

Annex A Preliminary Analysis of Records in the ESAS Database

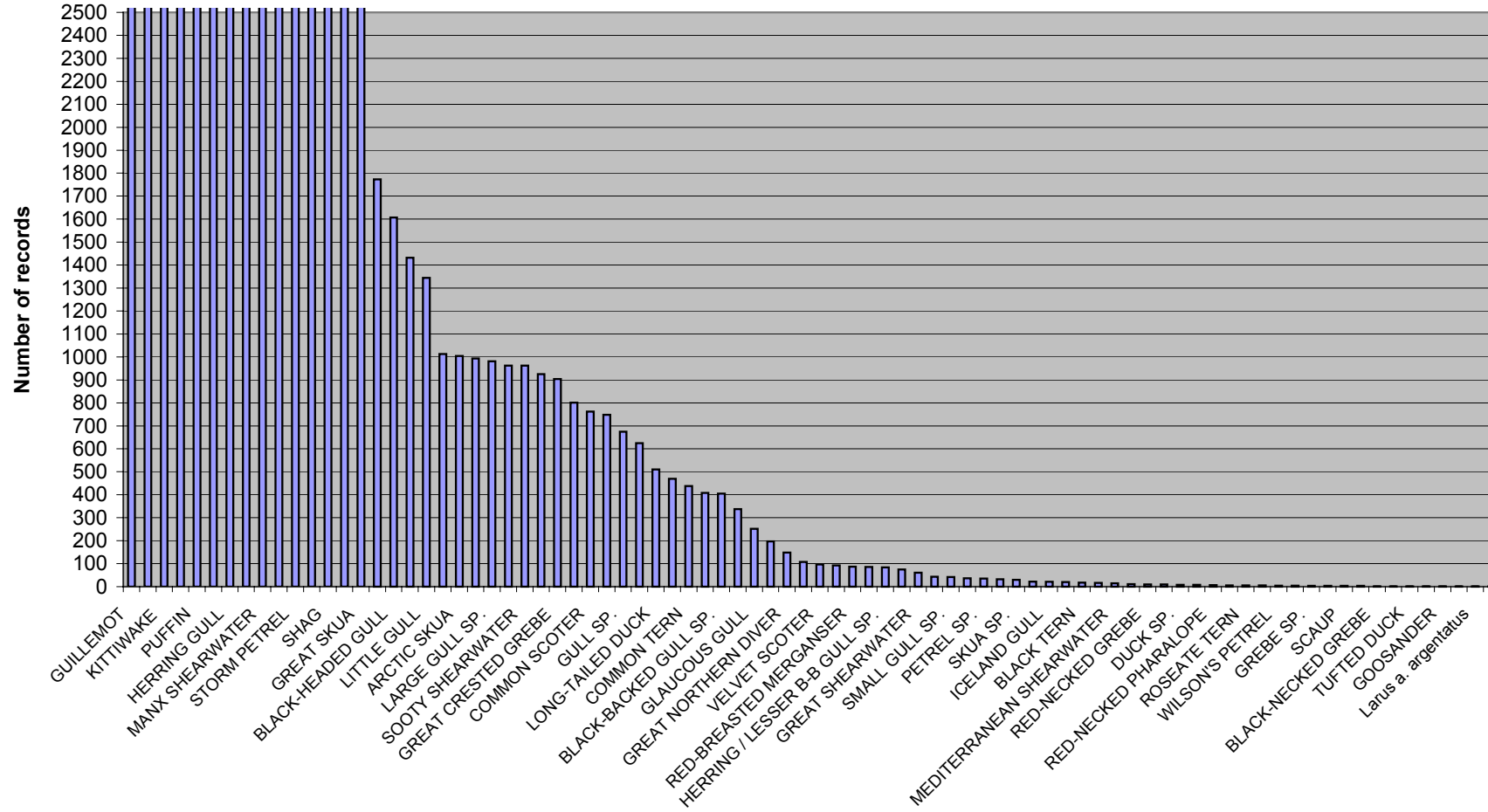
1. Distribution of records within ESAS database

The following table and graph represent a rough preliminary analysis of the number of records for all species in the ESAS database, based on a sample of the database records, to assist in determining a cut-off point below which spatial analysis of ESAS records will not be employed as a principal method to identify areas where aggregations of species occur.

Species name	No birds recorded	Number of records
GUILLEMOT	396506	159069
FULMAR	467468	113422
KITTIWAKE	207614	47551
GANNET	90578	45078
PUFFIN	129625	39199
RAZORBILL	62944	24728
HERRING GULL	98539	17916
GREAT BLACK-BACKED GULL	45736	13970
MANX SHEARWATER	111635	12131
GUILLEMOT / RAZORBILL	65300	11363
STORM PETREL	13548	6951
LESSER BLACK-BACKED GULL	27266	6949
SHAG	15703	4343
COMMON GULL	11516	4022
GREAT SKUA	4847	3822
LITTLE AUK	3543	1773
BLACK-HEADED GULL	6699	1607
AUK SP.	3635	1432
LITTLE GULL	3829	1344
ARCTIC TERN	2473	1013
ARCTIC SKUA	1135	1004
BLACK GUILLEMOT	1454	993
LARGE GULL SP.	15936	981
RED-THROATED DIVER	1257	962
SOOTY SHEARWATER	3208	962
COMMON EIDER	7856	925
GREAT CRESTED GREBE	1693	904
COMMIC TERN	2320	801
COMMON SCOTER	22326	762
LEACH'S PETREL	1189	748
GULL SP.	13796	674
CORMORANT	1098	625
LONG-TAILED DUCK	9666	510
DIVER SP	627	470
COMMON TERN	1182	438
TERN SP.	967	408
BLACK-BACKED GULL SP.	1735	405

SANDWICH TERN	572	338
GLAUCOUS GULL	343	252
POMARINE SKUA	226	197
GREAT NORTHERN DIVER	174	148
BLACK-THROATED DIVER	123	108
VELVET SCOTER	991	97
SHAG / CORMORANT	143	92
RED-BREASTED MERGANSER	344	87
LONG-TAILED SKUA	132	86
HERRING / LESSER B-B GULL SP.	455	84
COMMON / HERRING GULL	158	75
GREAT SHEARWATER	174	60
Larus fuscus graellsii	53	43
SMALL GULL SP.	346	42
SCOTER SP.	1083	36
PETREL SP.	239	35
CORY'S SHEARWATER	64	32
SKUA SP.	32	30
MEDITERRANEAN GULL	23	22
ICELAND GULL	24	21
GREY PHALAROPE	25	20
BLACK TERN	22	18
SABINE'S GULL	21	16
MEDITERRANEAN SHEARWATER	18	14
YELLOW-LEGGED GULL	13	11
RED-NECKED GREBE	13	10
LITTLE TERN	20	10
DUCK SP.	20	8
PUFFIN / LITTLE AUK	9	8
RED-NECKED PHALAROPE	9	7
PHALAROPE SP.	9	5
ROSEATE TERN	6	5
BRUNNICH'S GUILLEMOT	5	5
WILSON'S PETREL	4	4
GOLDENEYE	35	4
GREBE SP.	3	3
SHEARWATER SP.	3	3
SCAUP	45	3
GLAUCOUS / ICELAND GULL	3	3
BLACK-NECKED GREBE	1	1
CORY'S / GREAT SHEARWATER	1	1
TUFTED DUCK	1	1
SURF SCOTER	2	1
GOOSANDER	1	1
Larus f. fuscus	1	1
Larus a. argentatus	1	1
GLAUCOUS / HERRING HYBRID	1	1

Species abundance around Britain and Ireland



2. Distance from shore

The following table and three graphs represent a preliminary analysis of the percentage of records of observations of seabirds in the ESAS database according to distance from shore. For example, for red throated diver, 38% of records occurred within 5 km of the UK shore, 70% within 10 km, etc.

This analysis is taken from a sample of 2877 ten-minute recording periods randomly selected from the ESAS database. All records were between 48°N, 63°N, 18°W and 3°E. Only birds “in transect” were used (the full methodology can be found in Komdeur, K, Bertelson, J & Cracknell G. (eds) 1992. Manual for aeroplane and ship surveys of waterfowl and seabirds. IWRB Spec. Publ. 19, Slimbridge, UK, 37pp). Distance was calculated to the nearest point of land, taken from the World Vector Shoreline (USDA). The density (number per km²) of each species was calculated using the sample, and from this, the percentage occurring within 5 km zones. The number of birds used to perform this calculation is low for many of the species presented here, but would increase if this analysis were extended to the whole database of over 290,000 ten-minute recording periods.

Number of individuals	Species name	< 5km	< 10km	< 15km	< 20km	< 25km	< 30km	< 35km	< 40km	< 45km	< 50km
236	Red-throated Diver	38.43	70.19	84.38	86.44	89.19	90.31	90.31	90.31	90.31	90.31
23	Black-throated Diver	41.69	69.09	83.78	83.78	83.78	83.78	83.78	100	100	100
44	Great Northern Diver	81.85	100	100	100	100	100	100	100	100	100
140	unidentified divers	33.36	57.12	86.76	90.12	90.12	90.12	90.12	90.12	90.12	90.12
313	Great Crested Grebe	13.98	95.78	100	100	100	100	100	100	100	100
4	Red-necked Grebe	0	100	100	100	100	100	100	100	100	100
59296	Northern Fulmar	1.92	3.26	4.87	8.5	11.29	13.9	19.54	24.02	27.79	31.37
20	Cory's Shearwater	43.9	43.9	43.9	43.9	49.34	49.34	49.34	49.34	49.34	49.34
4	Great Shearwater	1.69	1.69	1.69	1.69	1.69	1.69	1.69	1.69	1.69	1.69
134	Sooty Shearwater	3.23	5.63	8.83	10.62	12.23	12.71	14.06	16.19	17.91	17.91
14712	Manx Shearwater	5.61	15.53	24.98	40.61	52.69	57.86	62.28	63.49	63.79	65.01
1	Balearic Shearwater	0	0	0	100	100	100	100	100	100	100
1064	European Storm-petrel	0.66	1.14	4.17	9.51	11.06	12.17	15.99	19.36	23.96	27.99
119	Leach's Storm-petrel	0	0.15	0.15	0.15	0.15	0.34	0.89	0.89	1.59	1.98
7	European / Leach's storm-petrel	0	0	0	0	0	0	0	0	0	0
11134	Northern Gannet	8.04	13.36	18.41	24.19	39.44	42.72	46.26	51.2	53.95	57.34
116	Great Cormorant	60.05	96.83	96.83	100	100	100	100	100	100	100
2361	European Shag	91.11	98.9	99.61	99.74	99.74	99.74	99.74	99.74	99.74	99.74
17	unidentified cormorant / shags	80.23	100	100	100	100	100	100	100	100	100
40	Greater Scaup	93.83	100	100	100	100	100	100	100	100	100
1351	Common Eider	87.02	99.88	99.88	100	100	100	100	100	100	100
878	Long-tailed Duck	94.92	99.64	99.77	99.77	100	100	100	100	100	100
3697	Common Scoter	41.12	99.47	99.91	99.91	99.91	100	100	100	100	100
120	unidentified scoters	98	100	100	100	100	100	100	100	100	100
185	Velvet Scoter	99.03	100	100	100	100	100	100	100	100	100
73	Red-breasted Merganser	100	100	100	100	100	100	100	100	100	100
1	Red-necked Phalarope	0	0	0	100	100	100	100	100	100	100
3	Grey Phalarope	0	0	15.18	15.18	15.18	49.69	49.69	100	100	100
13	Pomarine Skua	5.5	21.76	21.76	54.31	54.31	80.74	80.74	100	100	100
82	Arctic Skua	14.72	26.33	32.38	46.9	59.87	63.8	72.01	80.6	80.6	84.5
16	Long-tailed Skua	3.3	3.3	20.73	20.73	20.73	100	100	100	100	100
534	Great Skua	4.25	6.22	9.34	20.39	24.66	29.02	32.99	36.16	38.81	41.79
4	unidentified skuas	3.87	6.15	6.15	6.15	6.15	6.15	19.07	19.07	19.07	19.07

2	Mediterranean Gull	0	0	30.55	30.55	30.55	100	100	100	100	100
399	Little Gull	11.06	42.43	65.01	76.91	82.89	82.89	82.89	84.65	84.65	96.65
4	Sabine's Gull	0	0	0	0	0	0	0	0	0	0
937	Black-headed Gull	85.9	93.01	93.23	94.33	94.33	94.33	94.33	95.08	95.53	95.53
1539	Common Gull	48.19	77.68	89.77	92.37	93.24	93.6	93.84	94.1	95.97	95.97
137	unidentified small gulls	19.22	50.31	50.31	50.31	50.31	50.31	50.31	50.31	50.31	50.31
3329	Lesser Black-backed Gull	9.4	15.44	32.03	46.94	50.78	52.82	61.16	65.74	66.53	71.64
137	Lesser black-backed / herring gulls	5.01	9.24	100	100	100	100	100	100	100	100
12485	Herring Gull	18.42	35.44	44.54	49.53	54.02	57.17	62.04	65.23	77.57	78.23
36	Common / herring gulls	98.34	100	100	100	100	100	100	100	100	100
2	Iceland Gull	0	0	0	0	0	40.69	40.69	100	100	100
17	Glauous Gull	0	0.44	0.44	1.54	1.54	1.54	4.02	4.02	4.02	14.67
7750	Great Black-backed Gull	4.54	12.44	23.22	32.92	38.07	41.98	46.4	49.68	51.18	52.89
1563	unidentified large gulls	51.61	73.66	90.91	91.32	93.53	95.2	95.2	98.11	98.11	98.45
29236	Black-legged Kittiwake	4.89	10.84	16.12	22.75	30.18	38.22	41.77	44.95	47.1	48.47
25	Sandwich Tern	68.67	90.33	100	100	100	100	100	100	100	100
143	Common Tern	22.09	27.57	27.86	30.28	31.36	41.84	41.84	41.84	41.84	41.84
193	Arctic Tern	10.58	18.68	25.28	25.64	32.79	33.95	35.55	37.24	65.84	66.98
248	'commic' terns	30.13	41.6	56.97	58.5	98.34	100	100	100	100	100
9	Little Tern	100	100	100	100	100	100	100	100	100	100
1	Black Tern	0	100	100	100	100	100	100	100	100	100
59	unidentified terns	89.38	90.38	97.51	100	100	100	100	100	100	100
74827	Common Guillemot	8.33	15.37	23.21	30.64	39.37	46.15	51.96	55.09	58.18	61.07
11132	common guillemot / razorbill	23.88	35.51	45.31	74.47	83.65	90.02	90.95	91.39	92.75	93.17
1	Brunnich's Guillemot	0	100	100	100	100	100	100	100	100	100
12664	Razorbill	13.7	26.29	37.5	49.04	63.4	72.17	79.36	82.25	84.84	87.37
204	Black Guillemot	92.69	100	100	100	100	100	100	100	100	100
596	Little Auk	0.26	0.76	1.1	2.24	3.13	3.93	5.81	6.88	7.9	8.36
16554	Atlantic Puffin	13.82	20.39	29.22	37.29	43.28	47.38	53.87	58.91	62.01	65.43
3	unidentified small auks	0	0	0	12.45	12.45	12.45	12.45	12.45	48.21	48.21
629	unidentified auks	10.63	15.93	20.38	22.12	27.59	49.31	54.15	55.6	55.9	58.86

The results in the above table, when presented graphically, demonstrate the split between 'inshore' and 'offshore' groups of birds at around 15 km (approximately 8 nm) from shore.

