Final Report

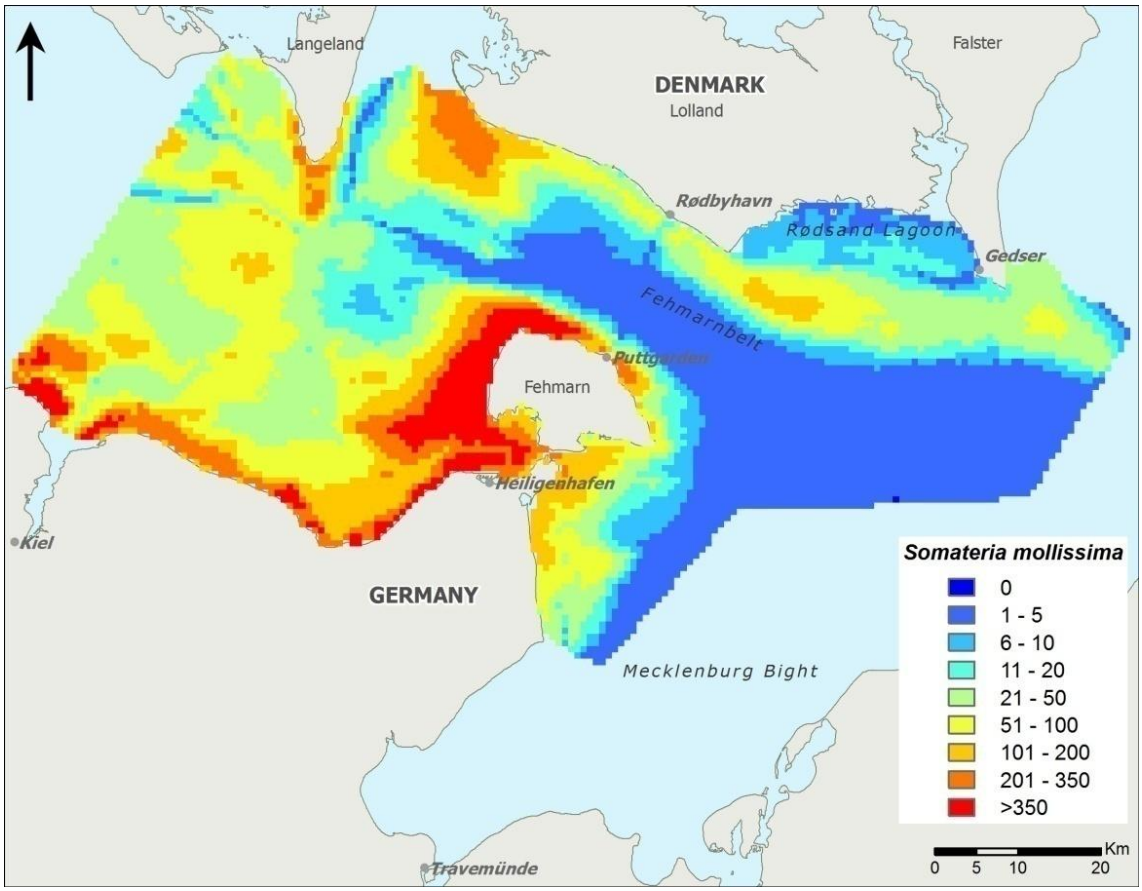
FEHMARNBELT FIXED LINK
BIRD SERVICES (FEBI)

Bird Investigations in Fehmarnbelt - Baseline

Waterbirds in Fehmarnbelt

E3TR0011 Volume II – Appendix V

Raw data of FEBI surveys and Distance analysis results



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Please cite as:
FEBI (2013). Fehmarnbelt Fixed Link EIA.
Bird Investigations in Fehmarnbelt – Baseline.
Volume II. Waterbirds in Fehmarnbelt.
Report No. E3TR0011
Appendix V: Raw data of FEBI surveys and Distance analysis results.

Appendix: 33 pages

(Main Report: ISBN 978-87-92416-51-3)

May 2013

ISBN 978-87-92416-83-4

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Geodatastyrelsen (formerly Kort- og Matrikelstyrelsen), Kort10 and 25 Matrikelkort
GEUS (De Nationale Geologiske Undersøgelser for Danmark og Grønland)
HELCOM (Helsinki Commission – Baltic Marine Environment Protection Commission)
Landesamt für Vermessung und Geoinformation Schleswig-Holstein (formerly Landesvermessungsamt Schleswig-Holstein) GeoBasis-DE/LVermGeo SH

Co-financed by the European Union
Trans-European Transport Network (TEN-T)

CONTENTS

Lists of figures and tables are included as the final pages

Note to the reader:
In this report the time for start of construction is artificially set to 1 October 2014 for the tunnel and 1 January 2015 for the bridge alternative. In the Danish EIA (VVM) and the German EIA (UVS/LBP) absolute year references are not used. Instead the time references are relative to start of construction works. In the VVM the same time reference is used for tunnel and bridge, i.e. year 0 corresponds to 2014/start of tunnel construction; year 1 corresponds to 2015/start of bridge construction etc. In the UVS/LBP individual time references are used for tunnel and bridge, i.e. for tunnel construction year 1 is equivalent to 2014 (construction starts 1 October in year 1) and for bridge construction year 1 is equivalent to 2015 (construction starts 1st January).

5 APPENDIX V – RAW DATA OF FEBI SURVEYS AND DISTANCE RESULTS

5.1 Lists of all observed species during FEBI surveys

Only waterbird species, which were assessed as being potentially relevant for the EIA, were described in separate species accounts in chapter 4 of the baseline report Volume II.

The total numbers of individuals of all bird species observed during the FEBI aerial and ship-based surveys (raw data without correction for detection bias) are presented in this appendix.

5.1.1 Aerial surveys

In total 74 different bird species or species groups were identified during aerial surveys during the two years of baseline investigations (Table 5.1, Table 5.2).

Table 5.1 Actually counted numbers of birds of all species during aerial surveys between November 2008 and October 2009. Presented are numbers of birds recorded by both main observers in valid conditions.

Species	Aerial survey											
	Nov-08	Dec-08	Jan-09	Feb-09	Mar-09	Apr-09	May-09	Jun-09	Jul-09	Aug-09	Sep-09	Oct-09
Red-throated Diver	1			2	8							1
Black-throated Diver				1	3							
Diver unidentified	5	6	48	49	110	12				2		13
Little Grebe												
Great Crested Grebe		25	219	383	42	1		3		1		6
Red-necked Grebe	1				4						8	1
Slavonian Grebe												
Grebe unidentified			8	1			2				2	
Northern Gannet							4					
Great Cormorant	209	388	82	115	142	138	62	187	487	609	179	1,067
Mute Swan	76	210	241	373	291	1,522	1,168	1,193	1,030	6,603	729	89
Whooper Swan	12		26									
Swan unidentified	267	1	66	200	25	3	2,001	428	4,637	2,329	1,831	350
Bean Goose												
Greater White-fronted Goose												21
Greylag Goose		110	216	73	30	73	42	24	71	701	1,196	2,234
Canada Goose	1			11								
Barnacle Goose			1			18		80				5
Brent Goose					24							291
Goose unidentified							400					70
Shelduck		10		2	12	35	11	3				6
Eurasian Wigeon	350	50	309	547	33	1					6	85
Gadwall												
Common Teal												80
Mallard	958	261	348	142	55	15	7	5	8			44
Northern Pintail												7
Garganey												

Species	Aerial survey											
	Nov-08	Dec-08	Jan-09	Feb-09	Mar-09	Apr-09	May-09	Jun-09	Jul-09	Aug-09	Sep-09	Oct-09
Red-creasted Pochard	14											
Common Pochard			34									
Tufted Duck	51		154	199	96							104
Greater Scaup			300									8
Common Eider	62,982	35,217	22,476	39,866	28,200	2,034	1,507	1,410	1,180	511	1,335	15,917
Long-tailed Duck	1,795	1,457	1,298	1,253	1,849	6		1	1			243
Common Scoter	7,624	17,655	675	5,682	8,166	74	35	24		6	23	581
Scoter unidentified												
Velvet Scoter		10	13	31	19							
Common Goldeneye	362	283	443	720	75	11		3			1	16
Smew				2								
Red-breasted Merganser	12	22	20	79	183	3		2	3		1	69
Goosander	2	8	4	59								
Merganser unidentified			3									
Duck unidentified		171	159	290	60	55	1	510	2	1		105
Honey-Buzzard						1						
Red Kite						1						
Osprey					1							
Common Coot			15	4								
Crane					4							
Stint unidentified		15										
Wader unidentified			280			1						
Arctic Skua					2						1	
Skua unidentified				1								
Little Gull	22				38	804	12	17	69	4	5	87
Black-headed Gull	31	47	181	71	138	5	51	7	193	26	11	79
Common Gull	41	128	1,252	379	348	107	602	39	318	89	21	57
Small gull unidentified			1					10			1	4
Lesser Black-backed Gull						1	1	6	6	5	8	3
Herring Gull	266	568	712	1,133	358	313	185	195	176	274	89	277
Herring/Common Gull			109			42		1	14		3	
Great Black-backed Gull	14	46	37	63	36		6	6	4	2	23	123

Species	Aerial survey											
	Nov-08	Dec-08	Jan-09	Feb-09	Mar-09	Apr-09	May-09	Jun-09	Jul-09	Aug-09	Sep-09	Oct-09
Large gull unidentified	18	150	724		136		5	105		2	322	75
Kittiwake										1		1
Gull unidentified	106	173	645		146	418	57	315	153	84	44	11
Sandwich Tern						1	3				1	1
Arctic Tern								1				
Common/Arctic Tern						3	1	22	7	17	6	
Little Tern							1					
Tern unidentified							1			1	19	1
Common Guillemot	11	12	18	17			2				2	8
Common Guillemot/ Razorbill	6			29	34	2	3					5
Razorbill				8	11							2
Black Guillemot					18	1						
Little Auk												
Auk unidentified												
Passerine unidentified								1				

Table 5.2 Actually counted numbers of birds of all species during aerial surveys between November 2009 and November 2010. Presented are numbers of birds recorded by both main observers in valid conditions.

Species	Aerial survey											
	Nov-09	Dec-09	Mar-10A	Mar-10B	Apr-10	May-10	Jun-10	Aug-10	Sep-10A	Sep-10B	Oct-10	Nov-10
Red-throated Diver	10		121	72	15	2				7	6	1
Black-throated Diver				19	1							
Diver unidentified	19	63	71	124	85	3					24	27
Little Grebe				1								
Great Crested Grebe	26	7	187	234	175	10	7		1			8
Red-necked Grebe	1		45	6	3							
Slavonian Grebe			2	4								
Grebe unidentified			21	1	107	5	18				5	14
Northern Gannet			1									
Great Cormorant	401	11	46	198	57	30	61	130	126	968	429	251
Mute Swan	145	3	181	464	47	559	2,232	6,537	2,878	870	223	80
Whooper Swan												
Swan unidentified	127		491	142	150	234	396	2,953		1,160	189	5
Bean Goose					3							
Greater White-fronted Goose	50			18								
Greylag Goose	120		286	82	48	15	7	213	795	505	613	385
Canada Goose												
Barnacle Goose											90	
Brent Goose	3		7	50	22	117					36	
Goose unidentified	105			32	23	20	15				750	40
Shelduck				2	17	55	4	1				
Eurasian Wigeon	750		26	7						110	85	
Gadwall									10			
Common Teal					5							
Mallard	527	2	60	36	27	16	14	2	3	10	68	134
Northern Pintail												
Garganey				1	4							
Red-creasted Pochard												
Common Pochard												

Species	Aerial survey											
	Nov-09	Dec-09	Mar-10A	Mar-10B	Apr-10	May-10	Jun-10	Aug-10	Sep-10A	Sep-10B	Oct-10	Nov-10
Tufted Duck	273		34		59		1			4		
Greater Scaup			16									
Common Eider	30,066	18,743	27,310	40,537	11,618	1,051	1,504	537	323	477	14,180	23,839
Long-tailed Duck	1,915	246	1,126	1,945	687	12					8	326
Common Scoter	5,605	2,653	3,145	8,513	4,653	11	1	4	11	218	203	740
Scoter unidentified	1											
Velvet Scoter	13	1	53	3	25				1		18	53
Common Goldeneye	210	30	316	511	400	16			2			112
Smew	6		47	13	6							
Red-breasted Merganser	118		85	28	6	2	10	2			16	20
Goosander		15	10	25	1	3					1	
Merganser unidentified				4	1						2	
Duck unidentified	1,944		233	937	80	2	38	2		10	217	4
Honey-Buzzard												
Red Kite												
Osprey												
Common Coot			1				1			200	6	
Crane												
Stint unidentified												
Wader unidentified												
Arctic Skua												
Skua unidentified												
Little Gull	5		9	5	9	6	1	9			26	7
Black-headed Gull	34	15	16	725	153	2	4	245	152	348	111	21
Common Gull	115	5	209	472	214	40	47	86	10	165	403	38
Small gull unidentified				167	21	4					29	
Lesser Black-backed Gull	1	1		7	2	2	6	9	4		4	
Herring Gull	860	411	379	1,796	497	385	170	175	89	622	664	358
Herring/Common Gull			5	546			2	131		34	4	24
Great Black-backed Gull	98	45	144	190	21	4	3	12	4	92	82	19
Large gull unidentified	3	120	75	44		2	10	2			5	
Kittiwake												

Species	Aerial survey											
	Nov-09	Dec-09	Mar-10A	Mar-10B	Apr-10	May-10	Jun-10	Aug-10	Sep-10A	Sep-10B	Oct-10	Nov-10
Gull unidentified	100		703	301	88	265	320	68		11	82	278
Sandwich Tern				6	3	3		33				
Arctic Tern												
Common/Arctic Tern					16	6	5	15	6	4		
Little Tern												
Tern unidentified					4	8	2	38	2			
Common Guillemot	21		1			1						1
Common Guillemot/ Razorbill	9	5	19	53	29		2				8	7
Razorbill			37	6							2	
Black Guillemot	5		2									1
Little Auk				1								
Auk unidentified								3				
Passerine unidentified												

5.1.2 Ship-based surveys

In total 150 different bird species or species groups were recorded during ship-based surveys during the two years of baseline investigations (Table 5.3, Table 5.4).

Table 5.3 Actually counted numbers of birds of all species during ship-based surveys between November 2008 and October 2009. Presented are numbers of birds recorded within and outside of a transect in valid conditions.

Species	Ship-based survey											
	Nov-08	Dec-08	Jan-09	Feb-09	Mar-09	Apr-09	May-09	Jul-09A	Jul-09B	Aug-09	Sep-09	Oct-09
Red-throated Diver	23	17	12	8	19	15						6
Black-throated Diver	7		7	14		5						1
Diver unidentified	70	23	34	7	15	16	6	1				4
Great Crested Grebe	48	47	81	35	76	12			2	1		13
Red-necked Grebe	64	59	61	62	39	51		11	4	28	16	16
Slavonian Grebe	4	2	1		1	3						1
Black-necked Grebe												
Grebe unidentified	34	16	7	9	5	2			1	3	1	12
Northern Fulmar	2											
Manx Shearwater						1						3
Northern Gannet	1											
Great Cormorant	427	374	211	209	161	243	134	255	183	354	278	305
Common Heron				1		1	2		1	1		
Mute Swan	9	1		3		5	7		28		5	4
Bewick's Swan												
Whooper Swan		4			42							
Swan unidentified	4						4					
Greater White-fronted Goose				4		1						
Greylag Goose			2	43	66	9	26	10	5	21	31	
Barnacle Goose						750					9	215
Brent Goose						3						2
Dark-bellied Brent Goose												5
Goose unidentified		30				22				5	48	75
Egyptian Goose												
Shelduck			1		1	1			12			
Eurasian Wigeon			7		5						47	
Gadwall												
Common Teal		35								4	20	2
Mallard	4	202	12	6	6	2	5				3	

Species	Ship-based survey											
	Nov-08	Dec-08	Jan-09	Feb-09	Mar-09	Apr-09	May-09	Jul-09A	Jul-09B	Aug-09	Sep-09	Oct-09
Northern Pintail					1						31	
Common Pochard												1
Tufted Duck	1	2	1		4						5	
Greater Scaup	59	30	2		1							
Common Eider	38,658	61,913	19,400	15,971	14,434	4,209	1,085	385	129	237	1,047	21,373
King Eider	1											
Long-tailed Duck	1,584	2,547	1,210	1,303	1,631	1,990			1			122
Common Scoter	4,060	11,049	3,442	3,671	8,443	2,664	271	90	754	129	553	544
Velvet Scoter	16	43	48	34	87	8	5			4	2	8
Common Goldeneye		2	5	7								
Smew	2											
Red-breasted Merganser	241	254	298	228	197	87	1				3	36
Goosander	1	21	12		1							
Merganser unidentified			11									
Duck unidentified	6	36	31			8		1	6	7	115	32
Honey-Buzzard											1	
Red Kite												
White-tailed Eagle												
Marsh Harrier						1					2	
Hen Harrier												
Harrier unidentified												
European Sparrow Hawk						1	1				14	1
Bird of prey unidentified							1				2	
Eurasian Buzzard					6	1						
Rough-legged Buzzard												
Osprey								1	1	1	3	
Eurasian Kestrel											1	
Merlin						3						
Hobby												
Peregrine Falcon												
Falcon unidentified												
Common Coot	80											

Species	Ship-based survey											
	Nov-08	Dec-08	Jan-09	Feb-09	Mar-09	Apr-09	May-09	Jul-09A	Jul-09B	Aug-09	Sep-09	Oct-09
Crane					5	46	7					
Oystercatcher					1		2					
Golden Plover												
Grey Plover										3		
Lapwing					1							
Sanderling												
Purple Sandpiper												
Dunlin				1				8	25		2	
Stint unidentified			8						82			
Snipe											11	
Bar-tailed Godwit									3	3		
Whimbrel								31	2			
Curlew								15				
Red-necked Phalarope												
Wader unidentified					2			9	1	41		
Pomarine Skua												
Arctic Skua											2	
Skua unidentified											1	
Mediterranean Gull						1						
Little Gull	1	7				87	5	3	2	10	26	26
Sabine's Gull					2							
Black-headed Gull	39	85	1		26	36	10	106	34	5	15	10
Common Gull	56	79	31	21	36	101	23	91	18	16	18	43
Small gull unidentified		2				8				1	2	
Lesser Black-backed Gull	1					1	9		4			
Herring/Lesser Black-backed Gull												
Herring Gull	228	943	512	445	303	125	237	183	163	117	123	421
Yellow-legged Gull		1			5							
Herring/Common Gull			1			25	1	6	2	11		21
Caspian Gull												
Great Black-backed Gull	65	118	59	90	30	7	1	8	13	64	74	36

Species	Ship-based survey											
	Nov-08	Dec-08	Jan-09	Feb-09	Mar-09	Apr-09	May-09	Jul-09A	Jul-09B	Aug-09	Sep-09	Oct-09
Large gull unidentified	49			510	500		7		5	25	20	
Great/Lesser Black-backed Gull								2				
Kittiwake												
Gull unidentified	2				689	11			2	5		
Caspian Tern								1				
Sandwich Tern						1	1	13	14	23	19	1
Common Tern								3	14	6		
Arctic Tern												
Common/Arctic Tern								1	24	2	5	
Little Tern							1			1		
Black Tern									11			
Tern unidentified							2	3		2		
Common Guillemot	10	7	3	3	6		1			1		6
Common Guillemot/ Razorbill	6	3			2	2						1
Razorbill	25	23	148	71	26	5	1	2		2		10
Black Guillemot	4	2	3	6	4	4						
Little Auk												
Puffin												1
Auk unidentified		1										
Feral Pigeon							2			27	3	1
Stock Dove						1						
Woodpigeon					50							
Short-eared Owl												
Swift								1	5	5		
Woodlark					1							
Skylark					108	1						57
Sand Martin								1	2	6		
Swallow						1	50				9	
House Martin									2			
Swallow unidentified										1		

FEHMARNBELT BIRDS

Species	Ship-based survey											
	Nov-08	Dec-08	Jan-09	Feb-09	Mar-09	Apr-09	May-09	Jul-09A	Jul-09B	Aug-09	Sep-09	Oct-09
Meadow Pipit		1				3					2	
Pipit unidentified											5	
Yellow Wagtail											1	
Grey Wagtail												
White Wagtail						5					1	
Robin						1						
Fieldfare												
Redwing												
Thrush unidentified												1
Chiffchaff												
Willow Warbler												
Coal Tit						2						
Blue Tit												
Great Tit					1							
Black-billed Magpie											2	5
Eurasian Jackdaw							3					1
Rook											4	29
Carrion Crow					3	2						
Common Raven												
Crow unidentified												2
Common Starling					3	7						
Chaffinch												
Brambling												
Goldfinch												
Siskin												
Linnet						3						
Reed Bunting					3							
Passerine unidentified						28	4				1	11

Table 5.4 Actually counted numbers of birds of all species during ship-based surveys between November 2009 and November 2010. Presented are numbers of birds recorded within and outside of a transect in valid conditions.

Species	Ship-based survey											
	Nov-09	Dec-09	Jan-10	Feb-10A	Feb-10B	Mar-10	Apr-10	May-10	Jun-10	Sep-10	Oct-10	Nov-10
Red-throated Diver	34	25	8	7	2	9	27	1		2		17
Black-throated Diver	11	6	13	1			13	9	3	1	3	
Diver unidentified	15	8	23	42	23	5	21	15		2	1	24
Great Crested Grebe	3	5	89	106	151	98	12	3	3	1	5	22
Red-necked Grebe	69	23	14	27	4	63	18	5	2	2	15	
Slavonian Grebe	3	5		2	2							
Black-necked Grebe								2				
Grebe unidentified	5	6	20	18	5	17	4				9	6
Northern Fulmar		7										
Manx Shearwater							3					
Northern Gannet					1							
Great Cormorant	639	254	314	451	266	206	66	108	175	186	600	252
Common Heron			1				1	1				1
Mute Swan	11		132	15	53	2		6	2	1	1	5
Bewick's Swan										1		
Whooper Swan			1						1			
Swan unidentified		3	26	19	2				4			12
Greater White-fronted Goose	80										1	
Greylag Goose		7	30	17	195	61	14		2		3	142
Barnacle Goose											20	258
Brent Goose				6	4	13	16	2		10	8	6
Dark-bellied Brent Goose												
Goose unidentified		8		19	11	27	2				10	737
Egyptian Goose				1								
Shelduck				3		3	1				4	
Eurasian Wigeon	78				1						43	2
Gadwall												5
Common Teal	9	4										1
Mallard	20	24	16		6	15	3		5		12	7

Species	Ship-based survey											
	Nov-09	Dec-09	Jan-10	Feb-10A	Feb-10B	Mar-10	Apr-10	May-10	Jun-10	Sep-10	Oct-10	Nov-10
Northern Pintail	3											
Common Pochard												
Tufted Duck			270	309	240	22				2	5	6
Greater Scaup	11		161	1,013	205	75				2	7	14
Common Eider	40,769	25,184	9,671	17,563	37,648	20,398	4,015	468	2,398	909	15,979	98,566
King Eider												
Long-tailed Duck	1,244	1,563	831	2,173	2,727	1,812	4,513	9				1,273
Common Scoter	3,968	10,370	10,770	21,134	13,124	11,450	7,278	86	53	1,647	958	22,943
Velvet Scoter	20	23	64	135	128	224	520			2	6	9
Common Goldeneye	5	2	11	13	62	11	2					89
Smew		1	13		1							
Red-breasted Merganser	208	187	320	717	922	722	49	10	11	9	35	108
Goosander	2		20	13	19	6						4
Merganser unidentified			4	3								
Duck unidentified	15	300	139		783	3,510	186	283	17	50	16	278
Honey-Buzzard									3			
Red Kite										12		
White-tailed Eagle		1										1
Marsh Harrier												
Hen Harrier	1										1	
Harrier unidentified										1		
European Sparrow Hawk							1			25	14	
Bird of prey unidentified				1					1	3	3	1
Eurasian Buzzard	1				1		1					
Rough-legged Buzzard			1									
Osprey										1		
Eurasian Kestrel												
Merlin												
Hobby									1	1		
Peregrine Falcon										1		
Falcon unidentified										1		
Common Coot	1					1						

Species	Ship-based survey											
	Nov-09	Dec-09	Jan-10	Feb-10A	Feb-10B	Mar-10	Apr-10	May-10	Jun-10	Sep-10	Oct-10	Nov-10
Crane												
Oystercatcher		1					5					
Golden Plover										7		2
Grey Plover											4	
Lapwing												
Sanderling		1										15
Purple Sandpiper											1	
Dunlin					1					13		
Stint unidentified												
Snipe												
Bar-tailed Godwit										3		
Whimbrel												
Curlew						5	1					
Red-necked Phalarope											1	
Wader unidentified		7						3		1	6	18
Pomarine Skua								1				
Arctic Skua										2		
Skua unidentified												
Mediterranean Gull												
Little Gull	29	4	5	9	1	5	6	6		45	36	16
Sabine's Gull												
Black-headed Gull	6	2	19	91	20	3	6	2		16	27	75
Common Gull	14	98	202	696	250	186	35	9	5	77	101	177
Smal gull unidentified									1	1	1	
Lesser Black-backed Gull	1						2					
Herring/Lesser Black-backed Gull						1						
Herring Gull	375	238	664	693	667	381	120	184	214	71	155	195
Yellow-legged Gull												
Herring/Common Gull	3				5				1	2		135
Caspian Gull											2	
Great Black-backed Gull	106	99	59	85	115	44	11	21	10	46	58	43

Species	Ship-based survey											
	Nov-09	Dec-09	Jan-10	Feb-10A	Feb-10B	Mar-10	Apr-10	May-10	Jun-10	Sep-10	Oct-10	Nov-10
Large gull unidentified	45	33		334	45		2	1	35	14		60
Great/Lesser Black-backed Gull												
Kittiwake	2											
Gull unidentified			17	1		16	7	22	4			4
Caspian Tern												
Sandwich Tern							1	2		17	3	
Common Tern							1	4		1		
Arctic Tern								5	1			
Common/Arctic Tern								14	5	10		
Little Tern									1			
Black Tern												
Tern unidentified								4	3	2		
Common Guillemot	11			3	1	2	4	3	3			2
Common Guillemot/ Razorbill	30	7	7	12	2	1	1	1				
Razorbill	67	21	45	159	31	13	2	7	4		1	3
Black Guillemot	3	3	4	1	4	8	3					1
Little Auk			1									
Puffin												
Auk unidentified			1							1		1
Feral Pigeon								1				
Stock Dove												
Woodpigeon												
Short-eared Owl			1							1		
Swift								1	1			
Woodlark												
Skylark					1			2		1	82	82
Sand Martin												
Swallow								44	8	73	9	
House Martin	1							1				
Swallow unidentified												

Species	Ship-based survey											
	Nov-09	Dec-09	Jan-10	Feb-10A	Feb-10B	Mar-10	Apr-10	May-10	Jun-10	Sep-10	Oct-10	Nov-10
Meadow Pipit	1						11			216	56	1
Pipit unidentified											3	
Yellow Wagtail												
Grey Wagtail										2		
White Wagtail							1			1	35	
Robin										2	1	
Fieldfare				194								
Redwing				15								
Thrush unidentified				58								
Chiffchaff								1		1		
Willow Warbler											8	
Coal Tit												
Blue Tit		3										
Great Tit												
Black-billed Magpie	3											
Eurasian Jackdaw												
Rook	2		3							17	3	92
Carrion Crow		18									3	2
Common Raven												3
Crow unidentified					2							
Common Starling											3	
Chaffinch											126	
Brambling											4	
Goldfinch									1			
Siskin											48	
Linnet							2					
Reed Bunting											19	
Passerine unidentified	4			10	1		4		1	191	649	71

5.2 Distance analysis aerial surveys

Densities of birds observed during aerial surveys were calculated using Distance analysis as described in Methods (chapter 2.2.5 of volume II of FEBI baseline report). Details of Distance analysis results are summarised in tables for separate species in this Appendix, and shortened versions of the same tables were included in species descriptions in chapter 4.1 of volume II of FEBI baseline report.

Aerial survey result tables in this Appendix are organised as follows:

Column 'Band-A D' shows bird densities calculated for observations of all birds in transect band-A without a correction for distance detection bias. Presentation of densities in band-A is required by StUK 3 (BSH 2007).

Distance analysis results are presented separately for swimming and flying birds and combined for all observed birds. N-obs represents actual number of observations (bird flocks), N-birds – actual number of birds counted within transects. D represents density, %CV – percent coefficient of variation, LCI – lower 95 % confidence interval, UCI – upper 95 % confidence interval; Total number represents total estimate for the area covered by a particular survey (4,875 km^2 multiplied by survey effort). Coefficients of variation greater than 50 % are shaded and respective density estimates should be interpreted with caution as they have broad confidence intervals and therefore possibly low reliability. However, if a strata contributing 90 % or more to the combined density had coefficient of variation lower than 50 %, then the total estimate of birds was considered as reliable and therefore not shaded. For surveys with coefficients of variation greater than 150 % no estimates of total numbers are displayed. Species-specific effective strip widths (ESWs) are indicated in the caption of each table.

Bird densities calculated for band-A were found to be closely matching densities obtained using distance analysis (Figure 5.1).

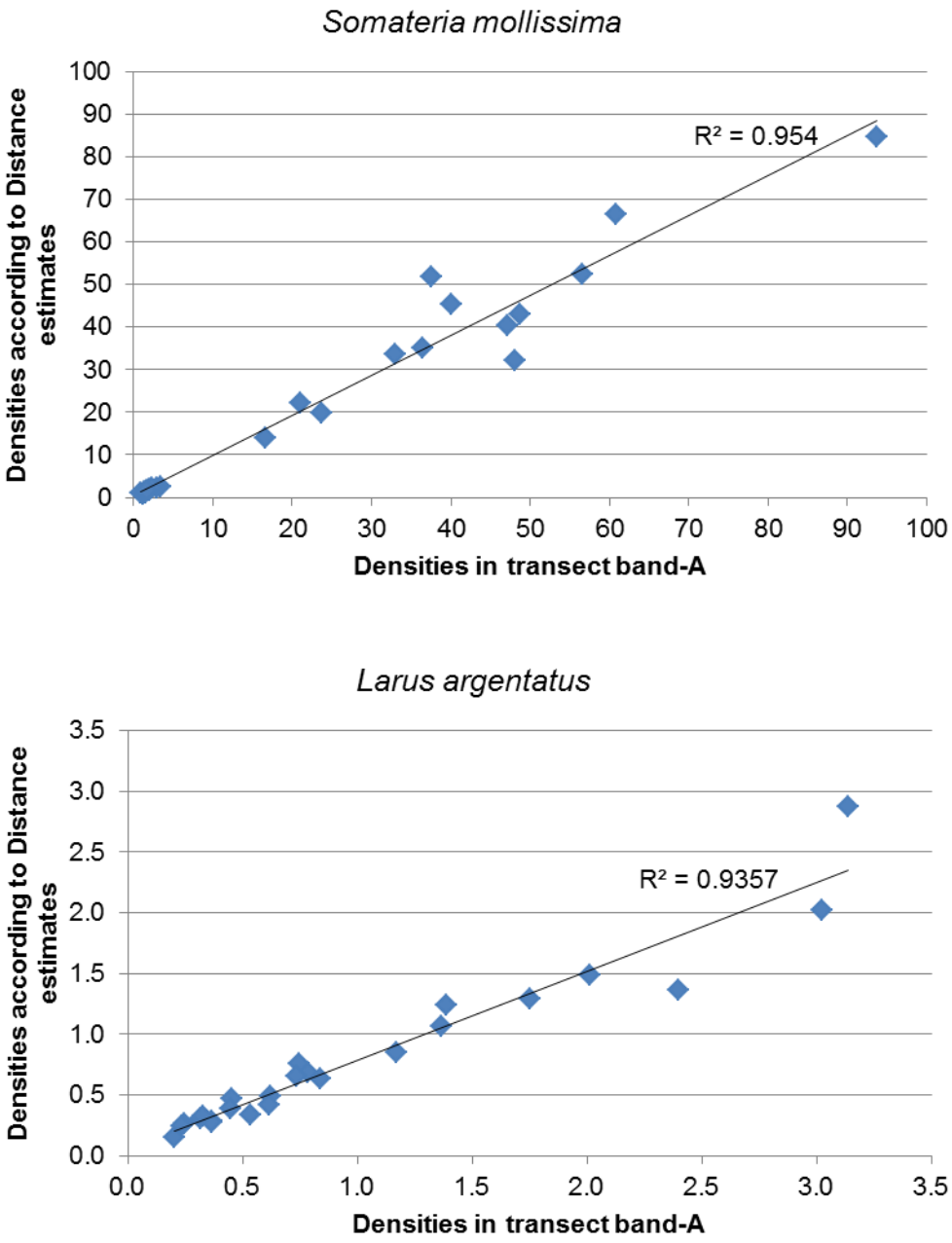

Figure 5.1 *Bird densities observed in band-A of aerial transects corresponded closely to densities calculated using Distance analysis approach: plots for two most common and consistently observed species Common Eider* Somateria mollissima *and Herring Gull* Larus argentatus*.*

Table 5.5 Distance analysis estimates for Red-throated Diver and Black-throated Diver during monthly aerial surveys. ESW = 189 m for swimming birds and ESW = 193 m for flying birds. See introduction of this appendix for more detailed explanation of the displayed data.

			Density estimates for swimming birds						Density estimates for flying birds						Combined density estimates			
Survey	**Effort, %**	**Band-A D**	**N obs**	**N birds**	**D**	**%CV**	**LCI**	**UCI**	**N obs**	**N birds**	**D**	**%CV**	**LCI**	**UCI**	**D**	**LCI**	**UCI**	**Total number**
Nov-08	80.9	0.01	3	4	0.01	64	0.00	0.03	2	2	0.00	71	0.00	0.02	0.01	0.00	0.05	54
Dec-08	81.7	0.01	4	5	0.01	61	0.00	0.03	1	1	0.00	93	0.00	0.01	0.01	0.00	0.04	51
Jan-09	82.8	0.09	31	41	0.09	18	0.06	0.13	6	8	0.01	40	0.01	0.03	0.10	0.07	0.15	406
Feb-09	100	0.11	23	39	0.07	28	0.04	0.12	8	13	0.02	46	0.01	0.05	0.09	0.05	0.17	445
Mar-09	77.5	0.24	60	115	0.23	26	0.14	0.39	7	7	0.02	42	0.01	0.04	0.25	0.15	0.43	950
Apr-09	86.8	0.04	10	12	0.02	40	0.01	0.05	0	0	0	0	0	0	0.02	0.01	0.05	106
May-09	77.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Jun-09	80.9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Jul-09	86.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Aug-09	92.3	0.01	2	2	0.00	73	0.00	0.01	0	0	0	0	0	0	0.00	0.00	0.01	15
Sep-09	79.1	0	0	0	0.00	0	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00	0
Oct-09	79.9	0.05	9	14	0.03	32	0.02	0.06	0	0	0	0	0	0	0.03	0.02	0.06	121
Nov-09	82.4	0.07	15	26	0.06	33	0.03	0.11	1	3	0.01	98	0.00	0.03	0.06	0.03	0.14	256
Dec-09	24.7	0.53	34	59	0.46	35	0.22	0.99	4	5	0.03	44	0.01	0.08	0.49	0.23	1.07	595
Mar-10 A	64.1	0.57	95	189	0.48	29	0.27	0.83	3	3	0.01	54	0.00	0.02	0.48	0.27	0.86	1,513
Mar-10 B	75.6	0.55	83	209	0.37	20	0.25	0.55	3	6	0.01	96	0.00	0.06	0.38	0.25	0.60	1,402
Apr-10	100	0.22	34	93	0.16	31	0.09	0.29	2	8	0.01	67	0.00	0.04	0.17	0.09	0.33	833
May-10	92.1	0.01	3	4	0.01	98	0.00	0.04	1	1	0.00	104	0.00	0.01	0.01	0.00	0.05	39
Jun-10	70.8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Aug-10	75.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sep-10 A	44.9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sep-10 B	48.9	0.03	4	7	0.02	60	0.01	0.07	0	0	0	0	0	0	0.02	0.01	0.07	56
Oct-10	80.0	0.05	11	24	0.05	63	0.02	0.16	1	6	0.01	89	0.00	0.05	0.06	0.02	0.21	238
Nov-10	70.1	0.07	20	26	NA	NA	NA	NA	2	2	NA	NA	NA	NA	NA	NA	NA	NA

Table 5.6 Distance analysis estimates for Great Cormorant during monthly aerial surveys. ESW = 202 m for swimming birds and ESW = 246 m for flying birds. See introduction of this appendix for more detailed explanation of the displayed data.

			Density estimates for swimming birds						Density estimates for flying birds						Combined density estimates			
Survey	**Effort, %**	**Band-A D**	**N obs**	**N birds**	**D**	**%CV**	**LCI**	**UCI**	**N obs**	**N birds**	**D**	**%CV**	**LCI**	**UCI**	**D**	**LCI**	**UCI**	**Total number**
Nov-08	80.9	0.23	23	177	0.35	46	0.14	0.84	11	32	0.04	59	0.01	0.11	0.38	0.15	0.95	1,505
Dec-08	81.7	0.47	28	337	0.38	105	0.07	2.17	19	51	0.07	46	0.03	0.16	0.45	0.10	2.33	1,794
Jan-09	82.8	0.11	17	38	0.06	42	0.03	0.13	19	43	0.08	40	0.04	0.17	0.14	0.06	0.30	552
Feb-09	100	0.15	26	48	0.07	23	0.04	0.11	36	67	0.10	28	0.06	0.18	0.17	0.10	0.29	830
Mar-09	77.5	0.37	28	70	0.16	42	0.07	0.35	19	72	0.11	102	0.02	0.61	0.27	0.09	0.96	1,012
Apr-09	86.8	0.38	16	117	0.22	93	0.04	1.12	18	21	0.03	23	0.02	0.05	0.25	0.06	1.17	1,062
May-09	77.3	0.14	10	47	0.12	94	0.02	0.64	9	15	0.03	52	0.01	0.08	0.15	0.03	0.72	550
Jun-09	80.9	0.32	14	155	-	178	-	-	25	32	0.05	28	0.03	0.09	-	-	-	-
Jul-09	86.6	0.53	63	458	0.53	48	0.21	1.31	21	29	0.05	30	0.03	0.09	0.58	0.24	1.39	2,429
Aug-09	92.3	0.75	26	503	0.44	55	0.16	1.23	30	106	0.13	48	0.05	0.32	0.57	0.21	1.55	2,554
Sep-09	79.1	0.54	22	151	0.34	46	0.14	0.81	16	28	0.04	24	0.03	0.06	0.38	0.16	0.87	1,451
Oct-09	79.9	3.25	30	1,021	-	156	-	-	19	46	0.08	53	0.03	0.22	-	-	-	-
Nov-09	82.4	0.29	40	365	0.36	43	0.16	0.81	30	36	0.07	27	0.04	0.11	0.42	0.20	0.93	1,701
Dec-09	24.7	0.06	3	3	0.02	69	0.01	0.09	7	8	0.04	48	0.01	0.11	0.06	0.02	0.20	75
Mar-10 A	64.1	0.09	17	33	0.06	32	0.03	0.11	12	13	0.03	50	0.01	0.07	0.09	0.04	0.18	267
Mar-10 B	75.6	0.53	9	106	0.22	101	0.03	1.45	17	92	0.15	87	0.03	0.70	0.37	0.07	2.14	1,365
Apr-10	100	0.08	15	32	0.03	39	0.01	0.06	18	25	0.03	32	0.02	0.06	0.06	0.03	0.13	316
May-10	92.1	0.05	14	20	0.03	32	0.02	0.06	10	10	0.01	25	0.01	0.02	0.04	0.02	0.08	197
Jun-10	70.8	0.10	11	12	0.03	45	0.01	0.06	16	49	0.09	73	0.02	0.35	0.12	0.04	0.41	406
Aug-10	75.6	0.27	41	75	0.13	28	0.08	0.23	32	55	0.08	35	0.04	0.15	0.21	0.12	0.38	767
Sep-10 A	44.9	0.16	29	115	0.17	47	0.07	0.41	6	11	0.04	47	0.02	0.10	0.21	0.08	0.51	454
Sep-10 B	48.9	2.72	66	890	1.31	85	0.30	5.72	31	78	0.19	44	0.08	0.44	1.50	0.38	6.16	3,579
Oct-10	80.0	1.13	19	386	-	168	-	-	18	43	0.05	40	0.02	0.10	-	-	-	-
Nov-10	70.1	0.59	21	197	0.35	105	0.06	1.98	15	54	0.10	61	0.03	0.31	0.45	0.09	2.29	1,529

Table 5.7 Distance analysis estimates for Common Eider during monthly aerial surveys. ESW = 218 m for swimming birds and ESW = 236 m for flying birds. See introduction of this appendix for more detailed explanation of the displayed data.

			Density estimates for swimming birds						Density estimates for flying birds						Combined density estimates			
Survey	**Effort, %**	**Band-AD**	**N obs**	**N birds**	**D**	**%CV**	**LCI**	**UCI**	**N obs**	**N birds**	**D**	**%CV**	**LCI**	**UCI**	**D**	**LCI**	**UCI**	**Total number**
Nov-08	80.9	37.56	612	62,477	51.32	48	20.73	127.06	60	505	0.51	23	0.32	0.80	51.83	21.05	127.86	204,423
Dec-08	81.7	47.12	1,182	34,951	39.78	38	18.98	83.38	66	266	0.45	25	0.28	0.74	40.24	19.26	84.12	160,252
Jan-09	82.8	32.99	1,164	22,212	33.26	23	21.27	52.01	54	264	0.36	45	0.15	0.85	33.62	21.42	52.86	135,717
Feb-09	100	56.63	1,640	39,338	51.83	21	34.29	78.36	83	528	0.71	28	0.41	1.23	52.54	34.70	79.59	256,154
Mar-09	77.5	48.77	1,405	27,687	42.20	21	28.00	63.62	58	513	0.87	36	0.44	1.74	43.08	28.43	65.36	162,744
Apr-09	86.8	3.47	212	1,996	2.38	30	1.34	4.22	9	38	0.08	55	0.03	0.23	2.45	1.36	4.45	10,379
May-09	77.3	2.97	148	1,409	2.24	30	1.24	4.03	17	98	0.09	45	0.04	0.21	2.32	1.28	4.24	8,758
Jun-09	80.9	1.94	128	1,327	1.46	30	0.81	2.64	10	83	0.21	66	0.06	0.78	1.67	0.87	3.42	6,603
Jul-09	86.6	2.01	91	1,161	1.47	26	0.88	2.44	3	19	0.06	79	0.01	0.55	1.53	0.89	2.99	6,449
Aug-09	92.3	1.27	80	490	0.76	21	0.50	1.15	6	21	0.02	43	0.01	0.04	0.78	0.51	1.19	3,490
Sep-09	79.1	2.00	158	1,324	1.83	33	0.97	3.46	2	11	0.01	121	0.00	0.29	1.85	0.97	3.75	7,121
Oct-09	79.9	21.07	569	15,373	21.23	63	6.76	66.72	86	544	1.02	29	0.58	1.80	22.26	7.34	68.52	86,696
Nov-09	82.4	36.48	1,118	29,719	34.54	26	20.78	57.43	85	347	0.59	30	0.33	1.06	35.13	21.10	58.49	141,126
Dec-09	24.7	93.71	693	18,364	82.93	37	39.44	174.40	81	379	1.72	17	1.23	2.41	84.65	40.67	176.81	101,933
Mar-10 A	64.1	40.04	1,267	27,098	45.06	25	27.66	73.42	46	212	0.44	42	0.20	0.98	45.50	27.85	74.40	142,188
Mar-10 B	75.6	60.88	1,426	40,111	65.73	23	41.93	103.01	45	426	0.67	25	0.41	1.09	66.39	42.34	104.10	244,686
Apr-10	100	16.67	808	10,892	12.84	31	7.01	23.54	71	726	0.97	23	0.62	1.53	13.81	7.62	25.07	67,348
May-10	92.1	1.43	113	986	1.28	36	0.64	2.58	8	65	0.09	79	0.02	0.39	1.37	0.66	2.97	6,146
Jun-10	70.8	2.24	147	1,362	1.90	33	1.00	3.62	10	119	0.41	50	0.15	1.11	2.32	1.16	4.73	8,002
Aug-10	75.6	0.92	31	517	0.91	55	0.33	2.54	1	20	0.03	97	0.01	0.18	0.95	0.33	2.72	3,484
Sep-10 A	44.9	1.45	52	323	0.97	35	0.49	1.91	0	0	0	0	0	0	0.97	0.49	1.91	2,121
Sep-10 B	48.9	1.65	45	477	1.72	40	0.79	3.75	0	0	0	0	0	0	1.72	0.79	3.75	4,103
Oct-10	80.0	23.75	684	13,690	19.19	25	11.73	31.41	57	490	0.58	33	0.30	1.09	19.77	12.03	32.50	77,095
Nov-10	70.1	48.10	1,290	23,293	31.20	32	16.49	59.01	137	546	0.96	18	0.67	1.38	32.15	17.16	60.38	109,877

Table 5.8 Distance analysis estimates for Long-tailed Duck during monthly aerial surveys. ESW = 188 m for swimming birds and ESW = 204 m for flying birds. See introduction of this appendix for more detailed explanation of the displayed data.

			Density estimates for swimming birds						Density estimates for flying birds						Combined density estimates			
Survey	**Effort, %**	**Band-A D**	**N obs**	**N birds**	**D**	**%CV**	**LCI**	**UCI**	**N obs**	**N birds**	**D**	**%CV**	**LCI**	**UCI**	**D**	**LCI**	**UCI**	**Total number**
Nov-08	80.9	2.89	71	1,754	3.59	42	1.60	8.09	8	41	0.11	45	0.04	0.26	3.70	1.64	8.36	14,585
Dec-08	81.7	3.29	116	1,145	2.37	28	1.38	4.08	64	312	0.57	28	0.33	0.99	2.94	1.71	5.08	11,728
Jan-09	82.8	2.80	205	1,171	2.37	24	1.47	3.82	32	127	0.20	31	0.11	0.37	2.58	1.59	4.19	10,399
Feb-09	100	2.80	145	1,118	1.55	22	1.02	2.37	37	135	0.21	33	0.11	0.39	1.76	1.12	2.76	8,575
Mar-09	77.5	3.97	210	1,609	3.14	18	2.20	4.48	44	240	0.55	26	0.33	0.91	3.69	2.53	5.39	13,925
Apr-09	86.8	0.01	3	4	0.01	64	0.00	0.03	1	2	0.00	98	0.00	0.02	0.01	0.00	0.05	52
May-09	77.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Jun-09	80.9	0.00	1	1	0.00	103	0.00	0.01	0	0	0	0	0	0	0.00	0.00	0.01	10
Jul-09	86.6	0	0	0	0	0	0	0	1	1	0.00	82	0.00	0.01	0.00	0.00	0.01	8
Aug-09	92.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sep-09	79.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Oct-09	79.9	0.40	8	195	0.79	84	0.16	3.83	7	48	0.10	61	0.03	0.32	0.89	0.20	4.15	3,475
Nov-09	82.4	4.39	113	1,720	3.03	90	0.66	13.98	34	199	0.40	56	0.14	1.13	3.43	0.80	15.11	13,775
Dec-09	24.7	2.36	49	208	1.40	34	0.67	2.91	20	40	0.26	35	0.13	0.54	1.66	0.80	3.44	1,998
Mar-10 A	64.1	2.65	179	1,047	2.40	30	1.34	4.28	26	79	0.21	30	0.12	0.39	2.61	1.46	4.67	8,160
Mar-10 B	75.6	5.17	146	1,852	4.14	22	2.69	6.37	19	93	0.19	40	0.09	0.41	4.33	2.78	6.77	15,953
Apr-10	100	1.43	82	602	0.97	26	0.59	1.59	27	87	0.14	34	0.07	0.28	1.11	0.66	1.87	5,427
May-10	92.1	0.01	3	12	0.03	81	0.00	0.64	0	0	0	0	0	0	0.03	0.00	0.64	120
Jun-10	70.8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Aug-10	75.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sep-10 A	44.9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sep-10 B	48.9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Oct-10	80.0	0.02	1	2	0.00	90	0.00	0.02	3	6	0.01	54	0.00	0.04	0.02	0.01	0.06	66
Nov-10	70.1	0.90	42	282	0.57	69	0.16	1.98	15	44	0.10	52	0.04	0.27	0.67	0.20	2.25	2,281

Table 5.9 Distance analysis estimates for Common Scoter during monthly aerial surveys. ESW = 283 m for swimming birds and ESW = 278 m for flying birds. See introduction of this appendix for more detailed explanation of the displayed data.

			Density estimates for swimming birds						Density estimates for flying birds						Combined density estimates			
Survey	**Effort, %**	**Band-A D**	**N obs**	**N birds**	**D**	**%CV**	**LCI**	**UCI**	**N obs**	**N birds**	**D**	**%CV**	**LCI**	**UCI**	**D**	**LCI**	**UCI**	**Total number**
Nov-08	80.9	6.38	44	7,204	6.21	63	1.97	19.58	29	420	0.56	39	0.26	1.19	6.76	2.23	20.77	26,669
Dec-08	81.7	7.73	181	16,525	7.43	46	3.08	17.92	82	1,130	1.23	38	0.59	2.58	8.66	3.66	20.49	34,475
Jan-09	82.8	0.85	13	298	0.16	43	0.07	0.37	48	377	0.68	45	0.29	1.60	0.84	0.36	1.97	3,405
Feb-09	100	7.94	189	2,975	3.61	38	1.73	7.51	239	2,707	2.99	32	1.60	5.60	6.60	3.33	13.11	32,157
Mar-09	77.5	7.32	301	5,895	4.77	29	2.70	8.40	164	2,274	1.56	46	0.65	3.71	6.33	3.36	12.12	23,898
Apr-09	86.8	0.04	5	72	0.12	58	0.04	0.39	1	2	0.00	97	0.00	0.01	0.12	0.04	0.40	522
May-09	77.3	0.13	0	0	0	0	0	0	1	35	0.05	105	0.01	0.26	0.05	0.01	0.26	172
Jun-09	80.9	0	1	24	0.04	104	0.01	0.24	0	0	0	0	0	0	0.04	0.01	0.24	168
Jul-09	86.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Aug-09	92.3	0.02	1	5	0.01	91	0.00	0.04	1	1	0.00	92	0.00	0.01	0.01	0.00	0.04	39
Sep-09	79.1	0.01	2	3	0.00	113	0.00	0.02	1	20	0.03	98	0.01	0.18	0.04	0.01	0.20	142
Oct-09	79.9	0.84	33	262	0.38	56	0.13	1.06	30	319	0.46	54	0.17	1.26	0.83	0.30	2.32	3,246
Nov-09	82.4	6.90	123	4,509	5.83	48	2.37	14.36	42	1,096	1.78	61	0.58	5.47	7.61	2.95	19.82	30,585
Dec-09	24.7	3.49	32	2,477	3.12	55	1.09	8.95	30	186	0.83	40	0.36	1.90	3.94	1.45	10.85	4,750
Mar-10 A	64.1	3.05	86	1,733	1.44	38	0.69	2.99	106	1,412	2.21	34	1.14	4.26	3.64	1.83	7.25	11,375
Mar-10 B	75.6	8.62	116	6,753	6.64	77	1.73	25.55	74	1,760	2.14	39	1.02	4.53	8.78	2.74	30.08	32,369
Apr-10	100	5.49	107	1,522	1.05	35	0.54	2.05	181	3,131	2.60	53	0.96	7.04	3.65	1.50	9.09	17,784
May-10	92.1	0.03	2	11	0.01	91	0.00	0.15	0	0	0	0	0	0	0.01	0.00	0.15	56
Jun-10	70.8	0.00	0	0	0	0	0	0	1	1	0.00	98	0.00	0.01	0.00	0.00	0.01	6
Aug-10	75.6	0	0	0	0	0	0	0	1	4	0.01	101	0.00	0.03	0.01	0.00	0.03	21
Sep-10 A	44.9	0.06	2	10	0.03	93	0.01	0.18	1	1	0.00	100	0.00	0.01	0.03	0.01	0.19	72
Sep-10 B	48.9	0.10	5	218	0.23	60	0.07	0.72	0	0	0	0	0	0	0.23	0.07	0.72	541
Oct-10	80.0	0.22	10	124	0.14	67	0.04	0.46	8	79	0.14	48	0.05	0.40	0.28	0.09	0.86	1,094
Nov-10	70.1	1.62	32	346	0.54	49	0.21	1.36	38	394	0.65	55	0.23	1.81	1.18	0.44	3.17	4,048

Table 5.10 Distance analysis estimates for Common Goldeneye during monthly aerial surveys. ESW = 202 m for swimming birds and ESW = 214 m for flying birds. See introduction of this appendix for more detailed explanation of the displayed data.

			Density estimates for swimming birds						Density estimates for flying birds						Combined density estimates			
Survey	**Effort, %**	**Band-A D**	**N obs**	**N birds**	**D**	**%CV**	**LCI**	**UCI**	**N obs**	**N birds**	**D**	**%CV**	**LCI**	**UCI**	**D**	**LCI**	**UCI**	**Total number**
Nov-08	80.9	0.70	11	226	0.78	49	0.29	2.07	19	136	0.09	44	0.04	0.22	0.87	0.33	2.28	3,445
Dec-08	81.7	0.72	10	73	0.23	113	0.03	1.58	33	210	0.41	41	0.18	0.91	0.64	0.22	2.49	2,551
Jan-09	82.8	0.98	16	239	0.74	56	0.25	2.15	42	204	0.35	32	0.19	0.66	1.09	0.44	2.81	4,413
Feb-09	100	1.77	20	316	0.79	52	0.29	2.14	46	404	0.52	59	0.18	1.55	1.31	0.47	3.69	6,391
Mar-09	77.5	0.26	2	12	0.03	88	0.00	0.23	7	63	0.19	144	0.02	1.96	0.22	0.02	2.20	827
Apr-09	86.8	0.00	0	0	0	0	0	0	2	11	0.02	101	0.00	0.24	0.02	0.00	0.24	69
May-09	77.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Jun-09	80.9	0	0	0	0	0	0	0	1	3	0.01	92	0.00	0.03	0.01	0.00	0.03	23
Jul-09	86.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Aug-09	92.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sep-09	79.1	0.00	0	0	0	0	0	0	1	1	0.00	97	0.00	0.01	0.00	0.00	0.01	9
Oct-09	79.9	0.02	2	3	0.01	78	0.00	0.03	6	13	0.02	52	0.01	0.06	0.03	0.01	0.08	104
Nov-09	82.4	0.65	13	59	0.16	39	0.08	0.35	14	151	0.30	87	0.06	1.39	0.46	0.14	1.74	1,861
Dec-09	24.7	0.02	0	0	0	0	0	0	3	30	0.11	141	0.01	1.80	0.11	0.01	1.80	135
Mar-10 A	64.1	0.93	21	95	0.20	44	0.09	0.47	41	221	0.49	39	0.23	1.03	0.69	0.32	1.50	2,157
Mar-10 B	75.6	1.05	34	358	0.64	39	0.30	1.37	33	153	0.29	42	0.13	0.65	0.93	0.43	2.02	3,443
Apr-10	100	0.60	10	211	0.38	80	0.08	1.74	38	189	0.27	42	0.12	0.60	0.65	0.21	2.33	3,178
May-10	92.1	0.02	0	0	0	0	0	0	5	16	0.03	75	0.01	0.11	0.03	0.01	0.11	126
Jun-10	70.8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Aug-10	75.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sep-10 A	44.9	0.01	1	2	0.01	85	0.00	0.04	0	0	0	0	0	0	0.01	0.00	0.04	17
Sep-10 B	48.9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Oct-10	80.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nov-10	70.1	0.29	6	20	0.04	86	0.01	0.22	22	92	0.15	58	0.05	0.45	0.20	0.06	0.66	668

Table 5.11 Distance analysis estimates for Red-breasted Merganser during monthly aerial surveys. ESW = 206 m for swimming birds and ESW = 217 m for flying birds. See introduction of this appendix for more detailed explanation of the displayed data.

			Density estimates for swimming birds						Density estimates for flying birds						Combined density estimates			
Survey	**Effort, %**	**Band-A D**	**N obs**	**N birds**	**D**	**%CV**	**LCI**	**UCI**	**N obs**	**N birds**	**D**	**%CV**	**LCI**	**UCI**	**D**	**LCI**	**UCI**	**Total number**
Nov-08	80.9	0	2	6	0.01	69	0.00	0.04	3	6	0.01	56	0.00	0.03	0.02	0.01	0.07	82
Dec-08	81.7	0.07	0	0	0.00	0	0.00	0.00	10	22	0.05	63	0.02	0.16	0.05	0.02	0.16	197
Jan-09	82.8	0.05	5	9	0.02	46	0.01	0.05	5	11	0.02	48	0.01	0.05	0.04	0.02	0.10	159
Feb-09	100	0.15	8	40	0.10	113	0.01	0.74	13	39	0.05	45	0.02	0.13	0.15	0.04	0.87	755
Mar-09	77.5	0.44	27	87	0.17	41	0.08	0.36	33	96	0.21	35	0.10	0.41	0.37	0.18	0.77	1,406
Apr-09	86.8	0.01	2	3	0.01	74	0.00	0.02	0	0	0	0	0	0	0.01	0.00	0.02	24
May-09	77.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Jun-09	80.9	0.01	0	0	0	0	0	0	1	2	0.00	86	0.00	0.02	0.00	0.00	0.02	16
Jul-09	86.6	0.01	0	0	0	0	0	0	3	3	0.01	50	0.00	0.02	0.01	0.00	0.02	26
Aug-09	92.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sep-09	79.1	0.00	0	0	0	0	0	0	1	1	0.00	92	0.00	0.01	0.00	0.00	0.01	7
Oct-09	79.9	0.18	0	0	0	0	0	0	7	69	0.46	140	0.03	5.95	0.46	0.03	5.95	1,775
Nov-09	82.4	0.29	7	99	-	296	-	-	4	19	0.04	68	0.01	0.13	-	-	-	-
Dec-09	24.7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mar-10 A	64.1	0.19	20	50	0.14	67	0.04	0.46	10	35	0.06	42	0.02	0.12	0.19	0.06	0.58	596
Mar-10 B	75.6	0.06	4	9	0.02	66	0.01	0.06	8	19	0.04	44	0.02	0.09	0.06	0.02	0.15	207
Apr-10	100	0.02	1	2	0.00	102	0.00	0.02	3	4	0.01	68	0.00	0.02	0.01	0.00	0.04	46
May-10	92.1	0.00	0	0	0	0	0	0	2	2	0.00	68	0.00	0.01	0.00	0.00	0.01	14
Jun-10	70.8	0.02	1	1	0.00	94	0.00	0.01	5	9	0.01	72	0.00	0.05	0.02	0.00	0.06	53
Aug-10	75.6	0	0	0	0	0	0	0	1	2	0.00	90	0.00	0.02	0.00	0.00	0.02	17
Sep-10 A	44.9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sep-10 B	48.9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Oct-10	80.0	0.05	0	0	0	0	0	0	4	16	0.03	62	0.01	0.10	0.03	0.01	0.10	110
Nov-10	70.1	0.06	4	6	0.01	87	0.00	0.06	8	14	0.03	44	0.01	0.07	0.04	0.01	0.13	140

Table 5.12 Distance analysis estimates for Little Gull during monthly aerial surveys. ESW = 236 m for swimming birds and ESW = 198 m for flying birds. See introduction of this appendix for more detailed explanation of the displayed data.

			Density estimates for swimming birds						Density estimates for flying birds						Combined density estimates			
Survey	**Effort, %**	**Band-A D**	**N obs**	**N birds**	**D**	**%CV**	**LCI**	**UCI**	**N obs**	**N birds**	**D**	**%CV**	**LCI**	**UCI**	**D**	**LCI**	**UCI**	**Total number**
Nov-08	80.9	0.04	1	2	0.00	86	0.00	0.02	15	20	0.04	35	0.02	0.08	0.04	0.02	0.09	169
Dec-08	81.7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Jan-09	82.8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Feb-09	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mar-09	77.5	0.09	5	18	0.03	92	0.01	0.15	12	20	0.05	44	0.02	0.11	0.08	0.03	0.26	291
Apr-09	86.8	1.53	75	387	0.50	33	0.27	0.95	114	416	0.85	30	0.47	1.54	1.35	0.73	2.49	5,719
May-09	77.3	0.04	0	0	0	0	0	0	3	12	0.03	67	0.01	0.11	0.03	0.01	0.11	105
Jun-09	80.9	0.04	1	12	0.02	120	0.00	0.10	1	5	0.01	107	0.00	0.05	0.02	0.00	0.15	93
Jul-09	86.6	0.07	5	65	0.14	74	0.04	0.51	3	4	0.01	54	0.00	0.02	0.14	0.04	0.54	606
Aug-09	92.3	0.01	0	0	0	0	0	0	3	4	0.01	77	0.00	0.04	0.01	0.00	0.04	40
Sep-09	79.1	0	1	5	0.01	83	0.00	0.04	0	0	0	0	0	0	0.01	0.00	0.04	34
Oct-09	79.9	0.22	5	7	0.01	57	0.00	0.04	57	80	0.17	31	0.09	0.32	0.18	0.10	0.36	718
Nov-09	82.4	0.01	2	4	0.01	74	0.00	0.02	1	1	0.00	92	0.00	0.01	0.01	0.00	0.04	35
Dec-09	24.7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mar-10 A	64.1	0.02	3	4	0.01	60	0.00	0.02	5	5	0.01	59	0.00	0.04	0.02	0.01	0.06	58
Mar-10 B	75.6	0.02	1	2	0.00	95	0.00	0.02	1	3	0.01	102	0.00	0.04	0.01	0.00	0.05	37
Apr-10	100	0.01	2	3	0.00	88	0.00	0.02	6	6	0.01	43	0.00	0.02	0.01	0.01	0.04	67
May-10	92.1	0.01	1	1	0.00	92	0.00	0.01	4	5	0.01	53	0.00	0.02	0.01	0.00	0.03	47
Jun-10	70.8	0.00	0	0	0	0	0	0	1	1	0.00	88	0.00	0.01	0.00	0.00	0.01	9
Aug-10	75.6	0.02	1	1	0.00	98	0.00	0.01	5	8	0.02	64	0.01	0.06	0.02	0.01	0.07	73
Sep-10 A	44.9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sep-10 B	48.9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Oct-10	80.0	0.03	0	0	0	0	0	0	21	26	0.05	36	0.03	0.10	0.05	0.03	0.10	202
Nov-10	70.1	0.01	0	0	0	0	0	0	6	7	0.02	53	0.01	0.05	0.02	0.01	0.05	63

Table 5.13 Distance analysis estimates for Black-headed Gull during monthly aerial surveys. ESW = 198 m for swimming birds and ESW = 227 m for flying birds. See introduction of this appendix for more detailed explanation of the displayed data.

			Density estimates for swimming birds						Density estimates for flying birds						Combined density estimates			
Survey	**Effort, %**	**Band-A D**	**N obs**	**N birds**	**D**	**%CV**	**LCI**	**UCI**	**N obs**	**N birds**	**D**	**%CV**	**LCI**	**UCI**	**D**	**LCI**	**UCI**	**Total number**
Nov-08	80.9	0.03	2	6	0.01	85	0.00	0.10	5	23	0.02	84	0.00	0.08	0.03	0.01	0.17	116
Dec-08	81.7	0.16	6	40	0.08	53	0.03	0.23	2	7	0.01	82	0.00	0.10	0.09	0.03	0.33	368
Jan-09	82.8	0	0	0	0	0	0	0	3	181	-	165	-	-	-	-	-	-
Feb-09	100	0.09	2	29	0.05	94	0.00	1.01	2	2	0.00	61	0.00	0.01	0.06	0.00	1.02	269
Mar-09	77.5	0.23	5	13	0.04	58	0.01	0.14	46	124	0.27	47	0.11	0.67	0.32	0.13	0.82	1,207
Apr-09	86.8	0.02	0	0	0	0	0	0	2	5	0.01	108	0.00	0.06	0.01	0.00	0.06	34
May-09	77.3	0.03	7	11	0.02	46	0.01	0.06	8	40	0.05	109	0.01	0.30	0.07	0.02	0.35	257
Jun-09	80.9	0.01	0	0	0	0	0	0	6	7	0.02	44	0.01	0.04	0.02	0.01	0.04	61
Jul-09	86.6	0.13	10	147	0.20	70	0.05	0.79	36	46	0.08	33	0.04	0.15	0.28	0.09	0.94	1,180
Aug-09	92.3	0.08	4	8	0.02	64	0.00	0.06	14	18	0.03	35	0.01	0.06	0.05	0.02	0.12	211
Sep-09	79.1	0.02	3	3	0.01	52	0.00	0.02	6	8	0.02	40	0.01	0.04	0.02	0.01	0.06	94
Oct-09	79.9	0.20	4	17	0.05	87	0.00	0.59	34	62	0.11	30	0.06	0.20	0.16	0.07	0.79	619
Nov-09	82.4	0.08	7	21	0.05	61	0.01	0.14	6	13	0.03	60	0.01	0.09	0.07	0.02	0.23	296
Dec-09	24.7	0.14	0	0	0	0	0	0	3	15	0.13	86	0.01	2.43	0.13	0.01	2.43	152
Mar-10 A	64.1	0.04	4	10	0.03	63	0.01	0.12	5	6	0.01	43	0.01	0.03	0.04	0.01	0.15	136
Mar-10 B	75.6	1.15	29	547	1.09	43	0.48	2.48	47	162	0.27	29	0.16	0.49	1.37	0.64	2.97	5,042
Apr-10	100	0.28	8	96	0.17	89	0.03	0.85	38	57	0.08	28	0.05	0.14	0.25	0.08	0.99	1,217
May-10	92.1	0.01	0	0	0	0	0	0	1	2	0.00	92	0.00	0.01	0.00	0.00	0.01	13
Jun-10	70.8	0.01	1	1	0.00	102	0.00	0.01	3	3	0.01	54	0.00	0.02	0.01	0.00	0.03	28
Aug-10	75.6	0.22	12	26	0.05	40	0.02	0.10	36	219	0.26	82	0.06	1.09	0.31	0.08	1.19	1,125
Sep-10 A	44.9	0.62	23	123	0.36	64	0.11	1.22	14	29	0.09	43	0.04	0.22	0.46	0.15	1.43	999
Sep-10 B	48.9	1.09	39	243	0.66	57	0.22	1.94	36	105	0.27	66	0.08	0.93	0.92	0.30	2.87	2,205
Oct-10	80.0	0.35	6	57	0.12	54	0.04	0.35	15	54	0.11	40	0.05	0.24	0.23	0.09	0.59	880
Nov-10	70.1	0.05	4	12	0.03	65	0.01	0.12	6	9	0.01	63	0.00	0.05	0.05	0.01	0.16	155

Table 5.14 Distance analysis estimates for Common Gull during monthly aerial surveys. ESW = 185 m for swimming birds and ESW = 230 m for flying birds. See introduction of this appendix for more detailed explanation of the displayed data.

			Density estimates for swimming birds						Density estimates for flying birds						Combined density estimates			
Survey	**Effort, %**	**Band-A D**	**N obs**	**N birds**	**D**	**%CV**	**LCI**	**UCI**	**N obs**	**N birds**	**D**	**%CV**	**LCI**	**UCI**	**D**	**LCI**	**UCI**	**Total number**
Nov-08	80.9	0.10	12	28	0.07	48	0.03	0.18	8	12	-	740	-	-	-	-	-	-
Dec-08	81.7	0.21	16	94	0.19	58	0.06	0.58	24	34	0.07	23	0.04	0.10	0.26	0.10	0.68	1,024
Jan-09	82.8	1.93	69	1,114	1.49	52	0.56	3.92	48	96	0.17	36	0.08	0.34	1.66	0.65	4.27	6,684
Feb-09	100	0.54	46	294	0.42	43	0.18	0.94	35	45	0.06	22	0.04	0.10	0.48	0.22	1.04	2,340
Mar-09	77.5	0.70	49	94	0.21	36	0.10	0.42	182	254	0.41	19	0.28	0.60	0.62	0.39	1.02	2,345
Apr-09	86.8	0.26	15	51	0.13	66	0.04	0.44	20	53	0.07	56	0.02	0.20	0.20	0.06	0.64	854
May-09	77.3	0.39	13	549	1.28	150	0.13	12.74	29	53	0.08	39	0.04	0.17	1.36	0.17	12.91	5,124
Jun-09	80.9	0.06	10	14	0.04	61	0.01	0.11	18	22	0.04	32	0.02	0.07	0.07	0.03	0.18	291
Jul-09	86.6	0.75	47	229	0.57	43	0.25	1.30	60	74	0.12	23	0.08	0.19	0.69	0.33	1.49	2,927
Aug-09	92.3	0.08	14	31	0.08	62	0.02	0.24	14	58	0.11	75	0.03	0.43	0.18	0.05	0.67	831
Sep-09	79.1	0.05	2	14	0.04	90	0.01	0.21	5	7	0.01	54	0.01	0.04	0.05	0.01	0.25	208
Oct-09	79.9	0.13	13	22	0.05	35	0.03	0.11	34	35	0.07	28	0.04	0.12	0.12	0.07	0.22	472
Nov-09	82.4	0.28	17	82	0.16	56	0.06	0.46	30	33	0.06	20	0.04	0.09	0.22	0.09	0.55	880
Dec-09	24.7	0.06	1	1	0.01	103	0.00	0.05	4	4	0.02	60	0.01	0.09	0.03	0.01	0.14	39
Mar-10 A	64.1	0.33	41	150	0.29	43	0.13	0.65	50	59	0.13	21	0.08	0.19	0.41	0.21	0.84	1,290
Mar-10 B	75.6	0.82	45	392	0.82	30	0.45	1.47	34	63	0.12	43	0.05	0.26	0.93	0.50	1.73	3,432
Apr-10	100	0.45	40	144	0.18	34	0.09	0.35	62	70	0.10	14	0.07	0.13	0.28	0.17	0.48	1,349
May-10	92.1	0.04	4	8	0.01	70	0.00	0.04	29	32	0.05	24	0.03	0.08	0.06	0.03	0.12	265
Jun-10	70.8	0.11	11	17	0.05	45	0.02	0.12	22	28	0.06	34	0.03	0.11	0.11	0.05	0.23	377
Aug-10	75.6	0.16	21	34	0.08	63	0.03	0.27	24	51	0.07	49	0.03	0.18	0.15	0.05	0.44	562
Sep-10 A	44.9	0.02	3	6	0.03	73	0.00	0.62	4	4	0.01	63	0.00	0.04	0.04	0.01	0.66	94
Sep-10 B	48.9	0.76	19	132	0.47	65	0.14	1.55	14	33	0.09	59	0.03	0.29	0.57	0.17	1.84	1,349
Oct-10	80.0	0.82	69	184	0.31	21	0.21	0.47	84	219	0.25	27	0.14	0.42	0.56	0.35	0.90	2,187
Nov-10	70.1	0.11	3	3	0.01	56	0.00	0.02	30	35	0.07	35	0.04	0.15	0.08	0.04	0.17	278

Table 5.15 Distance analysis estimates for Herring Gull during monthly aerial surveys. ESW = 203 m for swimming birds and ESW = 230 m for flying birds. See introduction of this appendix for more detailed explanation of the displayed data.

			Density estimates for swimming birds						Density estimates for flying birds						Combined density estimates			
Survey	**Effort, %**	**Band-A D**	**N obs**	**N birds**	**D**	**%CV**	**LCI**	**UCI**	**N obs**	**N birds**	**D**	**%CV**	**LCI**	**UCI**	**D**	**LCI**	**UCI**	**Total number**
Nov-08	80.9	0.45	33	154	0.32	50	0.13	0.83	50	95	0.15	24	0.09	0.24	0.47	0.22	1.07	1,856
Dec-08	81.7	1.17	86	402	0.57	36	0.29	1.13	108	166	0.28	17	0.20	0.40	0.85	0.49	1.53	3,396
Jan-09	82.8	1.39	143	508	0.96	26	0.58	1.59	107	197	0.27	21	0.18	0.42	1.24	0.76	2.01	4,985
Feb-09	100	2.40	170	802	1.00	20	0.67	1.49	168	264	0.36	15	0.27	0.49	1.36	0.93	1.98	6,621
Mar-09	77.5	0.78	82	134	0.30	17	0.21	0.42	143	224	0.38	26	0.23	0.64	0.68	0.44	1.06	2,578
Apr-09	86.8	0.62	53	194	0.31	43	0.13	0.70	65	136	0.18	32	0.10	0.34	0.49	0.23	1.04	2,061
May-09	77.3	0.25	24	50	0.11	36	0.05	0.22	54	80	0.16	37	0.08	0.32	0.26	0.13	0.54	997
Jun-09	80.9	0.24	28	67	0.12	37	0.06	0.24	63	72	0.13	22	0.08	0.20	0.25	0.14	0.44	973
Jul-09	86.6	0.36	41	99	0.17	22	0.11	0.27	43	66	0.11	24	0.07	0.18	0.29	0.18	0.45	1,204
Aug-09	92.3	0.62	43	236	0.37	45	0.16	0.88	25	28	0.04	22	0.03	0.07	0.42	0.19	0.95	1,872
Sep-09	79.1	0.20	27	54	0.11	44	0.05	0.26	16	21	0.04	40	0.02	0.09	0.15	0.07	0.34	582
Oct-09	79.9	0.53	33	98	0.17	42	0.08	0.39	66	99	0.16	25	0.10	0.26	0.33	0.18	0.65	1,304
Nov-09	82.4	2.01	87	745	1.29	34	0.67	2.49	79	115	0.20	22	0.13	0.31	1.49	0.79	2.80	5,970
Dec-09	24.7	3.02	38	233	1.64	65	0.49	5.55	48	78	0.38	36	0.18	0.82	2.02	0.66	6.37	2,437
Mar-10 A	64.1	0.75	89	218	0.45	24	0.28	0.72	116	159	0.31	20	0.20	0.46	0.76	0.49	1.18	2,367
Mar-10 B	75.6	3.14	110	1,411	2.44	31	1.33	4.47	135	294	0.43	22	0.28	0.67	2.88	1.61	5.14	10,596
Apr-10	100	0.73	64	273	0.38	37	0.19	0.77	117	222	0.27	20	0.18	0.41	0.65	0.37	1.17	3,176
May-10	92.1	0.45	57	166	0.22	35	0.11	0.43	75	128	0.17	24	0.10	0.27	0.38	0.21	0.70	1,726
Jun-10	70.8	0.32	27	75	0.17	47	0.07	0.43	57	65	0.13	16	0.09	0.18	0.30	0.16	0.60	1,044
Aug-10	75.6	0.36	29	80	0.14	48	0.06	0.35	36	82	0.14	38	0.06	0.28	0.28	0.12	0.63	1,016
Sep-10 A	44.9	0.33	21	74	0.26	51	0.10	0.70	6	15	0.06	78	0.01	0.31	0.32	0.11	1.00	705
Sep-10 B	48.9	1.75	47	485	0.91	52	0.34	2.43	33	135	0.38	57	0.13	1.10	1.29	0.47	3.53	3,065
Oct-10	80.0	1.37	94	550	0.87	32	0.47	1.61	72	111	0.19	19	0.13	0.28	1.06	0.60	1.89	4,131
Nov-10	70.1	0.84	56	176	0.34	34	0.17	0.66	85	182	0.29	36	0.15	0.60	0.63	0.32	1.26	2,169

Table 5.16 Distance analysis estimates for Great Black-backed Gull during monthly aerial surveys. ESW = 201 m for swimming birds and ESW = 217 m for flying birds. See introduction of this appendix for more detailed explanation of the displayed data.

			Density estimates for swimming birds						Density estimates for flying birds						Combined density estimates			
Survey	**Effort, %**	**Band-A D**	**N obs**	**N birds**	**D**	**%CV**	**LCI**	**UCI**	**N obs**	**N birds**	**D**	**%CV**	**LCI**	**UCI**	**D**	**LCI**	**UCI**	**Total number**
Nov-08	80.9	0.02	5	5	0.01	50	0.00	0.03	5	5	0.01	48	0.00	0.02	0.02	0.01	0.05	75
Dec-08	81.7	0.12	19	22	0.05	24	0.03	0.07	21	24	0.04	22	0.03	0.07	0.09	0.06	0.14	357
Jan-09	82.8	0.08	13	22	0.05	54	0.02	0.14	15	15	0.03	31	0.02	0.05	0.08	0.03	0.19	312
Feb-09	100	0.12	24	32	0.05	25	0.03	0.09	22	28	0.05	23	0.03	0.07	0.10	0.06	0.16	487
Mar-09	77.5	0.07	14	16	0.03	29	0.02	0.06	18	20	0.04	20	0.03	0.06	0.07	0.05	0.12	282
Apr-09	86.8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
May-09	77.3	0.02	2	2	0.00	69	0.00	0.02	4	4	0.01	56	0.00	0.02	0.01	0.00	0.04	48
Jun-09	80.9	0.01	2	2	0.00	66	0.00	0.01	4	4	0.01	66	0.00	0.03	0.01	0.00	0.04	45
Jul-09	86.6	0.00	0	0	0	0	0	0	1	1	0.00	108	0.00	0.01	0.00	0.00	0.01	6
Aug-09	92.3	0.01	1	1	0.00	101	0.00	0.01	1	1	0.00	94	0.00	0.01	0.00	0.00	0.02	16
Sep-09	79.1	0.01	1	1	0.00	106	0.00	0.01	4	4	0.01	50	0.00	0.02	0.01	0.00	0.03	38
Oct-09	79.9	0.10	18	34	0.08	52	0.03	0.20	9	9	0.02	44	0.01	0.04	0.09	0.04	0.24	359
Nov-09	82.4	0.24	37	83	0.17	29	0.10	0.30	14	15	0.03	26	0.02	0.05	0.20	0.11	0.35	802
Dec-09	24.7	0.26	7	10	0.07	62	0.02	0.24	9	15	0.09	44	0.04	0.23	0.16	0.06	0.46	193
Mar-10 A	64.1	0.32	29	130	0.25	67	0.07	0.84	14	14	0.03	36	0.02	0.06	0.28	0.09	0.90	878
Mar-10 B	75.6	0.49	22	170	0.29	54	0.10	0.79	16	20	0.04	33	0.02	0.08	0.33	0.13	0.87	1,204
Apr-10	100	0.03	9	12	0.02	54	0.01	0.06	8	9	0.01	39	0.01	0.03	0.03	0.01	0.08	158
May-10	92.1	0.01	1	3	0.01	94	0.00	0.03	1	1	0.00	110	0.00	0.01	0.01	0.00	0.03	30
Jun-10	70.8	0.00	2	2	0.00	72	0.00	0.02	1	1	0.00	95	0.00	0.01	0.01	0.00	0.03	24
Aug-10	75.6	0.02	4	5	0.01	53	0.00	0.03	7	7	0.01	47	0.01	0.03	0.02	0.01	0.06	86
Sep-10 A	44.9	0.02	3	4	0.01	52	0.01	0.04	0	0	0	0	0	0	0.01	0.01	0.04	33
Sep-10 B	48.9	0.17	29	85	0.27	33	0.14	0.52	7	7	0.02	31	0.01	0.04	0.29	0.15	0.55	687
Oct-10	80.0	0.24	31	49	0.09	33	0.05	0.18	23	33	0.06	41	0.03	0.12	0.15	0.07	0.30	579
Nov-10	70.1	0.04	8	8	0.02	31	0.01	0.03	10	11	0.02	37	0.01	0.05	0.04	0.02	0.08	141

5.3 Representation of StUK 3 requirements in the FEBI baseline report

FEBI aerial and ship-based surveys were conducted following the standard survey methods recommended by StUK 3 (BSH 2007). The presentation of survey results followed the StUK 3 requirements closely, with some deviations from the protocol and these are explained below. In some aspects, such as size of study area, frequency of surveys, etc., the recommendations from StUK 3 were modified and directed for the EIA of a fixed link which is different from that of offshore windfarms.

StUK 3: Presentation of seasonal mean values (seasonal allocation of seabird species according to table of Garthe et al. […]) and maximum value.

FEBI: We present seasonal mean values for most abundant species, for which sample size allowed conducting spatial modelling. Seasons were defined by examining observations of each survey with the aim to obtain relative homogeneity in bird abundance and distribution for each season. This resulted in minor deviations to species specific seasons, defined in Part 3 of Annex of StUK 3.

StUK 3: Presentation of abundance of relevant species […] in the project areas and within a radius of 500 m, 1,000 m, 2,000 m and 4,000 m around the project area.

FEBI: We present total estimates for the study area for all relevant species. In addition estimates for a 5,000 m impact zone around the project area are given for all relevant species. This larger impact zone was chosen for precautionary reasons. Pressure-specific impact zones will be defined and affected bird numbers within these zones will be assessed during the EIA process.

StUK 3: Point maps and sightings maps with the original positions of the birds, the positions of ships present during the surveys, and the positions of wind turbines in addition to the synoptic grid maps.

FEBI: Distribution maps showing sightings of the original positions of observed birds are given in Appendix II. In order to keep the maps readable, ship positions were not plotted. Shipping and wind turbines in the study area were included in the analysis of species distribution as variables describing anthropogenic pressures.

StUK 3: Grid maps with size classes according to Garthe.

FEBI: In order to describe the species distribution in highly variable environment of the Fehmarnbelt, the highest possible resolution was chosen when analysing species abundance and distribution by spatial modelling. Data collection protocols of bird surveys allowed analyses using 0.75 km grid resolution. For species, where spatial modelling was not possible, data were summarised in grid maps of 5 km resolution.

StUK 3: [Ship transect surveys:] Table showing mean bird densities per km² or, in the case of less abundant species, average number of individuals per kilometre covered, broken down by months indicating the value range and number of mapping cruises […].

FEBI: Abundance of all relevant bird species is displayed in tables presenting numbers of actually counted birds during each survey and estimated densities,

when sample size allowed conducting Distance analysis. Ship-based survey effort was relatively constant therefore we do not present numbers of individuals per kilometre for less abundant species, as total count is considered as being indicative of overall species abundance.

StUK 3: [Ship transect surveys:] Cartographic representation of densities […] or individuals per kilometre travelled for the most common species on a month-by-month basis. The geographic reference for all computations is rectangles of 3' latitude and 6' longitude. The rectangles should be aligned with the geographic grid.

FEBI: Cartographic representation of densities for the most common species was obtained by spatial modelling at resolution of 0.75 km for relevant seasons of species' abundance. This method was considered to deliver the best information on the distribution pattern of relevant species and to provide the best basis for the Environmental Impact Assessment.

StUK 3: [Aircraft transect surveys:] Bird densities are computed exclusively on the basis of birds in transect band A.

FEBI: Bird densities were estimated by applying Distance analysis (Thomas et al. 2010) on monthly aerial survey data. Distance analysis results are presented in tables in chapter 5.2 of this Appendix. In addition to Distance analysis results, these tables also contain information on monthly bird densities computed on the basis of transect band A. A comparison of both methods showed high correlation of the results. Distance analysis was chosen as a primary analysis method to estimate densities of birds, as it allows full utilisation of data collected during aerial surveys, which is especially important when summarising information for less common species.

StUK 3: [Aircraft transect surveys:] Grid maps showing use of the area by abundant species, cumulative and adjusted according to observation effort.

FEBI: For species where data allowed spatial modelling, continuous distribution maps for each season considering that this approach delivers the best information about species abundance and distribution in the study area. For species, which data did not allow spatial modelling, composite grid maps, accounting for the observation effort, are displayed.

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