

BERWICK BANK WIND FARM OFFSHORE ENVIRONMENTAL IMPACT ASSESSMENT

**APPENDIX 11.1, ANNEX I:
DESIGN-BASED ANALYSIS –
POPULATION ESTIMATES FOR
FLYING BIRDS GROUPED BY
SPECIES (BERWICK BANK
DEVELOPMENT ARRAY ONLY)**

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NOTE

This annex provides both apportioned and unapportioned density and population estimates for flying birds of focal species within the Berwick Bank Development Array only. Estimates provided are deemed to be representative, as flying birds are unaffected by availability bias.

TABLES

Table 1:	Unapportioned density and population estimates of flying common scoters in the Berwick Bank Development Array only, calculated using design-based analysis1	Table 17:	Unapportioned density and population estimates of flying common terns in the Berwick Bank Development Array only, calculated using design-based analysis 6
Table 2:	Apportioned density and population estimates of flying common scoters in the Berwick Bank Development Array only, calculated using design-based analysis1	Table 18:	Apportioned density and population estimates of flying common terns in the Berwick Bank Development Array only, calculated using design-based analysis..... 6
Table 3:	Unapportioned density and population estimates of flying kittiwakes in the Berwick Bank Development Array only, calculated using design-based analysis1	Table 19:	Unapportioned density and population estimates of flying Arctic terns in the Berwick Bank Development Array only, calculated using design-based analysis..... 7
Table 4:	Apportioned density and population estimates of flying kittiwakes in the Berwick Bank Development Array only, calculated using design-based analysis2	Table 20:	Apportioned density and population estimates of flying Arctic terns in the Berwick Bank Development Array only, calculated using design-based analysis..... 7
Table 5:	Unapportioned density and population estimates of flying black-headed gulls in the Berwick Bank Development Array only, calculated using design-based analysis2	Table 21:	Unapportioned density and population estimates of flying great skuas in the Berwick Bank Development Array only, calculated using design-based analysis..... 7
Table 6:	Apportioned density and population estimates of flying black-headed gulls in the Berwick Bank Development Array only, calculated using design-based analysis2	Table 22:	Apportioned density and population estimates of flying great skuas in the Berwick Bank Development Array only, calculated using design-based analysis..... 8
Table 7:	Unapportioned density and population estimates of flying little gulls in the Berwick Bank Development Array only, calculated using design-based analysis3	Table 23:	Unapportioned density and population estimates of flying little auks in the Berwick Bank Development Array only, calculated using design-based analysis..... 8
Table 8:	Apportioned density and population estimates of flying little gulls in the Berwick Bank Development Array only, calculated using design-based analysis3	Table 24:	Apportioned density and population estimates of flying little auks in the Berwick Bank Development Array only, calculated using design-based analysis 8
Table 9:	Unapportioned density and population estimates of flying common gulls in the Berwick Bank Development Array only, calculated using design-based analysis3	Table 25:	Unapportioned density and population estimates of flying guillemots in the Berwick Bank Development Array only, calculated using design-based analysis..... 9
Table 10:	Apportioned density and population estimates of flying common gulls in the Berwick Bank Development Array only, calculated using design-based analysis4	Table 26:	Apportioned density and population estimates of flying guillemots in the Berwick Bank Development Array only, calculated using design-based analysis 9
Table 11:	Unapportioned density and population estimates of flying great black-backed gulls in the Berwick Bank Development Array only, calculated using design-based analysis4	Table 27:	Unapportioned density and population estimates of flying razorbills in the Berwick Bank Development Array only, calculated using design-based analysis..... 9
Table 12:	Apportioned density and population estimates of flying great black-backed gulls in the Berwick Bank Development Array only, calculated using design-based analysis4	Table 28:	Apportioned density and population estimates of flying razorbills in the Berwick Bank Development Array only, calculated using design-based analysis 10
Table 13:	Unapportioned density and population estimates of flying herring gulls in the Berwick Bank Development Array only, calculated using design-based analysis5	Table 29:	Unapportioned density and population estimates of flying puffins in the Berwick Bank Development Array only, calculated using design-based analysis 10
Table 14:	Apportioned density and population estimates of flying herring gulls in the Berwick Bank Development Array only, calculated using design-based analysis5	Table 30:	Apportioned density and population estimates of flying puffins in the Berwick Bank Development Array only, calculated using design-based analysis 10
Table 15:	Unapportioned density and population estimates of flying lesser black-backed gulls in the Berwick Bank Development Array only, calculated using design-based analysis5	Table 31:	Unapportioned density and population estimates of flying red-throated divers in the Berwick Bank Development Array only, calculated using design-based analysis 11
Table 16:	Apportioned density and population estimates of flying lesser black-backed gulls in the Berwick Bank Development Array only, calculated using design-based analysis6	Table 32:	Apportioned density and population estimates of flying red-throated divers in the Berwick Bank Development Array only, calculated using design-based analysis 11
		Table 33:	Unapportioned density and population estimates of flying fulmars in the Berwick Bank Development Array only, calculated using design-based analysis 11
		Table 34:	Apportioned density and population estimates of flying fulmars in the Berwick Bank Development Array only, calculated using design-based analysis 12
		Table 35:	Unapportioned density and population estimates of flying Manx shearwater in the Berwick Bank Development Array only, calculated using design-based analysis 12
		Table 36:	Apportioned density and population estimates of flying Manx shearwater in the Berwick Bank Development Array only, calculated using design-based analysis 12

Table 37:	Unapportioned density and population estimates of flying gannets in the Berwick Bank Development Array only, calculated using design-based analysis	13
Table 38:	Apportioned density and population estimates of flying gannets in the Berwick Bank Development Array only, calculated using design-based analysis	13
Table 39:	Unapportioned density and population estimates of flying shags in the Berwick Bank Development Array only, calculated using design-based analysis	13
Table 40:	Apportioned density and population estimates of flying shags in the Berwick Bank Development Array only, calculated using design-based analysis	14

Table 1: Unapportioned density and population estimates of flying common scoters in the Berwick Bank Development Array only, calculated using design-based analysis

Flying Common scoter	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
Survey								
Mar-19	0	0	0	0	0	0	0	0
May-19	0	0	0	0	0	0	0	0
Jun-19	0	0	0	0	0	0	0	0
Jul-19	0	0	0	0	0	0	0	0
Aug-19	0	0	0	0	0	0	0	0
Sep-19	0	0	0	0	0	0	0	0
Oct-19	0	0	0	0	0	0	0	0
Nov-19	0	0	0	0	0	0	0	0
Dec-19	0	0	0	0	0	0	0	0
Jan-20	0	0	0	0	0	0	0	0
Feb-20	0	0	0	0	0	0	0	0
Mar-20	0	0	0	0	0	0	0	0
May S01 20	0	0	0	0	0	0	0	0
May S02 20	0	0	0	0	0	0	0	0
Jun-20	0	0	0	0	0	0	0	0
Jul-20	0	0	0	0	0	0	0	0
Aug-20	0	0	0	0	0	0	0	0
Sep-20	0	0	0	0	0	0	0	0
Oct-20	0	0	0	0	0	0	0	0
Nov-20	0	0	0	0	0	0	0	0
Dec-20	0	0	0	0	0	0	0	0
Jan-21	0	0	0	0	0	0	0	0
Feb-21	0	0	0	0	0	0	0	0
Apr S01 21	0	0	0	0	0	0	0	0
Apr S02 21	0	0	0	0	0	0	0	0

Table 2: Apportioned density and population estimates of flying common scoters in the Berwick Bank Development Array only, calculated using design-based analysis

Flying Common scoter	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
Survey								
Mar-19	0	0	0	0	0	0	0	0
May-19	0	0	0	0	0	0	0	0
Jun-19	0	0	0	0	0	0	0	0
Jul-19	0	0	0	0	0	0	0	0
Aug-19	0	0	0	0	0	0	0	0
Sep-19	0	0	0	0	0	0	0	0
Oct-19	0	0	0	0	0	0	0	0
Nov-19	0	0	0	0	0	0	0	0
Dec-19	0	0	0	0	0	0	0	0
Jan-20	0	0	0	0	0	0	0	0
Feb-20	0	0	0	0	0	0	0	0
Mar-20	0	0	0	0	0	0	0	0

Flying Common scoter	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
Survey								
May S01 20	0	0	0	0	0	0	0	0
May S02 20	0	0	0	0	0	0	0	0
Jun-20	0	0	0	0	0	0	0	0
Jul-20	0	0	0	0	0	0	0	0
Aug-20	0	0	0	0	0	0	0	0
Sep-20	0	0	0	0	0	0	0	0
Oct-20	0	0	0	0	0	0	0	0
Nov-20	0	0	0	0	0	0	0	0
Dec-20	0	0	0	0	0	0	0	0
Jan-21	0	0	0	0	0	0	0	0
Feb-21	0	0	0	0	0	0	0	0
Apr S01 21	0	0	0	0	0	0	0	0
Apr S02 21	0	0	0	0	0	0	0	0

Table 3: Unapportioned density and population estimates of flying kittiwakes in the Berwick Bank Development Array only, calculated using design-based analysis

Flying Kittiwake	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
Survey								
Mar-19	3.66	1.86	5.61	3699	1882	5673	984	26.59%
May-19	3.07	2.36	3.86	3100	2384	3898	398	12.83%
Jun-19	0.74	0.51	0.97	750	521	983	119	15.82%
Jul-19	2.11	1.77	2.45	2138	1791	2480	178	8.29%
Aug-19	2.63	2.08	3.14	2658	2103	3179	294	11.04%
Sep-19	0.67	0.37	1	679	374	1014	176	25.87%
Oct-19	0.37	0.28	0.49	379	286	493	54	14.2%
Nov-19	0.21	0.11	0.37	217	111	371	65	29.64%
Dec-19	0.19	0.1	0.3	188	105	304	50	26.26%
Jan-20	1.03	0.77	1.38	1045	774	1393	162	15.46%
Feb-20	0.59	0.35	0.91	601	357	921	147	24.38%
Mar-20	2.74	1.71	3.99	2770	1727	4030	625	22.55%
May S01 20	3.04	1.15	5.6	3077	1166	5666	1123	36.49%
May S02 20	6.63	4.84	8.84	6705	4888	8941	1041	15.53%
Jun-20	7.98	6.53	9.42	8066	6598	9521	744	9.22%
Jul-20	1.71	1.39	2.07	1732	1410	2093	170	9.79%
Aug-20	4.45	3.24	5.79	4499	3272	5855	687	15.25%
Sep-20	3.64	2.68	4.96	3683	2713	5013	592	16.07%
Oct-20	1.27	0.68	1.99	1283	691	2009	348	27.13%
Nov-20	3.59	2.05	5.23	3626	2071	5285	833	22.97%
Dec-20	0.81	0.48	1.27	816	486	1288	219	26.85%
Jan-21	1.15	0.76	1.55	1165	768	1567	204	17.43%
Feb-21	0.48	0.24	0.74	485	243	746	132	27.06%
Apr S01 21	3.76	2.59	5.01	3805	2623	5069	643	16.9%
Apr S02 21	7.31	4.4	11.68	7387	4445	11805	1921	26%

Table 4: Apportioned density and population estimates of flying kittiwakes in the Berwick Bank Development Array only, calculated using design-based analysis

Flying Kittiwake	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
Survey								
Mar-19	3.55	1.9	5.67	3584	1926	5737	977	27.25%
May-19	3.08	2.36	3.93	3116	2389	3976	415	13.3%
Jun-19	0.75	0.52	1	762	521	1011	127	16.64%
Jul-19	2.12	1.81	2.49	2146	1827	2516	172	7.99%
Aug-19	2.6	2.01	3.22	2634	2029	3258	316	11.98%
Sep-19	0.68	0.36	1.01	685	365	1022	170	24.72%
Oct-19	0.38	0.27	0.49	382	277	494	56	14.61%
Nov-19	0.23	0.12	0.36	230	127	365	64	27.53%
Dec-19	0.19	0.12	0.29	191	117	298	49	25.71%
Jan-20	1.07	0.78	1.36	1080	792	1379	156	14.41%
Feb-20	0.59	0.33	0.92	592	330	932	147	24.75%
Mar-20	2.72	1.57	4	2747	1587	4041	638	23.21%
May S01 20	2.92	1.15	5.17	2950	1165	5222	1027	34.8%
May S02 20	6.73	4.59	8.72	6805	4639	8812	1071	15.74%
Jun-20	8.01	6.71	9.5	8094	6788	9600	736	9.09%
Jul-20	1.7	1.42	1.99	1717	1440	2009	151	8.78%
Aug-20	4.45	3.17	5.7	4500	3210	5762	694	15.4%
Sep-20	3.59	2.59	4.81	3625	2616	4867	558	15.38%
Oct-20	1.29	0.69	2.02	1305	702	2039	347	26.57%
Nov-20	3.47	2.08	5.32	3510	2105	5383	822	23.42%
Dec-20	0.8	0.48	1.25	807	483	1260	210	25.96%
Jan-21	1.13	0.74	1.54	1146	747	1561	210	18.29%
Feb-21	0.48	0.23	0.75	487	232	761	137	28.06%
Apr S01 21	3.77	2.68	5.12	3810	2707	5172	618	16.21%
Apr S02 21	7.29	4.27	11.45	7369	4314	11579	1888	25.62%

Table 5: Unapportioned density and population estimates of flying black-headed gulls in the Berwick Bank Development Array only, calculated using design-based analysis

Flying Black-headed gull	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
Survey								
Mar-19	0	0	0	0	0	0	0	0
May-19	0	0	0	0	0	0	0	0
Jun-19	0	0	0	0	0	0	0	0
Jul-19	0	0	0	0	0	0	0	0
Aug-19	0	0	0	0	0	0	0	0
Sep-19	0	0	0	0	0	0	0	0
Oct-19	0	0	0	0	0	0	0	0
Nov-19	0	0	0	0	0	0	0	0
Dec-19	0	0	0	0	0	0	0	0
Jan-20	0	0	0	0	0	0	0	0
Feb-20	0	0	0	0	0	0	0	0
Mar-20	0	0	0	0	0	0	0	0
May S01 20	0	0	0	0	0	0	0	0

Flying Black-headed gull	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
Survey								
May S02 20	0	0	0	0	0	0	0	0
Jun-20	0	0	0	0	0	0	0	0
Jul-20	0	0	0	0	0	0	0	0
Aug-20	0	0	0	0	0	0	0	0
Sep-20	0	0	0	0	0	0	0	0
Oct-20	0	0	0	0	0	0	0	0
Nov-20	0	0	0	0	0	0	0	0
Dec-20	0	0	0	0	0	0	0	0
Jan-21	0	0	0	0	0	0	0	0
Feb-21	0	0	0	0	0	0	0	0
Apr S01 21	0	0	0	0	0	0	0	0
Apr S02 21	0	0	0	0	0	0	0	0

Table 6: Apportioned density and population estimates of flying black-headed gulls in the Berwick Bank Development Array only, calculated using design-based analysis

Flying Black-headed gull	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
Survey								
Mar-19	0	0	0	0	0	0	0	0
May-19	0	0	0	0	0	0	0	0
Jun-19	0	0	0	0	0	0	0	0
Jul-19	0	0	0	0	0	0	0	0
Aug-19	0	0	0	0	0	0	0	0
Sep-19	0	0	0	0	0	0	0	0
Oct-19	0	0	0	0	0	0	0	0
Nov-19	0	0	0	1	0	1	1	61.79%
Dec-19	0	0	0	0	0	0	0	0
Jan-20	0	0	0	0	0	0	0	0
Feb-20	0	0	0	0	0	0	0	0
Mar-20	0	0	0	0	0	0	0	0
May S01 20	0	0	0	0	0	0	0	0
May S02 20	0	0	0	0	0	0	0	0
Jun-20	0	0	0	0	0	0	0	0
Jul-20	0	0	0	0	0	0	0	0
Aug-20	0	0	0	0	0	0	0	0
Sep-20	0	0	0	0	0	0	0	0
Oct-20	0	0	0	0	0	0	0	0
Nov-20	0	0	0	0	0	0	0	0
Dec-20	0	0	0	1	0	1	1	96.74%
Jan-21	0	0	0	0	0	0	0	0
Feb-21	0	0	0	0	0	0	0	0
Apr S01 21	0	0	0	0	0	0	0	0
Apr S02 21	0	0	0	0	0	0	0	0

Table 7: Unapportioned density and population estimates of flying little gulls in the Berwick Bank Development Array only, calculated using design-based analysis

Flying Little gull	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
Survey								
Mar-19	0	0	0	0	0	0	0	0
May-19	0	0	0	0	0	0	0	0
Jun-19	0	0	0	0	0	0	0	0
Jul-19	0	0	0	0	0	0	0	0
Aug-19	0.01	0	0.02	8	0	24	8	99.81%
Sep-19	0	0	0	0	0	0	0	0
Oct-19	0	0	0	0	0	0	0	0
Nov-19	0	0	0	0	0	0	0	0
Dec-19	0	0	0	0	0	0	0	0
Jan-20	0	0	0	0	0	0	0	0
Feb-20	0.02	0	0.06	24	0	63	17	72.94%
Mar-20	0	0	0	0	0	0	0	0
May S01 20	0	0	0	0	0	0	0	0
May S02 20	0	0	0	0	0	0	0	0
Jun-20	0	0	0	0	0	0	0	0
Jul-20	0.01	0	0.03	9	0	30	9	99.69%
Aug-20	0.06	0	0.18	65	0	185	50	76.27%
Sep-20	0	0	0	0	0	0	0	0
Oct-20	0	0	0	0	0	0	0	0
Nov-20	0	0	0	0	0	0	0	0
Dec-20	0.01	0	0.02	8	0	24	8	91.79%
Jan-21	0	0	0	0	0	0	0	0
Feb-21	0	0	0	0	0	0	0	0
Apr S01 21	0	0	0	0	0	0	0	0
Apr S02 21	0	0	0	0	0	0	0	0

Table 8: Apportioned density and population estimates of flying little gulls in the Berwick Bank Development Array only, calculated using design-based analysis

Flying Little gull	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
Survey								
Mar-19	0	0	0	0	0	0	0	0
May-19	0	0	0	0	0	0	0	0
Jun-19	0	0	0	0	0	0	0	0
Jul-19	0	0	0	0	0	0	0	0
Aug-19	0.01	0	0.03	8	0	27	9	105.78%
Sep-19	0	0	0	0	0	0	0	0
Oct-19	0	0	0	0	0	0	0	0
Nov-19	0	0	0	1	0	1	1	55.66%
Dec-19	0	0	0	0	0	0	0	0
Jan-20	0	0	0	1	0	1	1	94.64%
Feb-20	0.02	0	0.06	24	0	61	16	66.59%
Mar-20	0	0	0	0	0	0	0	0

Flying Little gull	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
Survey								
May S01 20	0	0	0	0	0	0	0	0
May S02 20	0	0	0	0	0	0	0	0
Jun-20	0	0	0	0	0	0	0	0
Jul-20	0.01	0	0.02	8	0	24	8	94.16%
Aug-20	0.12	0.03	0.24	118	30	238	53	44.39%
Sep-20	0	0	0	0	0	0	0	0
Oct-20	0	0	0	1	0	1	1	84.61%
Nov-20	0	0	0	0	0	0	0	0
Dec-20	0.01	0	0.02	9	0	24	8	95.81%
Jan-21	0	0	0	0	0	0	0	0
Feb-21	0	0	0	0	0	0	0	0
Apr S01 21	0	0	0	0	0	0	0	0
Apr S02 21	0	0	0	0	0	0	0	0

Table 9: Unapportioned density and population estimates of flying common gulls in the Berwick Bank Development Array only, calculated using design-based analysis

Flying Common gull	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
Survey								
Mar-19	0.01	0	0.03	15	0	34	9	61.22%
May-19	0	0	0	0	0	0	0	0
Jun-19	0	0	0	0	0	0	0	0
Jul-19	0.01	0	0.02	8	0	22	7	85.62%
Aug-19	0	0	0	0	0	0	0	0
Sep-19	0	0	0	0	0	0	0	0
Oct-19	0	0	0	0	0	0	0	0
Nov-19	0.05	0.01	0.09	46	14	92	23	48.24%
Dec-19	0	0	0	0	0	0	0	0
Jan-20	0	0	0	0	0	0	0	0
Feb-20	0	0	0	0	0	0	0	0
Mar-20	0	0	0	0	0	0	0	0
May S01 20	0	0	0	0	0	0	0	0
May S02 20	0	0	0	0	0	0	0	0
Jun-20	0	0	0	0	0	0	0	0
Jul-20	0	0	0	0	0	0	0	0
Aug-20	0.03	0	0.08	33	0	79	20	61.04%
Sep-20	0	0	0	0	0	0	0	0
Oct-20	0	0	0	0	0	0	0	0
Nov-20	0	0	0	0	0	0	0	0
Dec-20	0.01	0	0.02	8	0	25	8	99.08%
Jan-21	0.02	0	0.05	25	0	54	13	53.25%
Feb-21	0	0	0	0	0	0	0	0
Apr S01 21	0	0	0	0	0	0	0	0
Apr S02 21	0.05	0.01	0.09	48	8	96	23	47.12%

Table 10: Apportioned density and population estimates of flying common gulls in the Berwick Bank Development Array only, calculated using design-based analysis

Flying Common gull	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
Survey								
Mar-19	0.01	0	0.03	15	0	35	9	62.24%
May-19	0	0	0	0	0	0	0	0
Jun-19	0	0	0	0	0	0	0	0
Jul-19	0.01	0	0.02	8	0	21	7	90.02%
Aug-19	0	0	0	0	0	0	0	0
Sep-19	0	0	0	0	0	0	0	0
Oct-19	0	0	0	0	0	0	0	0
Nov-19	0.05	0.01	0.09	48	15	96	23	46.29%
Dec-19	0	0	0	2	0	4	2	95.42%
Jan-20	0	0	0	1	0	1	1	93.16%
Feb-20	0	0	0	0	0	0	0	0
Mar-20	0	0	0	1	1	1	1	46.95%
May S01 20	0	0	0	0	0	0	0	0
May S02 20	0	0	0	0	0	0	0	0
Jun-20	0	0	0	0	0	0	0	0
Jul-20	0	0	0	0	0	0	0	0
Aug-20	0.03	0	0.07	32	1	76	19	60.52%
Sep-20	0	0	0	0	0	0	0	0
Oct-20	0	0	0	1	0	1	1	99.01%
Nov-20	0	0	0	0	0	0	0	0
Dec-20	0.01	0	0.03	13	0	31	9	67.42%
Jan-21	0.02	0	0.05	24	0	50	13	53.96%
Feb-21	0	0	0	0	0	0	0	0
Apr S01 21	0	0	0	1	0	1	1	92.91%
Apr S02 21	0.05	0.01	0.1	48	8	102	24	50.31%

Table 11: Unapportioned density and population estimates of flying great black-backed gulls in the Berwick Bank Development Array only, calculated using design-based analysis

Flying Great black-backed gull	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
Survey								
Mar-19	0	0	0	0	0	0	0	0
May-19	0	0	0	0	0	0	0	0
Jun-19	0.01	0	0.02	9	0	24	8	94.37%
Jul-19	0	0	0	0	0	0	0	0
Aug-19	0	0	0	0	0	0	0	0
Sep-19	0	0	0	0	0	0	0	0
Oct-19	0	0	0	0	0	0	0	0
Nov-19	0.02	0	0.07	25	0	72	23	93.7%
Dec-19	0.01	0	0.03	7	0	26	7	99.31%
Jan-20	0	0	0	0	0	0	0	0
Feb-20	0	0	0	0	0	0	0	0
Mar-20	0	0	0	0	0	0	0	0

Flying Great black-backed gull	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
Survey								
May S01 20	0	0	0	0	0	0	0	0
May S02 20	0	0	0	0	0	0	0	0
Jun-20	0	0	0	0	0	0	0	0
Jul-20	0	0	0	0	0	0	0	0
Aug-20	0	0	0	0	0	0	0	0
Sep-20	0	0	0	0	0	0	0	0
Oct-20	0	0	0	0	0	0	0	0
Nov-20	0	0	0	0	0	0	0	0
Dec-20	0.01	0	0.02	9	0	24	8	92.7%
Jan-21	0.04	0.01	0.07	40	15	70	14	34.83%
Feb-21	0	0	0	0	0	0	0	0
Apr S01 21	0	0	0	0	0	0	0	0
Apr S02 21	0	0	0	0	0	0	0	0

Table 12: Apportioned density and population estimates of flying great black-backed gulls in the Berwick Bank Development Array only, calculated using design-based analysis

Flying Great black-backed gull	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
Survey								
Mar-19	0	0	0	0	0	0	0	0
May-19	0	0	0	0	0	0	0	0
Jun-19	0.01	0	0.02	8	0	24	7	85.23%
Jul-19	0	0	0	0	0	0	0	0
Aug-19	0	0	0	0	0	0	0	0
Sep-19	0	0	0	0	0	0	0	0
Oct-19	0	0	0	0	0	0	0	0
Nov-19	0.02	0	0.07	23	0	70	22	97.75%
Dec-19	0.01	0	0.02	7	0	22	7	95.12%
Jan-20	0	0	0	0	0	0	0	0
Feb-20	0	0	0	0	0	0	0	0
Mar-20	0	0	0	0	0	0	0	0
May S01 20	0	0	0	0	0	0	0	0
May S02 20	0	0	0	0	0	0	0	0
Jun-20	0	0	0	0	0	0	0	0
Jul-20	0	0	0	0	0	0	0	0
Aug-20	0	0	0	0	0	0	0	0
Sep-20	0	0	0	0	0	0	0	0
Oct-20	0	0	0	0	0	0	0	0
Nov-20	0	0	0	0	0	0	0	0
Dec-20	0.01	0	0.02	8	0	24	8	91.33%
Jan-21	0.04	0.01	0.07	40	16	70	15	36.35%
Feb-21	0	0	0	0	0	0	0	0
Apr S01 21	0	0	0	0	0	0	0	0
Apr S02 21	0	0	0	0	0	0	0	0

Table 13: Unapportioned density and population estimates of flying herring gulls in the Berwick Bank Development Array only, calculated using design-based analysis

Flying Herring gull	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
Survey								
Mar-19	0.01	0	0.02	8	0	20	6	84.85%
May-19	0	0	0	0	0	0	0	0
Jun-19	0.32	0.22	0.43	328	225	433	54	16.34%
Jul-19	0.15	0.07	0.24	148	66	243	45	30.46%
Aug-19	0.03	0	0.07	31	0	68	18	56.42%
Sep-19	0	0	0	0	0	0	0	0
Oct-19	0	0	0	0	0	0	0	0
Nov-19	0.05	0.01	0.1	47	8	100	23	49.06%
Dec-19	0.01	0	0.02	7	0	21	7	93.93%
Jan-20	0	0	0	0	0	0	0	0
Feb-20	0	0	0	0	0	0	0	0
Mar-20	0	0	0	0	0	0	0	0
May S01 20	0	0	0	0	0	0	0	0
May S02 20	0	0	0	0	0	0	0	0
Jun-20	0	0	0	0	0	0	0	0
Jul-20	0.5	0.28	0.75	504	286	757	126	24.98%
Aug-20	0.02	0	0.06	25	0	58	16	66.48%
Sep-20	0	0	0	0	0	0	0	0
Oct-20	0	0	0	0	0	0	0	0
Nov-20	0	0	0	0	0	0	0	0
Dec-20	0.05	0.02	0.1	56	16	107	25	44.73%
Jan-21	0.04	0.01	0.08	40	8	82	20	48.52%
Feb-21	0	0	0	0	0	0	0	0
Apr S01 21	0	0	0	0	0	0	0	0
Apr S02 21	0	0	0	0	0	0	0	0

Table 14: Apportioned density and population estimates of flying herring gulls in the Berwick Bank Development Array only, calculated using design-based analysis

Flying Herring gull	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
Survey								
Mar-19	0.01	0	0.02	8	0	20	7	86.61%
May-19	0	0	0	0	0	0	0	0
Jun-19	0.32	0.23	0.44	328	236	443	55	16.55%
Jul-19	0.15	0.07	0.23	151	76	236	44	28.67%
Aug-19	0.03	0	0.07	33	0	72	18	53.93%
Sep-19	0	0	0	0	0	0	0	0
Oct-19	0	0	0	0	0	0	0	0
Nov-19	0.05	0.01	0.1	48	8	101	25	51.98%
Dec-19	0.01	0	0.02	8	0	22	8	93.69%
Jan-20	0	0	0	0	0	0	0	0
Feb-20	0	0	0	0	0	0	0	0
Mar-20	0	0	0	0	0	0	0	0

Flying Herring gull	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
Survey								
May S01 20	0	0	0	0	0	0	0	0
May S02 20	0	0	0	0	0	0	0	0
Jun-20	0	0	0	0	0	0	0	0
Jul-20	0.48	0.28	0.76	489	282	765	122	24.9%
Aug-20	0.02	0	0.06	23	0	58	16	70.17%
Sep-20	0	0	0	0	0	0	0	0
Oct-20	0	0	0	0	0	0	0	0
Nov-20	0	0	0	0	0	0	0	0
Dec-20	0.06	0.01	0.11	62	14	111	26	40.84%
Jan-21	0.04	0.01	0.08	41	8	81	19	44.64%
Feb-21	0	0	0	0	0	0	0	0
Apr S01 21	0	0	0	0	0	0	0	0
Apr S02 21	0	0	0	0	0	0	0	0

Table 15: Unapportioned density and population estimates of flying lesser black-backed gulls in the Berwick Bank Development Array only, calculated using design-based analysis

Flying Lesser black-backed gull	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
Survey								
Mar-19	0	0	0	0	0	0	0	0
May-19	0	0	0	0	0	0	0	0
Jun-19	0.03	0	0.07	32	0	71	18	54.86%
Jul-19	0.07	0.04	0.11	74	38	108	18	23.98%
Aug-19	0	0	0	0	0	0	0	0
Sep-19	0	0	0	0	0	0	0	0
Oct-19	0	0	0	0	0	0	0	0
Nov-19	0	0	0	0	0	0	0	0
Dec-19	0	0	0	0	0	0	0	0
Jan-20	0	0	0	0	0	0	0	0
Feb-20	0	0	0	0	0	0	0	0
Mar-20	0	0	0	0	0	0	0	0
May S01 20	0	0	0	0	0	0	0	0
May S02 20	0	0	0	0	0	0	0	0
Jun-20	0.01	0	0.03	8	0	30	8	100.35%
Jul-20	0.17	0.11	0.26	174	107	265	40	22.89%
Aug-20	0	0	0	0	0	0	0	0
Sep-20	0	0	0	0	0	0	0	0
Oct-20	0	0	0	0	0	0	0	0
Nov-20	0	0	0	0	0	0	0	0
Dec-20	0	0	0	0	0	0	0	0
Jan-21	0	0	0	0	0	0	0	0
Feb-21	0	0	0	0	0	0	0	0
Apr S01 21	0	0	0	0	0	0	0	0
Apr S02 21	0	0	0	0	0	0	0	0

Table 16: Apportioned density and population estimates of flying lesser black-backed gulls in the Berwick Bank Development Array only, calculated using design-based analysis

Flying Lesser black-backed gull	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
Survey								
Mar-19	0	0	0	0	0	0	0	0
May-19	0	0	0	0	0	0	0	0
Jun-19	0.03	0	0.07	32	0	69	18	55.08%
Jul-19	0.08	0.04	0.11	77	43	109	17	21.17%
Aug-19	0	0	0	0	0	0	0	0
Sep-19	0	0	0	0	0	0	0	0
Oct-19	0	0	0	0	0	0	0	0
Nov-19	0	0	0	0	0	0	0	0
Dec-19	0	0	0	0	0	0	0	0
Jan-20	0	0	0	0	0	0	0	0
Feb-20	0	0	0	0	0	0	0	0
Mar-20	0	0	0	0	0	0	0	0
May S01 20	0	0	0	0	0	0	0	0
May S02 20	0	0	0	0	0	0	0	0
Jun-20	0.01	0	0.02	8	0	24	7	92.47%
Jul-20	0.18	0.11	0.26	178	111	268	42	23.37%
Aug-20	0	0	0	0	0	0	0	0
Sep-20	0	0	0	0	0	0	0	0
Oct-20	0	0	0	0	0	0	0	0
Nov-20	0	0	0	0	0	0	0	0
Dec-20	0	0	0	0	0	0	0	0
Jan-21	0	0	0	0	0	0	0	0
Feb-21	0	0	0	0	0	0	0	0
Apr S01 21	0	0	0	0	0	0	0	0
Apr S02 21	0	0	0	0	0	0	0	0

Table 17: Unapportioned density and population estimates of flying common terns in the Berwick Bank Development Array only, calculated using design-based analysis

Flying Common tern	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
Survey								
Mar-19	0	0	0	0	0	0	0	0
May-19	0	0	0	0	0	0	0	0
Jun-19	0	0	0	0	0	0	0	0
Jul-19	0	0	0	0	0	0	0	0
Aug-19	0.01	0	0.02	8	0	24	8	98.14%
Sep-19	0	0	0	0	0	0	0	0
Oct-19	0	0	0	0	0	0	0	0
Nov-19	0	0	0	0	0	0	0	0
Dec-19	0	0	0	0	0	0	0	0
Jan-20	0	0	0	0	0	0	0	0
Feb-20	0	0	0	0	0	0	0	0
Mar-20	0	0	0	0	0	0	0	0

Flying Common tern	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
Survey								
May S01 20	0.01	0	0.03	10	0	28	9	89.71%
May S02 20	0.01	0	0.02	8	0	24	8	98.33%
Jun-20	0	0	0	0	0	0	0	0
Jul-20	0.04	0	0.14	43	0	141	44	100.24%
Aug-20	0.02	0	0.04	17	0	45	11	66.22%
Sep-20	0	0	0	0	0	0	0	0
Oct-20	0	0	0	0	0	0	0	0
Nov-20	0	0	0	0	0	0	0	0
Dec-20	0	0	0	0	0	0	0	0
Jan-21	0	0	0	0	0	0	0	0
Feb-21	0	0	0	0	0	0	0	0
Apr S01 21	0	0	0	0	0	0	0	0
Apr S02 21	0	0	0	0	0	0	0	0

Table 18: Apportioned density and population estimates of flying common terns in the Berwick Bank Development Array only, calculated using design-based analysis

Flying Common tern	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
Survey								
Mar-19	0	0	0	0	0	0	0	0
May-19	0	0	0	0	0	0	0	0
Jun-19	0	0	0	0	0	0	0	0
Jul-19	0.06	0.04	0.09	66	42	93	14	20.29%
Aug-19	0.21	0.16	0.27	212	164	275	29	13.26%
Sep-19	0	0	0	0	0	0	0	0
Oct-19	0	0	0	0	0	0	0	0
Nov-19	0	0	0	0	0	0	0	0
Dec-19	0	0	0	0	0	0	0	0
Jan-20	0	0	0	0	0	0	0	0
Feb-20	0	0	0	0	0	0	0	0
Mar-20	0	0	0	0	0	0	0	0
May S01 20	0.02	0	0.04	19	3	42	11	54.63%
May S02 20	0.01	0	0.03	14	2	33	9	62.55%
Jun-20	0	0	0	0	0	0	0	0
Jul-20	0.07	0	0.17	71	5	177	50	69.98%
Aug-20	0.69	0.39	1.09	694	395	1101	186	26.8%
Sep-20	0.06	0	0.16	57	0	157	53	91.99%
Oct-20	0	0	0	0	0	0	0	0
Nov-20	0	0	0	0	0	0	0	0
Dec-20	0	0	0	0	0	0	0	0
Jan-21	0	0	0	0	0	0	0	0
Feb-21	0	0	0	0	0	0	0	0
Apr S01 21	0	0	0	0	0	0	0	0
Apr S02 21	0	0	0	0	0	0	0	0

Table 19: Unapportioned density and population estimates of flying Arctic terns in the Berwick Bank Development Array only, calculated using design-based analysis

Flying Arctic tern	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
Survey								
Mar-19	0	0	0	0	0	0	0	0
May-19	0	0	0	0	0	0	0	0
Jun-19	0	0	0	0	0	0	0	0
Jul-19	0.14	0.05	0.27	140	53	272	56	40.14%
Aug-19	0.12	0.05	0.21	123	47	214	44	35.72%
Sep-19	0	0	0	0	0	0	0	0
Oct-19	0	0	0	0	0	0	0	0
Nov-19	0	0	0	0	0	0	0	0
Dec-19	0	0	0	0	0	0	0	0
Jan-20	0	0	0	0	0	0	0	0
Feb-20	0	0	0	0	0	0	0	0
Mar-20	0	0	0	0	0	0	0	0
May S01 20	0	0	0	0	0	0	0	0
May S02 20	0	0	0	0	0	0	0	0
Jun-20	0.02	0	0.05	17	0	48	16	93.73%
Jul-20	0	0	0	0	0	0	0	0
Aug-20	0.04	0.01	0.08	40	8	86	21	51.08%
Sep-20	0.01	0	0.03	8	0	27	8	98.85%
Oct-20	0	0	0	0	0	0	0	0
Nov-20	0	0	0	0	0	0	0	0
Dec-20	0	0	0	0	0	0	0	0
Jan-21	0	0	0	0	0	0	0	0
Feb-21	0	0	0	0	0	0	0	0
Apr S01 21	0	0	0	0	0	0	0	0
Apr S02 21	0	0	0	0	0	0	0	0

Table 20: Apportioned density and population estimates of flying Arctic terns in the Berwick Bank Development Array only, calculated using design-based analysis

Flying Arctic tern	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
Survey								
Mar-19	0	0	0	0	0	0	0	0
May-19	0.04	0	0.12	40	0	121	41	101.02%
Jun-19	0.04	0	0.09	38	0	88	23	59.65%
Jul-19	1.09	0.67	1.51	1106	683	1528	224	20.21%
Aug-19	2.6	2.04	3.26	2631	2058	3293	333	12.65%
Sep-19	0	0	0	0	0	0	0	0
Oct-19	0	0	0	0	0	0	0	0
Nov-19	0	0	0	0	0	0	0	0
Dec-19	0	0	0	0	0	0	0	0
Jan-20	0	0	0	0	0	0	0	0
Feb-20	0	0	0	0	0	0	0	0
Mar-20	0	0	0	0	0	0	0	0

Flying Arctic tern	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
Survey								
May S01 20	0.02	0	0.05	20	0	46	13	66.42%
May S02 20	0.07	0.02	0.12	66	22	118	25	37.57%
Jun-20	0.02	0	0.05	24	0	55	16	66.74%
Jul-20	0.03	0	0.06	31	5	59	14	45.53%
Aug-20	0.53	0.28	0.85	535	282	861	150	28.01%
Sep-20	0.02	0	0.04	20	0	43	13	61.42%
Oct-20	0	0	0	0	0	0	0	0
Nov-20	0	0	0	0	0	0	0	0
Dec-20	0	0	0	0	0	0	0	0
Jan-21	0	0	0	0	0	0	0	0
Feb-21	0	0	0	0	0	0	0	0
Apr S01 21	0	0	0	0	0	0	0	0
Apr S02 21	0	0	0	0	0	0	0	0

Table 21: Unapportioned density and population estimates of flying great skuas in the Berwick Bank Development Array only, calculated using design-based analysis

Flying Great skua	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
Survey								
Mar-19	0	0	0	0	0	0	0	0
May-19	0.01	0	0.03	9	0	31	9	104.12%
Jun-19	0	0	0	0	0	0	0	0
Jul-19	0.01	0	0.02	8	0	24	7	90.02%
Aug-19	0	0	0	0	0	0	0	0
Sep-19	0	0	0	0	0	0	0	0
Oct-19	0	0	0	0	0	0	0	0
Nov-19	0	0	0	0	0	0	0	0
Dec-19	0	0	0	0	0	0	0	0
Jan-20	0	0	0	0	0	0	0	0
Feb-20	0	0	0	0	0	0	0	0
Mar-20	0.01	0	0.03	9	0	26	8	94.14%
May S01 20	0	0	0	0	0	0	0	0
May S02 20	0	0	0	0	0	0	0	0
Jun-20	0	0	0	0	0	0	0	0
Jul-20	0	0	0	0	0	0	0	0
Aug-20	0	0	0	0	0	0	0	0
Sep-20	0	0	0	0	0	0	0	0
Oct-20	0.01	0	0.02	9	0	24	8	89.07%
Nov-20	0	0	0	0	0	0	0	0
Dec-20	0	0	0	0	0	0	0	0
Jan-21	0	0	0	0	0	0	0	0
Feb-21	0	0	0	0	0	0	0	0
Apr S01 21	0	0	0	0	0	0	0	0
Apr S02 21	0	0	0	0	0	0	0	0

Table 22: Apportioned density and population estimates of flying great skuas in the Berwick Bank Development Array only, calculated using design-based analysis

Flying Great skua	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
Survey								
Mar-19	0	0	0	0	0	0	0	0
May-19	0.01	0	0.02	8	0	24	8	97.54%
Jun-19	0	0	0	0	0	0	0	0
Jul-19	0.01	0	0.02	8	0	24	7	91.11%
Aug-19	0	0	0	0	0	0	0	0
Sep-19	0	0	0	0	0	0	0	0
Oct-19	0	0	0	0	0	0	0	0
Nov-19	0	0	0	0	0	0	0	0
Dec-19	0	0	0	0	0	0	0	0
Jan-20	0	0	0	0	0	0	0	0
Feb-20	0	0	0	0	0	0	0	0
Mar-20	0.01	0	0.03	9	0	27	8	94.59%
May S01 20	0	0	0	0	0	0	0	0
May S02 20	0	0	0	0	0	0	0	0
Jun-20	0	0	0	0	0	0	0	0
Jul-20	0	0	0	0	0	0	0	0
Aug-20	0	0	0	0	0	0	0	0
Sep-20	0	0	0	0	0	0	0	0
Oct-20	0.01	0	0.02	8	0	24	8	91.7%
Nov-20	0	0	0	0	0	0	0	0
Dec-20	0	0	0	0	0	0	0	0
Jan-21	0	0	0	0	0	0	0	0
Feb-21	0	0	0	0	0	0	0	0
Apr S01 21	0	0	0	0	0	0	0	0
Apr S02 21	0	0	0	0	0	0	0	0

Table 23: Unapportioned density and population estimates of flying little auks in the Berwick Bank Development Array only, calculated using design-based analysis

Flying Little auk	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
Survey								
Mar-19	0	0	0	0	0	0	0	0
May-19	0	0	0	0	0	0	0	0
Jun-19	0	0	0	0	0	0	0	0
Jul-19	0	0	0	0	0	0	0	0
Aug-19	0	0	0	0	0	0	0	0
Sep-19	0	0	0	0	0	0	0	0
Oct-19	0	0	0	0	0	0	0	0
Nov-19	0	0	0	0	0	0	0	0
Dec-19	0	0	0	0	0	0	0	0
Jan-20	0	0	0	0	0	0	0	0
Feb-20	0	0	0	0	0	0	0	0
Mar-20	0	0	0	0	0	0	0	0
May S01 20	0	0	0	0	0	0	0	0

Flying Little auk	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
Survey								
May S02 20	0	0	0	0	0	0	0	0
Jun-20	0	0	0	0	0	0	0	0
Jul-20	0	0	0	0	0	0	0	0
Aug-20	0	0	0	0	0	0	0	0
Sep-20	0	0	0	0	0	0	0	0
Oct-20	0	0	0	0	0	0	0	0
Nov-20	0	0	0	0	0	0	0	0
Dec-20	0	0	0	0	0	0	0	0
Jan-21	0	0	0	0	0	0	0	0
Feb-21	0	0	0	0	0	0	0	0
Apr S01 21	0	0	0	0	0	0	0	0
Apr S02 21	0	0	0	0	0	0	0	0

Table 24: Apportioned density and population estimates of flying little auks in the Berwick Bank Development Array only, calculated using design-based analysis

Flying Little auk	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
Survey								
Mar-19	0	0	0	0	0	0	0	0
May-19	0	0	0	0	0	0	0	0
Jun-19	0	0	0	0	0	0	0	0
Jul-19	0	0	0	0	0	0	0	0
Aug-19	0	0	0	0	0	0	0	0
Sep-19	0	0	0	0	0	0	0	0
Oct-19	0	0	0	0	0	0	0	0
Nov-19	0	0	0	0	0	0	0	0
Dec-19	0	0	0	0	0	0	0	0
Jan-20	0.01	0	0.03	9	0	27	9	100.02%
Feb-20	0	0	0	0	0	0	0	0
Mar-20	0	0	0	0	0	0	0	0
May S01 20	0	0	0	0	0	0	0	0
May S02 20	0	0	0	0	0	0	0	0
Jun-20	0	0	0	0	0	0	0	0
Jul-20	0	0	0	0	0	0	0	0
Aug-20	0	0	0	0	0	0	0	0
Sep-20	0	0	0	0	0	0	0	0
Oct-20	0	0	0	0	0	0	0	0
Nov-20	0	0	0	0	0	0	0	0
Dec-20	0	0	0	0	0	0	0	0
Jan-21	0	0	0	0	0	0	0	0
Feb-21	0	0	0	0	0	0	0	0
Apr S01 21	0	0	0	0	0	0	0	0
Apr S02 21	0	0	0	0	0	0	0	0

Table 25: Unapportioned density and population estimates of flying guillemots in the Berwick Bank Development Array only, calculated using design-based analysis

Flying Guillemot	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
Survey								
Mar-19	0.57	0.36	0.81	573	360	815	123	21.44%
May-19	0.62	0.47	0.76	624	476	772	76	12.06%
Jun-19	0.35	0.2	0.53	359	206	540	86	23.91%
Jul-19	0.04	0.01	0.07	38	8	71	16	42.26%
Aug-19	0.01	0	0.03	9	0	30	9	99.04%
Sep-19	0.02	0	0.07	23	0	71	22	96.08%
Oct-19	0.16	0.03	0.35	163	36	353	85	52.28%
Nov-19	0.12	0.03	0.2	118	31	207	46	38.96%
Dec-19	0.01	0	0.04	14	0	44	14	100.95%
Jan-20	0.17	0.1	0.24	175	97	247	38	21.7%
Feb-20	0.04	0.01	0.07	41	12	70	15	36.73%
Mar-20	2.05	0.83	3.38	2070	844	3422	643	31.06%
May S01 20	0.36	0.15	0.69	367	155	699	143	38.96%
May S02 20	0.5	0.31	0.71	509	310	714	110	21.45%
Jun-20	0.69	0.38	1.02	696	385	1032	171	24.51%
Jul-20	0.03	0.01	0.05	32	8	56	13	39.4%
Aug-20	0.02	0	0.05	16	0	48	16	95.51%
Sep-20	0.02	0	0.07	23	0	71	22	92.08%
Oct-20	0.08	0.03	0.13	83	35	132	26	30.7%
Nov-20	0.1	0.04	0.18	105	39	179	37	35.25%
Dec-20	0.11	0.05	0.18	112	48	184	37	33.04%
Jan-21	0.25	0.13	0.4	254	132	401	69	26.96%
Feb-21	0.08	0.04	0.12	80	40	118	21	25.84%
Apr S01 21	0.62	0.4	0.86	625	406	865	116	18.44%
Apr S02 21	0.33	0.21	0.46	338	211	470	68	20.1%

Table 26: Apportioned density and population estimates of flying guillemots in the Berwick Bank Development Array only, calculated using design-based analysis

Flying Guillemot	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
Survey								
Mar-19	0.59	0.36	0.89	601	368	902	135	22.31%
May-19	0.65	0.5	0.81	659	506	823	81	12.24%
Jun-19	0.35	0.2	0.52	354	204	523	83	23.37%
Jul-19	0.07	0.03	0.11	68	27	112	24	34.39%
Aug-19	0.01	0	0.02	8	0	24	8	103.02%
Sep-19	0.03	0	0.09	32	0	88	24	74.4%
Oct-19	0.17	0.03	0.41	171	33	413	101	59.04%
Nov-19	0.14	0.05	0.24	142	50	240	51	35.72%
Dec-19	0.02	0	0.05	23	0	55	14	61.92%
Jan-20	0.21	0.1	0.31	214	103	316	54	25.05%
Feb-20	0.05	0.02	0.09	54	23	89	17	31.07%
Mar-20	2.13	0.9	3.34	2153	915	3379	623	28.91%

Flying Guillemot	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
Survey								
May S01 20	0.35	0.14	0.69	358	146	701	143	39.84%
May S02 20	0.52	0.31	0.73	523	311	741	105	19.98%
Jun-20	0.69	0.39	1.02	703	390	1032	171	24.29%
Jul-20	0.03	0.01	0.05	31	8	56	13	39.9%
Aug-20	0.02	0	0.05	16	0	48	15	90.88%
Sep-20	0.02	0	0.08	25	0	81	25	97.18%
Oct-20	0.09	0.04	0.13	87	41	133	24	27.86%
Nov-20	0.11	0.04	0.18	109	42	186	38	34.73%
Dec-20	0.12	0.05	0.18	119	56	184	34	28.19%
Jan-21	0.26	0.14	0.4	268	146	406	69	25.5%
Feb-21	0.09	0.04	0.13	87	43	134	24	26.62%
Apr S01 21	0.63	0.43	0.88	641	434	887	116	18.01%
Apr S02 21	0.36	0.24	0.5	364	240	502	70	19.11%

Table 27: Unapportioned density and population estimates of flying razorbills in the Berwick Bank Development Array only, calculated using design-based analysis

Flying Razorbill	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
Survey								
Mar-19	0.2	0.09	0.31	199	92	316	61	30.61%
May-19	0	0	0	0	0	0	0	0
Jun-19	0	0	0	0	0	0	0	0
Jul-19	0	0	0	0	0	0	0	0
Aug-19	0	0	0	0	0	0	0	0
Sep-19	0	0	0	0	0	0	0	0
Oct-19	0.06	0	0.17	57	0	173	50	86.69%
Nov-19	0.02	0	0.05	17	0	46	15	89.3%
Dec-19	0.02	0	0.05	21	0	53	14	66.7%
Jan-20	0.06	0.02	0.12	65	18	119	26	39.93%
Feb-20	0	0	0	0	0	0	0	0
Mar-20	0.58	0.31	0.89	591	319	902	147	24.85%
May S01 20	0	0	0	0	0	0	0	0
May S02 20	0	0	0	0	0	0	0	0
Jun-20	0.01	0	0.02	9	0	24	8	94.19%
Jul-20	0.01	0	0.02	8	0	24	8	102.85%
Aug-20	0	0	0	0	0	0	0	0
Sep-20	0	0	0	0	0	0	0	0
Oct-20	0.18	0.04	0.38	186	38	389	92	49.56%
Nov-20	0.02	0	0.05	17	0	48	17	100.64%
Dec-20	0.01	0	0.02	9	0	24	8	85.59%
Jan-21	0.12	0.03	0.23	119	31	228	51	42.61%
Feb-21	0.06	0.01	0.13	65	8	134	33	49.69%
Apr S01 21	0.1	0.04	0.17	105	40	175	36	33.86%
Apr S02 21	0.02	0	0.05	17	0	48	16	92.32%

Table 28: Apportioned density and population estimates of flying razorbills in the Berwick Bank Development Array only, calculated using design-based analysis

Flying Razorbill	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
Survey								
Mar-19	0.21	0.1	0.34	213	104	343	61	28.62%
May-19	0	0	0	1	1	1	1	45.13%
Jun-19	0	0	0	1	0	2	1	95.82%
Jul-19	0	0	0	1	0	2	1	87.42%
Aug-19	0	0	0	0	0	0	0	0
Sep-19	0	0	0	1	0	3	1	89.05%
Oct-19	0.06	0	0.17	60	3	171	48	80.51%
Nov-19	0.02	0	0.05	19	0	52	16	83.73%
Dec-19	0.02	0	0.06	25	3	57	14	55.07%
Jan-20	0.07	0.02	0.12	71	23	125	27	37.31%
Feb-20	0	0	0.01	3	0	6	2	70.97%
Mar-20	0.61	0.34	0.94	616	348	947	153	24.72%
May S01 20	0	0	0	0	0	0	0	0
May S02 20	0	0	0	1	0	2	1	91.4%
Jun-20	0.01	0	0.02	9	0	24	8	90.21%
Jul-20	0.01	0	0.02	9	0	24	8	95.37%
Aug-20	0	0	0	0	0	0	0	0
Sep-20	0	0	0	0	0	0	0	0
Oct-20	0.19	0.04	0.39	196	40	394	93	47.23%
Nov-20	0.02	0	0.06	19	0	60	16	84.38%
Dec-20	0.01	0	0.03	10	0	30	8	80.85%
Jan-21	0.12	0.03	0.24	127	31	245	54	42.54%
Feb-21	0.07	0.01	0.14	67	14	138	32	48.06%
Apr S01 21	0.11	0.04	0.18	108	44	181	36	32.61%
Apr S02 21	0.02	0	0.05	20	1	53	16	80.52%

Table 29: Unapportioned density and population estimates of flying puffins in the Berwick Bank Development Array only, calculated using design-based analysis

Flying Puffin	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
Survey								
Mar-19	0.02	0.01	0.04	22	6	45	11	48%
May-19	0.05	0.01	0.09	49	15	89	21	42.15%
Jun-19	0.02	0	0.04	16	0	38	10	62.16%
Jul-19	0.02	0	0.06	22	0	59	16	72.45%
Aug-19	0.03	0	0.09	31	0	93	29	94.33%
Sep-19	0.02	0	0.07	24	0	72	24	99.26%
Oct-19	0.01	0	0.02	6	0	18	6	99.17%
Nov-19	0	0	0	0	0	0	0	0
Dec-19	0	0	0	0	0	0	0	0
Jan-20	0	0	0	0	0	0	0	0
Feb-20	0	0	0	0	0	0	0	0
Mar-20	0.1	0.03	0.17	98	34	173	36	36.94%
May S01 20	0.01	0	0.04	11	0	36	10	96.92%

Flying Puffin	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
Survey								
May S02 20	0	0	0	0	0	0	0	0
Jun-20	0.01	0	0.02	9	0	24	8	92.16%
Jul-20	0.02	0	0.07	25	0	68	18	72.13%
Aug-20	0	0	0	0	0	0	0	0
Sep-20	0	0	0	0	0	0	0	0
Oct-20	0	0	0	0	0	0	0	0
Nov-20	0	0	0	0	0	0	0	0
Dec-20	0	0	0	0	0	0	0	0
Jan-21	0	0	0	0	0	0	0	0
Feb-21	0	0	0	0	0	0	0	0
Apr S01 21	0.04	0	0.09	41	0	94	24	57.12%
Apr S02 21	0.01	0	0.02	8	0	24	8	94.09%

Table 30: Apportioned density and population estimates of flying puffins in the Berwick Bank Development Array only, calculated using design-based analysis

Flying Puffin	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
Survey								
Mar-19	0.08	0.02	0.16	80	21	163	37	45.78%
May-19	0.06	0.02	0.11	63	23	109	23	36.41%
Jun-19	0.02	0	0.04	19	0	40	10	53.72%
Jul-19	0.03	0	0.07	29	3	67	16	54.49%
Aug-19	0.05	0	0.13	54	0	136	36	65.87%
Sep-19	0.02	0	0.07	24	0	72	24	98.61%
Oct-19	0.01	0	0.02	6	0	18	6	98.36%
Nov-19	0	0	0	0	0	0	0	0
Dec-19	0	0	0	0	0	0	0	0
Jan-20	0	0	0	0	0	0	0	0
Feb-20	0	0	0	0	0	0	0	0
Mar-20	0.12	0.05	0.21	121	46	213	44	36.29%
May S01 20	0.04	0	0.07	38	0	72	19	48.19%
May S02 20	0.01	0	0.02	8	0	24	8	94.01%
Jun-20	0.01	0	0.02	9	0	24	8	91.48%
Jul-20	0.02	0	0.05	24	0	56	17	73.37%
Aug-20	0	0	0	0	0	0	0	0
Sep-20	0	0	0	0	0	0	0	0
Oct-20	0	0	0	2	0	4	2	94.75%
Nov-20	0	0	0	0	0	0	0	0
Dec-20	0	0	0	0	0	0	0	0
Jan-21	0	0	0	0	0	0	0	0
Feb-21	0	0	0	0	0	0	0	0
Apr S01 21	0.04	0	0.08	40	0	84	22	54.66%
Apr S02 21	0.01	0	0.02	9	0	24	8	89.99%

Table 31: Unapportioned density and population estimates of flying red-throated divers in the Berwick Bank Development Array only, calculated using design-based analysis

Flying Red-throated diver	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
Survey								
Mar-19	0	0	0	0	0	0	0	0
May-19	0	0	0	0	0	0	0	0
Jun-19	0	0	0	0	0	0	0	0
Jul-19	0	0	0	0	0	0	0	0
Aug-19	0	0	0	0	0	0	0	0
Sep-19	0	0	0	0	0	0	0	0
Oct-19	0	0	0	0	0	0	0	0
Nov-19	0	0	0	0	0	0	0	0
Dec-19	0	0	0	0	0	0	0	0
Jan-20	0	0	0	0	0	0	0	0
Feb-20	0	0	0	0	0	0	0	0
Mar-20	0	0	0	0	0	0	0	0
May S01 20	0	0	0	0	0	0	0	0
May S02 20	0	0	0	0	0	0	0	0
Jun-20	0	0	0	0	0	0	0	0
Jul-20	0	0	0	0	0	0	0	0
Aug-20	0	0	0	0	0	0	0	0
Sep-20	0	0	0	0	0	0	0	0
Oct-20	0	0	0	0	0	0	0	0
Nov-20	0	0	0	0	0	0	0	0
Dec-20	0	0	0	0	0	0	0	0
Jan-21	0	0	0	0	0	0	0	0
Feb-21	0	0	0	0	0	0	0	0
Apr S01 21	0	0	0	0	0	0	0	0
Apr S02 21	0	0	0	0	0	0	0	0

Table 32: Apportioned density and population estimates of flying red-throated divers in the Berwick Bank Development Array only, calculated using design-based analysis

Flying Red-throated diver	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
Survey								
Mar-19	0	0	0	0	0	0	0	0
May-19	0	0	0	0	0	0	0	0
Jun-19	0	0	0	0	0	0	0	0
Jul-19	0	0	0	0	0	0	0	0
Aug-19	0	0	0	0	0	0	0	0
Sep-19	0	0	0	0	0	0	0	0
Oct-19	0	0	0	0	0	0	0	0
Nov-19	0	0	0	0	0	0	0	0
Dec-19	0	0	0	0	0	0	0	0
Jan-20	0	0	0	0	0	0	0	0
Feb-20	0	0	0	0	0	0	0	0
Mar-20	0	0	0	0	0	0	0	0

Flying Red-throated diver	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
Survey								
May S01 20	0	0	0	0	0	0	0	0
May S02 20	0	0	0	0	0	0	0	0
Jun-20	0	0	0	0	0	0	0	0
Jul-20	0	0	0	0	0	0	0	0
Aug-20	0	0	0	0	0	0	0	0
Sep-20	0	0	0	0	0	0	0	0
Oct-20	0	0	0	0	0	0	0	0
Nov-20	0	0	0	0	0	0	0	0
Dec-20	0	0	0	0	0	0	0	0
Jan-21	0	0	0	0	0	0	0	0
Feb-21	0	0	0	0	0	0	0	0
Apr S01 21	0	0	0	0	0	0	0	0
Apr S02 21	0	0	0	0	0	0	0	0

Table 33: Unapportioned density and population estimates of flying fulmars in the Berwick Bank Development Array only, calculated using design-based analysis

Flying Fulmar	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
Survey								
Mar-19	0.05	0.02	0.09	52	21	91	18	33.72%
May-19	0.01	0	0.02	8	0	24	8	98.82%
Jun-19	0.01	0	0.02	8	0	24	8	97.2%
Jul-19	0.02	0	0.04	16	0	37	11	65.75%
Aug-19	0.04	0.01	0.07	37	8	76	18	46.13%
Sep-19	0.01	0	0.05	15	0	47	15	97.99%
Oct-19	0.01	0	0.02	6	0	19	6	90.78%
Nov-19	0.15	0.09	0.23	157	87	233	37	23.28%
Dec-19	0.04	0.01	0.07	41	15	71	15	35.8%
Jan-20	0.11	0.06	0.17	115	64	174	29	24.83%
Feb-20	0	0	0	0	0	0	0	0
Mar-20	0.03	0	0.05	26	0	53	14	52.16%
May S01 20	0.01	0	0.03	10	0	29	9	87.99%
May S02 20	0.02	0	0.04	17	0	39	11	66.44%
Jun-20	0.05	0.01	0.09	49	16	94	21	42.99%
Jul-20	0.04	0.01	0.08	41	8	79	20	47.51%
Aug-20	0.09	0.04	0.15	88	40	150	28	31.12%
Sep-20	0.25	0.15	0.35	255	156	356	54	20.89%
Oct-20	0.16	0.08	0.28	167	79	280	54	32.05%
Nov-20	0	0	0	0	0	0	0	0
Dec-20	0.19	0.11	0.3	197	116	300	47	23.59%
Jan-21	0.09	0.02	0.15	88	24	157	37	41.15%
Feb-21	0.06	0.03	0.1	64	31	98	19	29.28%
Apr S01 21	0.03	0	0.07	33	0	72	18	54.45%
Apr S02 21	0.06	0.02	0.11	63	24	110	22	33.51%

Table 34: Apportioned density and population estimates of flying fulmars in the Berwick Bank Development Array only, calculated using design-based analysis

Flying Fulmar	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
Survey								
Mar-19	0.05	0.02	0.08	51	20	86	18	34.39%
May-19	0.01	0	0.02	8	0	24	8	98.05%
Jun-19	0.01	0	0.02	9	0	24	8	94.74%
Jul-19	0.01	0	0.04	16	0	37	10	65.58%
Aug-19	0.05	0.01	0.08	47	16	85	18	37.44%
Sep-19	0.02	0	0.05	16	0	47	15	91.29%
Oct-19	0.01	0	0.02	6	0	19	6	95.71%
Nov-19	0.15	0.09	0.23	153	87	229	36	23.46%
Dec-19	0.05	0.02	0.08	48	16	77	16	32.32%
Jan-20	0.14	0.08	0.21	143	82	209	34	23.43%
Feb-20	0	0	0	0	0	0	0	0
Mar-20	0.03	0	0.05	27	0	53	14	51.51%
May S01 20	0.01	0	0.03	10	0	30	9	88.94%
May S02 20	0.01	0	0.03	15	0	32	10	61.82%
Jun-20	0.05	0.01	0.09	48	16	88	20	40.65%
Jul-20	0.04	0.01	0.08	41	8	86	21	51.88%
Aug-20	0.09	0.04	0.14	89	40	144	25	28.22%
Sep-20	0.26	0.15	0.37	265	151	370	57	21.31%
Oct-20	0.16	0.07	0.27	166	76	270	53	31.77%
Nov-20	0	0	0	0	0	0	0	0
Dec-20	0.2	0.12	0.29	206	118	294	47	22.79%
Jan-21	0.09	0.02	0.16	88	24	164	37	41.86%
Feb-21	0.06	0.03	0.1	65	31	102	19	29.55%
Apr S01 21	0.03	0.01	0.07	34	8	70	17	50.61%
Apr S02 21	0.06	0.02	0.11	63	24	111	23	35.32%

Table 35: Unapportioned density and population estimates of flying Manx shearwater in the Berwick Bank Development Array only, calculated using design-based analysis

Flying Manx shearwater	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
Survey								
Mar-19	0	0	0	0	0	0	0	0
May-19	0	0	0	0	0	0	0	0
Jun-19	0	0	0	0	0	0	0	0
Jul-19	0	0	0	0	0	0	0	0
Aug-19	0	0	0	0	0	0	0	0
Sep-19	0	0	0	0	0	0	0	0
Oct-19	0	0	0	0	0	0	0	0
Nov-19	0	0	0	0	0	0	0	0
Dec-19	0	0	0	0	0	0	0	0
Jan-20	0	0	0	0	0	0	0	0
Feb-20	0	0	0	0	0	0	0	0
Mar-20	0	0	0	0	0	0	0	0
May S01 20	0	0	0	0	0	0	0	0

Flying Manx shearwater	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
Survey								
May S02 20	0	0	0	0	0	0	0	0
Jun-20	0	0	0	0	0	0	0	0
Jul-20	0	0	0	0	0	0	0	0
Aug-20	0.06	0	0.19	62	0	188	60	96.64%
Sep-20	0	0	0	0	0	0	0	0
Oct-20	0	0	0	0	0	0	0	0
Nov-20	0	0	0	0	0	0	0	0
Dec-20	0	0	0	0	0	0	0	0
Jan-21	0	0	0	0	0	0	0	0
Feb-21	0	0	0	0	0	0	0	0
Apr S01 21	0	0	0	0	0	0	0	0
Apr S02 21	0	0	0	0	0	0	0	0

Table 36: Apportioned density and population estimates of flying Manx shearwater in the Berwick Bank Development Array only, calculated using design-based analysis

Flying Manx shearwater	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
Survey								
Mar-19	0	0	0	0	0	0	0	0
May-19	0	0	0	0	0	0	0	0
Jun-19	0	0	0	0	0	0	0	0
Jul-19	0	0	0	0	0	0	0	0
Aug-19	0	0	0	0	0	0	0	0
Sep-19	0	0	0	0	0	0	0	0
Oct-19	0	0	0	0	0	0	0	0
Nov-19	0	0	0	0	0	0	0	0
Dec-19	0	0	0	0	0	0	0	0
Jan-20	0	0	0	0	0	0	0	0
Feb-20	0	0	0	0	0	0	0	0
Mar-20	0	0	0	0	0	0	0	0
May S01 20	0	0	0	0	0	0	0	0
May S02 20	0	0	0	0	0	0	0	0
Jun-20	0	0	0	0	0	0	0	0
Jul-20	0	0	0	0	0	0	0	0
Aug-20	0.07	0	0.19	67	0	190	60	89.76%
Sep-20	0	0	0	0	0	0	0	0
Oct-20	0	0	0	0	0	0	0	0
Nov-20	0	0	0	0	0	0	0	0
Dec-20	0	0	0	0	0	0	0	0
Jan-21	0	0	0	0	0	0	0	0
Feb-21	0	0	0	0	0	0	0	0
Apr S01 21	0	0	0	0	0	0	0	0
Apr S02 21	0	0	0	0	0	0	0	0

Table 37: Unapportioned density and population estimates of flying gannets in the Berwick Bank Development Array only, calculated using design-based analysis

Flying Gannet	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
Survey								
Mar-19	0.15	0.08	0.24	147	82	238	38	25.87%
May-19	0.41	0.31	0.52	419	316	530	56	13.27%
Jun-19	0.79	0.53	1.11	797	534	1125	157	19.68%
Jul-19	1.48	1.13	1.85	1499	1145	1869	184	12.23%
Aug-19	1.39	1.12	1.69	1409	1132	1712	149	10.54%
Sep-19	2.49	1.98	3.09	2513	2006	3124	284	11.28%
Oct-19	0.47	0.35	0.62	479	356	627	70	14.59%
Nov-19	0.13	0.07	0.19	131	76	191	31	23.35%
Dec-19	0	0	0	0	0	0	0	0
Jan-20	0.01	0	0.02	8	0	23	7	87.73%
Feb-20	0	0	0	0	0	0	0	0
Mar-20	0.19	0.09	0.29	193	93	295	52	26.97%
May S01 20	0.29	0.17	0.47	298	171	471	80	26.88%
May S02 20	0.71	0.48	1.01	721	486	1018	141	19.51%
Jun-20	0.88	0.7	1.1	891	706	1115	104	11.63%
Jul-20	1.55	1.23	1.87	1570	1248	1894	162	10.31%
Aug-20	0.7	0.55	0.86	704	555	873	87	12.32%
Sep-20	0.92	0.59	1.36	933	599	1374	208	22.2%
Oct-20	0.34	0.25	0.42	344	256	427	45	13%
Nov-20	0.79	0.54	1.06	796	542	1073	139	17.4%
Dec-20	0.02	0	0.04	17	0	39	11	62.25%
Jan-21	0.05	0.01	0.09	48	8	92	22	45.46%
Feb-21	0.04	0	0.08	39	0	77	20	50.93%
Apr S01 21	0.46	0.32	0.57	468	327	579	65	13.89%
Apr S02 21	0.58	0.25	1.11	585	258	1128	234	39.97%

Table 38: Apportioned density and population estimates of flying gannets in the Berwick Bank Development Array only, calculated using design-based analysis

Flying Gannet	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
Survey								
Mar-19	0.14	0.08	0.22	145	83	227	37	25.21%
May-19	0.41	0.31	0.52	419	313	529	58	13.69%
Jun-19	0.8	0.52	1.13	806	531	1142	167	20.7%
Jul-19	1.48	1.1	1.86	1494	1117	1877	194	12.96%
Aug-19	1.39	1.12	1.67	1410	1129	1689	151	10.67%
Sep-19	2.46	1.92	3.03	2486	1939	3063	292	11.73%
Oct-19	0.48	0.36	0.61	481	360	618	67	13.88%
Nov-19	0.13	0.08	0.19	134	81	196	31	23.27%
Dec-19	0	0	0	0	0	0	0	0
Jan-20	0.01	0	0.02	8	0	24	8	91.18%
Feb-20	0	0	0	0	0	0	0	0
Mar-20	0.19	0.1	0.29	193	104	299	51	26.43%

Flying Gannet	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
Survey								
May S01 20	0.29	0.18	0.47	298	180	472	76	25.42%
May S02 20	0.72	0.49	1.02	732	493	1033	138	18.73%
Jun-20	0.88	0.7	1.08	895	709	1088	100	11.15%
Jul-20	1.53	1.23	1.86	1544	1243	1881	169	10.92%
Aug-20	0.69	0.52	0.86	701	527	872	89	12.7%
Sep-20	0.94	0.59	1.34	946	596	1351	206	21.67%
Oct-20	0.34	0.25	0.42	342	256	421	45	13.01%
Nov-20	0.79	0.53	1.07	797	535	1086	142	17.78%
Dec-20	0.02	0	0.03	16	0	32	10	64.85%
Jan-21	0.05	0.01	0.09	49	15	94	22	43.56%
Feb-21	0.04	0	0.08	40	4	84	21	51.59%
Apr S01 21	0.46	0.33	0.58	469	333	587	66	13.96%
Apr S02 21	0.58	0.22	1.1	587	226	1108	228	38.79%

Table 39: Unapportioned density and population estimates of flying shags in the Berwick Bank Development Array only, calculated using design-based analysis

Flying Shag	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
Survey								
Mar-19	0	0	0	0	0	0	0	0
May-19	0	0	0	0	0	0	0	0
Jun-19	0	0	0	0	0	0	0	0
Jul-19	0	0	0	0	0	0	0	0
Aug-19	0	0	0	0	0	0	0	0
Sep-19	0	0	0	0	0	0	0	0
Oct-19	0	0	0	0	0	0	0	0
Nov-19	0	0	0	0	0	0	0	0
Dec-19	0	0	0	0	0	0	0	0
Jan-20	0	0	0	0	0	0	0	0
Feb-20	0	0	0	0	0	0	0	0
Mar-20	0	0	0	0	0	0	0	0
May S01 20	0	0	0	0	0	0	0	0
May S02 20	0	0	0	0	0	0	0	0
Jun-20	0	0	0	0	0	0	0	0
Jul-20	0	0	0	0	0	0	0	0
Aug-20	0	0	0	0	0	0	0	0
Sep-20	0	0	0	0	0	0	0	0
Oct-20	0	0	0	0	0	0	0	0
Nov-20	0	0	0	0	0	0	0	0
Dec-20	0	0	0	0	0	0	0	0
Jan-21	0	0	0	0	0	0	0	0
Feb-21	0	0	0	0	0	0	0	0
Apr S01 21	0	0	0	0	0	0	0	0
Apr S02 21	0	0	0	0	0	0	0	0

Table 40: Apportioned density and population estimates of flying shags in the Berwick Bank Development Array only, calculated using design-based analysis

Flying Shag	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
Survey								
Mar-19	0	0	0	0	0	0	0	0
May-19	0	0	0	0	0	0	0	0
Jun-19	0	0	0	0	0	0	0	0
Jul-19	0	0	0	0	0	0	0	0
Aug-19	0	0	0	0	0	0	0	0
Sep-19	0	0	0	0	0	0	0	0
Oct-19	0	0	0	0	0	0	0	0
Nov-19	0	0	0	0	0	0	0	0
Dec-19	0	0	0	0	0	0	0	0
Jan-20	0	0	0	0	0	0	0	0
Feb-20	0	0	0	0	0	0	0	0
Mar-20	0	0	0	0	0	0	0	0
May S01 20	0	0	0	0	0	0	0	0
May S02 20	0	0	0	0	0	0	0	0
Jun-20	0	0	0	0	0	0	0	0
Jul-20	0	0	0	0	0	0	0	0
Aug-20	0	0	0	0	0	0	0	0
Sep-20	0	0	0	0	0	0	0	0
Oct-20	0	0	0	0	0	0	0	0
Nov-20	0	0	0	0	0	0	0	0
Dec-20	0	0	0	0	0	0	0	0
Jan-21	0	0	0	0	0	0	0	0
Feb-21	0	0	0	0	0	0	0	0
Apr S01 21	0	0	0	0	0	0	0	0
Apr S02 21	0	0	0	0	0	0	0	0

