²)	Population Estimate (number)	Lower 95% CI (number)	Upper 95% CI (number)	SD	CV
Species								
Oyster-catcher	0	0	0.01	9	0	24	8	96.08%
Kittiwake	9.34	7.53	11.26	37148	29930	44771	3948	10.63%
Little gull	0.11	0.06	0.16	420	242	629	100	23.72%
Common gull	0.05	0.03	0.07	180	112	261	39	21.32%
Great black-backed gull	0	0	0.01	17	1	40	12	69.49%
Herring gull	0.18	0.09	0.29	733	362	1168	212	28.86%
Lesser black-backed gull	0.07	0.03	0.12	267	116	489	95	35.34%
Sandwich tern	0.01	0	0.03	58	19	112	23	39.13%
Common tern	1.49	1.02	2.02	5930	4038	8039	1108	18.69%
Arctic tern	0.44	0.29	0.63	1733	1137	2507	357	20.55%
Great skua	0	0	0.01	16	0	39	11	63.83%
Guillemot	24.99	20.99	28.88	99393	83472	114869	8333	8.38%
Razorbill	2.58	1.96	3.18	10250	7814	12652	1260	12.29%
Puffin	1.87	1.49	2.28	7441	5914	9077	830	11.15%
Fulmar	0.1	0.07	0.14	395	267	554	73	18.40%
Manx shearwater	0.02	0	0.05	68	0	191	64	94.13%
Gannet	1.82	1.48	2.22	7259	5876	8835	761	10.48%

Table 52: Unapportioned density and population estimates of species groups in the Offshore Ornithology Study Area during Survey 18 on 06 September 2020

Category	Density Estimate (birds/km ²)	Lower 95% CI (birds/km ²)	Upper 95% CI (birds/km ²)	Population Estimate (number)	Lower 95% CI (number)	Upper 95% CI (number)	SD	CV
Broad category								
All birds	71.71	56.2	86.07	285204	223512	342307	30426	10.67%
Wader species								
Wader species	0	0	0.01	9	0	24	9	100.24%
Small gull species								
Small gull species	13.71	10.57	17.5	54526	42034	69619	7393	13.56%
Large gull species								
Large gull species	0.05	0.02	0.08	199	76	332	67	33.41%
Gull species								
Gull species	0.05	0.02	0.09	209	91	343	62	29.73%
Arctic / common tern								
Arctic / common tern	0.32	0.13	0.57	1286	537	2275	432	33.53%
Tern species								
Tern species	0.03	0	0.05	100	20	190	45	44.84%

Category	Density Estimate (birds/km ²)	Lower 95% CI (birds/km ²)	Upper 95% CI (birds/km ²)	Population Estimate (number)	Lower 95% CI (number)	Upper 95% CI (number)	SD	CV
Broad category								
Tern / small gull species	0.02	0	0.05	82	16	180	47	57.62%
Skua species	0.01	0	0.02	32	8	64	15	46.74%
Skua species excluding great	0	0	0.01	9	0	24	8	90.94%
Large auk	45.69	35.11	57.98	181735	139648	230583	23062	12.69%
Small auk	1.29	0.9	1.72	5113	3570	6855	869	16.98%
Auk species	7.8	6.23	9.54	31024	24787	37960	3291	10.61%
Auk / small gull	0.22	0.15	0.29	867	612	1138	133	15.24%
Large auk / diver species	0	0	0.01	8	0	24	8	101.90%
Auk / shearwater species	0.05	0	0.12	198	20	488	119	60.16%
Storm-petrel species	0.01	0	0.02	35	0	96	31	88.58%
Fulmar / gull species	0.77	0.66	0.9	3081	2626	3567	232	7.50%
Shearwater species	0	0	0.01	16	0	40	11	64.43%
Gannet species	1.84	1.53	2.14	7302	6070	8527	616	8.44%
Passerine species	0	0	0.01	17	0	48	16	93.50%
Small bird species	0	0	0.01	9	0	24	8	94.12%

Table 53: Unapportioned density and population estimates of species in the Offshore Ornithology Study Area during Survey 18 on 06 September 2020

Category	Density Estimate (birds/km ²)	Lower 95% CI (birds/km ²)	Upper 95% CI (birds/km ²)	Population Estimate (number)	Lower 95% CI (number)	Upper 95% CI (number)	SD	CV
Species								
Curlew	0	0	0.01	9	0	24	8	91.94%
Kittiwake	13.89	10.39	17.53	55261	41312	69728	7317	13.24%
Black-headed gull	0	0	0.01	9	0	24	8	98.71%
Little gull	0.01	0	0.02	41	0	96	26	62.05%
Common gull	0.01	0	0.01	25	0	55	14	54.91%
Herring gull	0.06	0.03	0.09	220	110	348	64	28.77%
Common tern	0.05	0.01	0.09	180	59	351	75	41.24%
Arctic tern	0.02	0	0.05	96	8	207	51	53.28%
Great skua	0.01	0	0.01	24	0	55	13	54.02%
Arctic skua	0	0	0.01	9	0	32	9	96.80%
Guillemot	34.18	26.37	42.82	135956	104879	170306	16704	12.29%

Category	Density Estimate (birds/km ²)	Lower 95% CI (birds/km ²)	Upper 95% CI (birds/km ²)	Population Estimate (number)	Lower 95% CI (number)	Upper 95% CI (number)	SD	CV
Species								
Razorbill	10.9	7.31	14.57	43364	29069	57936	7292	16.81%
Puffin	6.63	5.51	7.77	26355	21927	30889	2245	8.52%
European Storm-Petrel	0.01	0	0.04	47	0	144	48	102.37%
Fulmar	0.68	0.58	0.79	2720	2289	3161	220	8.09%
Sooty shearwater	0	0	0.01	17	0	40	12	70.95%
Gannet	1.84	1.57	2.11	7301	6228	8391	585	8.01%

Table 54: Apportioned density and population estimates of species in the Offshore Ornithology Study Area during Survey 18 on 06 September 2020

Category	Density Estimate (birds/km ²)	Lower 95% CI (birds/km ²)	Upper 95% CI (birds/km ²)	Population Estimate (number)	Lower 95% CI (number)	Upper 95% CI (number)	SD	CV
Species								
Curlew	0	0	0.01	9	0	24	8	97.63%
Kittiwake	13.86	10.53	18.06	55139	41872	71811	7069	12.82%
Black-headed gull	0	0	0.01	9	0	24	8	95.13%
Little gull	0.01	0	0.03	55	8	118	30	54.18%
Common gull	0.01	0	0.01	26	4	52	14	50.85%
Herring gull	0.06	0.03	0.09	243	127	367	64	26.33%
Lesser black-backed gull	0	0	0	1	0	2	1	95.60%
Sandwich tern	0	0	0	1	0	2	1	63.59%
Little tern	0	0	0	1	0	2	1	66.14%
Common tern	0.22	0.08	0.42	895	327	1663	351	39.23%
Arctic tern	0.07	0.02	0.11	262	89	457	102	38.68%
Great skua	0.01	0	0.02	33	8	63	15	44.12%
Arctic skua	0	0	0.01	8	0	24	8	98.32%
Guillemot	36.04	27.11	45.82	143334	107813	182232	19048	13.29%
Razorbill	11.41	7.77	15.43	45374	30896	61366	7922	17.46%
Puffin	7.56	6.42	8.74	30065	25543	34768	2467	8.20%
European Storm-Petrel	0.01	0	0.04	50	0	167	50	99.33%
Fulmar	0.77	0.65	0.88	3050	2602	3499	232	7.60%
Sooty shearwater	0	0	0.01	17	0	40	12	68.48%
Manx shearwater	0.01	0	0.02	26	2	63	16	61.55%
Gannet	1.83	1.54	2.15	7279	6143	8558	624	8.57%

Table 55: Unapportioned density and population estimates of species groups in the Offshore Ornithology Study Area during Survey 19 on 16 October 2020

Category	Density Estimate (birds/km ²)	Lower 95% CI (birds/km ²)	Upper 95% CI (birds/km ²)	Population Estimate (number)	Lower 95% CI (number)	Upper 95% CI (number)	SD	CV
Broad category								
All birds	12.51	8.51	17.38	49757	33853	69140	9230	18.55%
Species								
Small gull species	1.69	1.06	2.55	6742	4229	10160	1495	22.17%
Large gull species	0	0	0.01	16	0	40	11	68.85%
Gull species	0.01	0	0.03	50	0	131	34	68.50%
Skua species	0.01	0	0.02	40	8	80	20	50.68%
Large auk	8.85	5.31	13.25	35215	21108	52699	8164	23.18%
Small auk	0.01	0	0.03	41	0	104	30	73.87%
Auk species	0.7	0.49	0.94	2774	1963	3758	450	16.20%
Auk / small gull	0.02	0.01	0.04	95	40	167	32	32.94%
Diver species	0	0	0.01	9	0	24	8	94.29%
Fulmar / gull species	0.25	0.18	0.34	1011	720	1353	161	15.86%
Shearwater species	0	0	0.01	16	0	48	15	93.47%
Gannet species	0.83	0.66	1.06	3313	2628	4203	414	12.48%

Table 56: Unapportioned density and population estimates of species in the Offshore Ornithology Study Area during Survey 19 on 16 October 2020

Category	Density Estimate (birds/km ²)	Lower 95% CI (birds/km ²)	Upper 95% CI (birds/km ²)	Population Estimate (number)	Lower 95% CI (number)	Upper 95% CI (number)	SD	CV
Species								
Kittiwake	1.72	1.13	2.5	6859	4499	9963	1437	20.95%
Little gull	0	0	0.01	9	0	24	8	92.97%
Herring gull	0.01	0	0.01	26	4	48	13	48.56%
Great skua	0.01	0	0.02	40	8	87	21	50.53%
Guillemot	7.85	4.77	10.99	31241	18960	43720	6552	20.97%
Razorbill	0.92	0.53	1.36	3667	2103	5416	840	22.89%
Puffin	0.08	0.06	0.12	336	224	462	62	18.39%
Fulmar	0.24	0.17	0.33	974	662	1299	157	16.03%
Gannet	0.84	0.66	1.06	3328	2622	4231	434	13.02%

Table 57: Apportioned density and population estimates of species in the Offshore Ornithology Study Area during Survey 19 on 16 October 2020

Category	Density Estimate (birds/km ²)	Lower 95% CI (birds/km ²)	Upper 95% CI (birds/km ²)	Population Estimate (number)	Lower 95% CI (number)	Upper 95% CI (number)	SD	CV
Species								
Kittiwake	1.75	1.12	2.53	6967	4450	10049	1439	20.65%
Little gull	0	0	0.01	8	1	24	8	95.91%
Common gull	0	0	0	1	0	1	1	59.98%
Herring gull	0.01	0	0.01	25	1	50	13	52.02%
Great skua	0.01	0	0.02	40	8	83	20	48.83%
Guillemot	8.24	5.13	12.02	32754	20400	47810	7337	22.40%
Razorbill	1.21	0.77	1.67	4807	3074	6642	947	19.69%
Puffin	0.17	0.12	0.23	693	492	931	110	15.78%
Red-throated diver	0	0	0.01	9	0	24	8	93.81%
Fulmar	0.26	0.18	0.33	1019	728	1323	158	15.50%
Gannet	0.84	0.66	1.08	3353	2611	4288	447	13.32%

Table 58: Unapportioned density and population estimates of species groups in the Offshore Ornithology Study Area during Survey 20 on 05 November 2020

Category	Density Estimate (birds/km ²)	Lower 95% CI (birds/km ²)	Upper 95% CI (birds/km ²)	Population Estimate (number)	Lower 95% CI (number)	Upper 95% CI (number)	SD	CV
Broad category								
All birds	11.56	8.72	14.55	45991	34681	57856	5840	12.70%
Species								
Duck species	0	0	0.01	8	0	24	8	101.58%
Wader species	0.01	0	0.03	41	0	102	26	62.27%
Small gull species	3.54	2.68	4.32	14096	10647	17163	1667	11.82%
Black-backed gull species	0	0	0.01	16	0	40	12	69.81%
Large gull species	0.02	0.01	0.03	71	24	124	26	35.63%
Gull species	0.02	0	0.04	69	8	176	43	62.56%
Skua species	0.02	0.01	0.03	73	32	124	24	32.02%
Skua species excluding great	0	0	0.01	16	0	40	12	70.47%
Large auk	6.01	3.85	8.32	23907	15302	33099	4724	19.76%
Small auk	0.01	0.01	0.03	57	24	102	21	37%
Auk species	0.56	0.4	0.73	2228	1602	2910	341	15.29%
Auk / small gull	0.07	0.04	0.1	265	142	414	72	27.12%
Large auk / diver species	0.04	0.01	0.08	170	48	313	72	42.47%

Category	Density Estimate (birds/km ²)	Lower 95% CI (birds/km ²)	Upper 95% CI (birds/km ²)	Population Estimate (number)	Lower 95% CI (number)	Upper 95% CI (number)	SD	CV
Broad category								
Diver species	0.02	0	0.04	71	20	143	33	46.10%
Gannet species	1.11	0.85	1.4	4417	3369	5578	552	12.49%
Passerine species	0.01	0	0.02	23	0	72	23	104.20%
Small bird species	0.01	0	0.01	25	0	54	13	53.05%

Table 59: Unapportioned density and population estimates of species in the Offshore Ornithology Study Area during Survey 20 on 05 November 2020

Category	Density Estimate (birds/km ²)	Lower 95% CI (birds/km ²)	Upper 95% CI (birds/km ²)	Population Estimate (number)	Lower 95% CI (number)	Upper 95% CI (number)	SD	CV
Species								
Goosander	0	0	0.01	8	0	24	8	99.38%
Woodcock	0	0	0.01	16	0	40	11	66.21%
Kittiwake	3.55	2.68	4.42	14108	10647	17569	1731	12.26%
Common gull	0.01	0	0.01	24	0	56	13	53.92%
Great black-backed gull	0.01	0	0.02	40	12	78	17	40.91%
Herring gull	0.02	0	0.05	86	20	182	43	49.74%
Great skua	0.01	0.01	0.02	57	24	88	18	30.80%
Pomarine skua	0	0	0.01	8	0	24	8	96.67%
Arctic skua	0	0	0.01	8	0	24	8	100.08%
Little auk	0.03	0.01	0.05	119	48	192	37	30.90%
Guillemot	5.78	3.72	8.25	23003	14790	32804	4497	19.55%
Razorbill	0.3	0.2	0.41	1177	797	1640	226	19.16%
Puffin	0.11	0.06	0.16	420	240	628	98	23.24%
Red-throated diver	0.02	0	0.06	98	16	221	52	52.91%
Gannet	1.11	0.85	1.38	4421	3381	5502	561	12.67%

Table 60: Apportioned density and population estimates of species in the Offshore Ornithology Study Area during Survey 20 on 05 November 2020

Category	Density Estimate (birds/km ²)	Lower 95% CI (birds/km ²)	Upper 95% CI (birds/km ²)	Population Estimate (number)	Lower 95% CI (number)	Upper 95% CI (number)	SD	CV
Species								
Goosander	0	0	0.01	9	0	24	9	99.76%
Golden plover	0	0	0.01	20	0	56	19	97.29%

Category	Density Estimate (birds/km ²)	Lower 95% CI (birds/km ²)	Upper 95% CI (birds/km ²)	Population Estimate (number)	Lower 95% CI (number)	Upper 95% CI (number)	SD	CV
Species								
Woodcock	0.01	0	0.01	23	0	49	13	55.44%
Kittiwake	3.61	2.7	4.44	14375	10739	17642	1738	12.08%
Common gull	0.01	0	0.01	25	0	55	14	53.44%
Great black-backed gull	0.01	0	0.02	40	8	72	17	41.85%
Herring gull	0.02	0	0.05	88	20	182	42	47.95%
Great skua	0.02	0.01	0.03	72	32	119	23	32.02%
Pomarine skua	0	0	0.01	9	0	32	9	101.95%
Arctic skua	0	0	0.01	9	0	32	9	99.33%
Little auk	0.05	0.03	0.07	180	114	260	39	21.62%
Guillemot	6.01	3.72	8.4	23920	14810	33413	4725	19.75%
Razorbill	0.41	0.29	0.55	1619	1154	2200	269	16.57%
Puffin	0.17	0.1	0.23	659	418	922	132	20%
Red-throated diver	0.05	0.02	0.09	200	72	375	79	39.22%
Gannet	1.11	0.84	1.41	4422	3359	5627	600	13.56%

Table 61: Unapportioned density and population estimates of species groups in the Offshore Ornithology Study Area during Survey 21 on 01 December 2020

Category	Density Estimate (birds/km ²)	Lower 95% CI (birds/km ²)	Upper 95% CI (birds/km ²)	Population Estimate (number)	Lower 95% CI (number)	Upper 95% CI (number)	SD	CV
Broad category								
All birds	20.74	14.92	27.48	82493	59346	109304	12766	15.47%
Species								
Small gull species	2.55	1.27	4.54	10131	5035	18050	3418	33.73%
Black-backed gull species	0.02	0	0.03	62	8	124	29	46.37%
Large gull species	1.31	0.45	2.55	5229	1808	10159	2137	40.85%
Gull species	0.15	0.03	0.33	591	127	1325	347	58.65%
Skua species	0.01	0	0.02	33	8	68	17	50.29%
Large auk	15.15	11.27	18.83	60271	44842	74891	7711	12.79%
Small auk	0.05	0.02	0.09	213	94	354	71	33.04%
Auk species	0.88	0.61	1.16	3494	2408	4622	582	16.65%
Auk / small gull	0.06	0.02	0.1	223	84	393	84	37.71%
Diver species	0.01	0	0.02	32	0	71	18	57.07%
Fulmar / gull species	0.39	0.29	0.51	1552	1143	2015	223	14.33%
Gannet species	0.35	0.18	0.56	1394	732	2239	391	28.04%
Cormorant / shag	0	0	0.01	9	0	24	8	90.32%

Table 62: Unapportioned density and population estimates of species in the Offshore Ornithology Study Area during Survey 21 on 01 December 2020

Category	Density Estimate (birds/km ²)	Lower 95% CI (birds/km ²)	Upper 95% CI (birds/km ²)	Population Estimate (number)	Lower 95% CI (number)	Upper 95% CI (number)	SD	CV
Species								
Kittiwake	2.38	1.25	4.03	9477	4976	16015	3072	32.41%
Black-headed gull	0	0	0.01	8	0	24	8	101.19%
Little gull	0.01	0	0.02	42	8	80	20	46.21%
Common gull	0.23	0.06	0.5	933	234	1980	443	47.44%
Great black-backed gull	0.1	0.06	0.15	407	228	606	98	23.99%
Herring gull	1.25	0.38	2.17	4974	1519	8638	1882	37.84%
Lesser black-backed gull	0	0	0.01	8	0	24	8	95.72%
Great skua	0.01	0	0.02	32	8	64	17	51.07%
Little auk	0.15	0.09	0.21	579	347	845	136	23.37%
Guillemot	13.94	10.4	17.82	55441	41360	70889	7344	13.25%
Razorbill	0.96	0.6	1.34	3803	2372	5322	761	19.99%
Puffin	0.01	0.01	0.03	57	24	103	21	35.52%
Red-throated diver	0.01	0	0.02	33	0	78	19	58.34%
Fulmar	0.36	0.28	0.47	1444	1114	1881	190	13.15%
Gannet	0.36	0.18	0.58	1415	729	2300	400	28.23%
Shag	0	0	0.01	9	0	24	9	93.91%

Table 63: Apportioned density and population estimates of species in the Offshore Ornithology Study Area during Survey 21 on 01 December 2020

Category	Density Estimate (birds/km ²)	Lower 95% CI (birds/km ²)	Upper 95% CI (birds/km ²)	Population Estimate (number)	Lower 95% CI (number)	Upper 95% CI (number)	SD	CV
Species								
Kittiwake	2.42	1.2	4.31	9637	4784	17147	3195	33.15%
Black-headed gull	0	0	0.01	11	1	32	9	77.39%
Little gull	0.01	0	0.02	41	8	82	20	49.17%
Common gull	0.25	0.06	0.49	982	232	1934	458	46.63%
Great black-backed gull	0.1	0.06	0.15	409	240	603	98	23.80%
Herring gull	1.28	0.39	2.29	5078	1563	9123	1998	39.34%
Lesser black-backed gull	0	0	0.01	9	1	24	9	100.38%
Great skua	0.01	0	0.02	32	8	71	16	48.24%
Little auk	0.24	0.17	0.33	971	661	1322	167	17.17%
Guillemot	14.59	10.81	18.49	58018	42990	73540	7940	13.68%
Razorbill	1.35	0.93	1.79	5351	3698	7129	888	16.58%
Puffin	0.03	0.02	0.04	109	67	154	24	21.70%
Red-throated diver	0.01	0	0.02	33	0	71	18	55.87%

Category	Density Estimate (birds/km ²)	Lower 95% CI (birds/km ²)	Upper 95% CI (birds/km ²)	Population Estimate (number)	Lower 95% CI (number)	Upper 95% CI (number)	SD	CV
Species								
Fulmar	0.38	0.28	0.48	1502	1117	1913	201	13.34%
Gannet	0.34	0.18	0.53	1355	705	2093	360	26.53%
Shag	0	0	0.01	9	0	24	8	98.77%

Table 64: Unapportioned density and population estimates of species groups in the Offshore Ornithology Study Area during Survey 22 on 19 January 2021

Category	Density Estimate (birds/km ²)	Lower 95% CI (birds/km ²)	Upper 95% CI (birds/km ²)	Population Estimate (number)	Lower 95% CI (number)	Upper 95% CI (number)	SD	CV
Broad category								
All birds	14.77	11.86	18.45	58741	47170	73377	6692	11.39%
Species								
Small gull species	4.27	2.06	6.84	16994	8195	27204	5117	30.11%
Black-backed gull species	0.01	0	0.04	59	8	145	36	61.70%
Large gull species	0.18	0.08	0.33	705	311	1310	270	38.18%
Gull species	0.02	0.01	0.03	89	48	131	22	24.25%
Large auk	9.21	7.96	10.61	36625	31661	42198	2684	7.33%
Small auk	0.02	0	0.03	63	16	120	29	44.77%
Auk species	0.93	0.75	1.11	3680	2989	4434	371	10.06%
Auk / small gull	0.07	0.01	0.17	288	59	670	161	55.83%
Large auk / diver species	0.01	0	0.01	26	0	55	13	51.29%
Diver species	0.01	0	0.02	34	0	88	23	69.46%
Fulmar / gull species	0.11	0.08	0.15	455	313	608	74	16.07%
Gannet species	0.09	0.06	0.13	353	226	524	78	22.08%

Table 65: Unapportioned density and population estimates of species in the Offshore Ornithology Study Area during Survey 22 on 19 January 2021

Category	Density Estimate (birds/km ²)	Lower 95% CI (birds/km ²)	Upper 95% CI (birds/km ²)	Population Estimate (number)	Lower 95% CI (number)	Upper 95% CI (number)	SD	CV
Species								
Kittiwake	4.26	2.04	7.22	16947	8117	28727	5331	31.45%
Little gull	0.01	0	0.02	25	0	72	24	95.07%
Common gull	0.05	0.03	0.07	185	118	261	38	20.57%
Great black-backed gull	0.06	0.03	0.09	221	107	374	70	31.34%
Herring gull	0.15	0.06	0.28	580	238	1126	236	40.61%
Little auk	0.09	0.05	0.13	356	210	521	78	21.92%

Category	Density Estimate (birds/km ²)	Lower 95% CI (birds/km ²)	Upper 95% CI (birds/km ²)	Population Estimate (number)	Lower 95% CI (number)	Upper 95% CI (number)	SD	CV
Species								
Guillemot	6.81	5.96	7.61	27068	23709	30261	1702	6.29%
Razorbill	1.94	1.43	2.47	7702	5694	9832	1060	13.76%
Puffin	0.02	0.01	0.03	65	24	112	24	36.58%
Red-throated diver	0.01	0	0.02	32	0	88	25	79.18%
Fulmar	0.11	0.07	0.15	432	290	582	75	17.35%
Gannet	0.09	0.06	0.13	352	230	511	73	20.69%

Table 66: Apportioned density and population estimates of species in the Offshore Ornithology Study Area during Survey 22 on 19 January 2021

Category	Density Estimate (birds/km ²)	Lower 95% CI (birds/km ²)	Upper 95% CI (birds/km ²)	Population Estimate (number)	Lower 95% CI (number)	Upper 95% CI (number)	SD	CV
Species								
Kittiwake	4.33	2.11	7.32	17226	8407	29105	5392	31.30%
Little gull	0.01	0	0.02	26	1	72	24	92.41%
Common gull	0.05	0.03	0.07	188	112	264	37	19.47%
Great black-backed gull	0.05	0.02	0.09	218	99	358	68	30.98%
Herring gull	0.15	0.07	0.29	609	274	1148	236	38.66%
Little auk	0.18	0.14	0.23	733	569	902	83	11.30%
Guillemot	7.54	6.67	8.56	30003	26513	34048	1900	6.33%
Razorbill	2.37	1.87	2.9	9428	7435	11520	1071	11.35%
Puffin	0.03	0.02	0.04	110	68	162	25	22.75%
Red-throated diver	0.01	0	0.03	40	0	105	29	72.08%
Fulmar	0.11	0.08	0.15	457	316	599	74	16.12%
Gannet	0.09	0.06	0.13	350	220	522	82	23.27%

Table 67: Unapportioned density and population estimates of species groups in the Offshore Ornithology Study Area during Survey 23 on 16 February 2021

Category	Density Estimate (birds/km ²)	Lower 95% CI (birds/km ²)	Upper 95% CI (birds/km ²)	Population Estimate (number)	Lower 95% CI (number)	Upper 95% CI (number)	SD	CV
Broad category								
All birds	6.03	4.49	7.87	23965	17867	31293	3480	14.52%
Species								
Wader species	0	0	0.01	9	0	24	9	97.02%
Small gull species	0.99	0.37	1.99	3934	1465	7914	1682	42.74%
Black-backed gull species	0	0	0.01	8	0	24	8	97.03%

Category	Density Estimate (birds/km ²)	Lower 95% CI (birds/km ²)	Upper 95% CI (birds/km ²)	Population Estimate (number)	Lower 95% CI (number)	Upper 95% CI (number)	SD	CV
Broad category								
Large gull species	0.01	0	0.01	24	0	48	13	54.13%
Gull species	0.01	0	0.02	50	16	88	21	42.16%
Large auk	4.24	3.33	5.16	16859	13246	20513	1926	11.42%
Small auk	0.06	0.03	0.1	248	128	388	68	27.37%
Auk species	0.54	0.36	0.74	2140	1433	2936	377	17.58%
Auk / small gull	0.05	0.02	0.08	185	87	337	67	35.75%
Diver species	0	0	0.01	17	0	39	11	64.09%
Fulmar / gull species	0.14	0.09	0.19	548	364	775	108	19.55%
Gannet species	0.05	0.02	0.09	200	68	370	81	40.48%
Small bird species	0.01	0	0.02	33	0	80	22	67.16%

Table 68: Unapportioned density and population estimates of species in the Offshore Ornithology Study Area during Survey 23 on 16 February 2021

Category	Density Estimate (birds/km ²)	Lower 95% CI (birds/km ²)	Upper 95% CI (birds/km ²)	Population Estimate (number)	Lower 95% CI (number)	Upper 95% CI (number)	SD	CV
Species								
Lapwing	0	0	0.01	9	0	24	8	95.23%
Kittiwake	1.02	0.39	1.85	4053	1532	7342	1608	39.68%
Great black-backed gull	0	0	0.01	9	0	24	9	100.19%
Herring gull	0.01	0	0.02	41	0	96	25	60.84%
Little auk	0.01	0	0.03	49	0	104	28	57.29%
Guillemot	3.23	2.45	3.98	12837	9729	15842	1516	11.80%
Razorbill	0.65	0.47	0.87	2598	1887	3470	427	16.42%
Puffin	0.19	0.11	0.29	755	454	1163	187	24.69%
Red-throated diver	0	0	0.01	9	0	32	9	100.36%
Great northern diver	0	0	0.01	9	0	24	9	95.98%
Fulmar	0.12	0.08	0.17	489	321	679	97	19.79%
Gannet	0.05	0.02	0.09	202	72	370	78	38.61%

Table 69: Apportioned density and population estimates of species in the Offshore Ornithology Study Area during Survey 23 on 16 February 2021

Category	Density Estimate (birds/km ²)	Lower 95% CI (birds/km ²)	Upper 95% CI (birds/km ²)	Population Estimate (number)	Lower 95% CI (number)	Upper 95% CI (number)	SD	CV
Species								
Lapwing	0	0	0.01	8	0	24	9	100.88%
Kittiwake	1.02	0.37	1.99	4062	1475	7934	1665	40.97%
Great black-backed gull	0	0	0.01	8	0	24	9	102.14%
Herring gull	0.01	0	0.03	50	8	107	27	53.19%
Little auk	0.02	0	0.03	70	20	134	31	43.76%
Guillemot	3.68	2.88	4.51	14654	11458	17937	1660	11.33%
Razorbill	0.82	0.61	1.06	3249	2421	4199	454	13.97%
Puffin	0.32	0.21	0.46	1262	854	1830	246	19.45%
Red-throated diver	0	0	0.01	9	0	24	8	96.39%
Great northern diver	0	0	0.01	8	0	24	8	94.94%
Fulmar	0.14	0.09	0.2	553	374	783	107	19.25%
Gannet	0.05	0.02	0.09	200	64	378	80	39.80%

Table 70: Unapportioned density and population estimates of species groups in the Offshore Ornithology Study Area during Survey 24 on 12 April 2021

Category	Density Estimate (birds/km ²)	Lower 95% CI (birds/km ²)	Upper 95% CI (birds/km ²)	Population Estimate (number)	Lower 95% CI (number)	Upper 95% CI (number)	SD	CV
Broad category								
All birds	31.29	27.32	35.16	124464	108677	139842	8153	6.55%
Species								
Small gull species	6.83	5.71	7.98	27162	22716	31722	2458	9.05%
Large gull species	0	0	0.01	16	0	40	11	66.12%
Gull species	0.01	0	0.02	48	16	83	17	35.70%
Large auk	22.05	18.68	25.89	87688	74279	102952	7357	8.39%
Small auk	0.15	0.07	0.25	600	266	975	183	30.44%
Auk species	1.77	1.31	2.36	7055	5222	9406	1018	14.42%
Auk / small gull	0.11	0.08	0.15	454	314	604	78	16.99%
Large auk / diver species	0	0	0.01	8	0	24	8	103.68%
Fulmar / gull species	0.07	0.04	0.12	284	140	460	87	30.64%
Gannet species	0.51	0.42	0.62	2047	1655	2458	210	10.24%
Small bird species	0	0	0.01	16	0	48	16	95.48%

Table 71: Unapportioned density and population estimates of species in the Offshore Ornithology Study Area during Survey 24 on 12 April 2021

Category	Density Estimate (birds/km ²)	Lower 95% CI (birds/km ²)	Upper 95% CI (birds/km ²)	Population Estimate (number)	Lower 95% CI (number)	Upper 95% CI (number)	SD	CV
Species								
Kittiwake	6.88	5.68	8.11	27350	22604	32262	2454	8.97%
Common gull	0.01	0	0.01	24	0	52	13	52.96%
Herring gull	0	0	0.01	17	0	40	12	69.73%
Lesser black-backed gull	0	0	0.01	9	0	24	8	95.14%
Guillemot	18.45	14.84	22.34	73382	59039	88855	7661	10.44%
Razorbill	2.65	2.03	3.42	10559	8079	13586	1479	14.01%
Puffin	0.89	0.58	1.26	3553	2317	5022	728	20.48%
Fulmar	0.03	0.02	0.05	128	64	202	37	28.75%
Gannet	0.51	0.42	0.62	2041	1674	2461	202	9.87%

Table 72: Apportioned density and population estimates of species in the Offshore Ornithology Study Area during Survey 24 on 12 April 2021

Category	Density Estimate (birds/km ²)	Lower 95% CI (birds/km ²)	Upper 95% CI (birds/km ²)	Population Estimate (number)	Lower 95% CI (number)	Upper 95% CI (number)	SD	CV
Species								
Kittiwake	6.9	5.68	8.24	27435	22592	32787	2587	9.43%
Common gull	0.01	0	0.01	25	8	48	13	51.45%
Herring gull	0	0	0.01	19	0	40	11	57.82%
Lesser black-backed gull	0	0	0.01	9	0	28	8	99.38%
Guillemot	19.63	15.97	23.48	78067	63535	93406	7447	9.54%
Razorbill	2.94	2.22	3.7	11677	8841	14725	1575	13.49%
Puffin	1.34	0.88	1.79	5324	3492	7129	926	17.38%
Fulmar	0.03	0.02	0.06	136	66	222	40	28.83%
Gannet	0.51	0.43	0.62	2045	1705	2448	197	9.59%

Table 73: Unapportioned density and population estimates of species groups in the Offshore Ornithology Study Area during Survey 25 on 26 April 2021

Category	Density Estimate (birds/km ²)	Lower 95% CI (birds/km ²)	Upper 95% CI (birds/km ²)	Population Estimate (number)	Lower 95% CI (number)	Upper 95% CI (number)	SD	CV
Broad category								
All birds	61.37	47.56	76.56	244078	189147	304496	29394	12.04%
Species								
Duck species	0	0	0.02	16	0	63	16	100%

Category	Density Estimate (birds/km ²)	Lower 95% CI (birds/km ²)	Upper 95% CI (birds/km ²)	Population Estimate (number)	Lower 95% CI (number)	Upper 95% CI (number)	SD	CV
Broad category								
Small gull species	8.47	4.59	13.79	33675	18275	54841	8939	26.55%
Black-backed gull species	0	0	0.01	9	0	24	8	97.46%
Large gull species	0.01	0	0.03	49	0	109	29	57.87%
Gull species	0.02	0.01	0.03	65	24	117	24	37%
Arctic / common tern	0.04	0	0.09	171	8	370	93	53.87%
Tern species	0	0	0.01	17	0	40	11	64.94%
Tern / small gull species	0.01	0	0.02	31	0	80	24	75.27%
Large auk	47.2	37.77	57.29	187712	150227	227857	19907	10.60%
Small auk	0.73	0.49	1.01	2905	1951	4008	513	17.64%
Auk species	3.06	2.44	3.74	12154	9686	14866	1274	10.48%
Auk / small gull	0.25	0.15	0.39	998	595	1543	245	24.46%
Auk / shearwater species	0	0	0.01	16	0	40	11	66.89%
Diver species	0	0	0.01	9	0	24	8	89.40%
Fulmar / gull species	0.14	0.09	0.2	550	369	789	109	19.67%
Gannet species	1.37	0.79	2.19	5466	3123	8714	1414	25.86%

Table 74: Unapportioned density and population estimates of species groups in the Offshore Ornithology Study Area during Survey 25 on 26 April 2021

Category	Density Estimate (birds/km ²)	Lower 95% CI (birds/km ²)	Upper 95% CI (birds/km ²)	Population Estimate (number)	Lower 95% CI (number)	Upper 95% CI (number)	SD	CV
Species								
Tufted duck	0	0	0.01	17	0	48	16	90.94%
Kittiwake	8.4	4.79	13.26	33429	19042	52758	8797	26.31%
Little gull	0.01	0	0.02	33	8	64	16	46.75%
Common gull	0.03	0.01	0.05	113	55	180	34	29.58%
Herring gull	0.01	0	0.03	58	8	127	31	53.45%
Sandwich tern	0	0	0.01	9	0	24	8	94.16%
Common tern	0.01	0	0.02	33	0	78	19	57%
Arctic tern	0.02	0	0.05	60	0	191	59	97.12%
Guillemot	45.43	36.31	56.63	180697	144416	225223	20660	11.43%
Razorbill	1.2	1	1.4	4761	3971	5556	402	8.44%
Puffin	2.53	1.92	3.15	10076	7647	12511	1207	11.98%
Red-throated diver	0	0	0.01	8	0	24	8	92.23%
Fulmar	0.11	0.07	0.14	422	295	560	69	16.18%

Category	Density Estimate (birds/km ²)	Lower 95% CI (birds/km ²)	Upper 95% CI (birds/km ²)	Population Estimate (number)	Lower 95% CI (number)	Upper 95% CI (number)	SD	CV
Species								
Gannet	1.38	0.81	2.2	5485	3213	8769	1494	27.24%

Table 75: Apportioned density and population estimates of species in the Offshore Ornithology Study Area during Survey 25 on 26 April 2021

Category	Density Estimate (birds/km ²)	Lower 95% CI (birds/km ²)	Upper 95% CI (birds/km ²)	Population Estimate (number)	Lower 95% CI (number)	Upper 95% CI (number)	SD	CV
Species								
Tufted duck	0	0	0.01	17	0	48	16	94.27%
Kittiwake	8.86	4.93	13.51	35230	19618	53737	8834	25.07%
Little gull	0.01	0	0.02	54	18	97	21	37.63%
Common gull	0.03	0.01	0.04	111	49	175	32	28.37%
Herring gull	0.02	0	0.03	64	16	128	29	45.09%
Sandwich tern	0	0	0.01	7	0	24	8	107.40%
Common tern	0.03	0	0.07	120	16	263	65	54.40%
Arctic tern	0.02	0	0.05	64	0	192	63	97.66%
Guillemot	46.38	37.12	57.56	184455	147625	228935	20239	10.97%
Razorbill	1.31	1.11	1.52	5203	4426	6037	412	7.92%
Puffin	3.47	2.82	4.14	13821	11198	16478	1350	9.76%
Red-throated diver	0	0	0.01	9	0	32	9	96.64%
Fulmar	0.13	0.08	0.18	502	335	701	89	17.65%
Gannet	1.39	0.82	2.23	5543	3252	8887	1429	25.78%

