

WeBS Low Tide Count data for Severn Estuary LTC

Compiled on 02 October 2025



Introduction

This data request provides a synopsis using WeBS Low Tide Count data from a single winter for each species in each month on an estuarine site. Also given are the winter peaks and mean densities for each species at a site and sector level. WeBS Partners recommend that data are requested in this format when undertaking site assessments.

General Information about WeBS

The Wetland Bird Survey is a partnership jointly funded by the British Trust for Ornithology, Royal Society for the Protection of Birds and Joint Nature Conservation Committee (the last on behalf of the statutory nature conservation bodies: Natural England, Natural Resources Wales, NatureScot and Department of Agriculture, Environment and Rural Affairs, Northern Ireland) with fieldwork conducted by volunteers and previous support from Wildfowl and Wetlands Trust.

WeBS aims to provide a scientific basis for the conservation of waterbird populations with the key objectives being to estimate UK population sizes, monitor trends in numbers and distribution, and identify nationally and internationally important sites.

WeBS Core Counts

The WeBS Core Counts scheme is the principal scheme of WeBS with over 3,000 volunteer counters contributing to the survey, making over 40,000 monthly visits each year to over 2,900 wetland sites of all habitats. Core Count data are primarily used to assess species abundance and population trends.

WeBS Low Tide Counts

Despite involving only a relatively small number of sites, estuaries collectively represent the most important habitat for wintering waterbirds in the UK. They are also inherently different from the thousands of inland sites counted for WeBS. The influence of the tide means that the birds have to be much more mobile, both within and between sites. Estuarine sites are well represented within the Core Counts scheme, with counts, in general, being based around high tide roosts. Although important in themselves and useful for determining the abundance of species present at the site, roost sites are usually secondary in importance to the manner in which waterbirds make use of a site for feeding. Therefore, information gathered about these sites at high tide will only provide part of the picture.

The WeBS Low Tide Counts scheme, which was initiated in the winter of 1992/93, aims to monitor, assess and regularly update information on the relative importance of intertidal feeding areas of UK estuaries for wintering waterbirds and thus to complement the information gathered by Core Counts on estuaries. Low Tide Counts provide information needed to assess the potential impacts on waterbird populations of a variety of human activities which affect the extent or value of intertidal habitats, such as dock developments, proposals for recreational activities, tidal power barrages, marinas and housing schemes. The data gathered contribute greatly to the conservation of waterbirds by providing supporting information for the establishment and management of the UK network of Ramsar sites and Special Protection Areas (SPAs), other site designations and whole estuary conservation plans. In addition, WeBS Low Tide Counts enhance our knowledge of the low tide distribution of waterbirds and provide data that highlight regional variations in habitat use. WeBS Low Tide Counts data have been collected for 87 sites across the UK since the winter of 1992/93.

Low Tide Counts are designed to complement estuarine Core Counts, and are principally concerned with illustrating bird distributions. In this way it is possible to ascertain which parts of estuaries, inlets or bays are important for birds. Count data are usually averaged across the winter, to produce relative density maps. Data are provided at two spatial scales – the whole estuary level and the individual sector level. Peak and mean counts for each winter are then produced as part of a standard data request.

Interpretation of WeBS Data and contents of the Appendices.

Caution is necessary regarding the interpretation and application of waterbird counts and hence the interpretation of the data presented in Tables 1 to 4. Data users are advised to consult the summary of interpretative considerations provided in Appendix 1. This summary is provided to prevent, as far as possible, incorrect inferences or inappropriate analyses which may occur due to misunderstanding of possible limitations of the data.

Appendix 2 provides further information relating to the format of the data and the methodology used to calculate the data presented in the tables.

Appendix 3 provides information about the classification of species of geese for which sub-populations cannot be reliably separated in the field by appearance.

Conditions of Use.

Please note that this summary report has been supplied as a WeBS data request and is subject to the Terms and Conditions agreed by the signatory of the Data Request Form. Full details of the WeBS data request terms and conditions of use can be viewed at https://app.bto.org/data-request/bto_datarequest_tc_webs.pdf

Summary report for Severn Estuary LTC

Table 1: Raw monthly totals counted for the whole site

Note: counting of gulls and terns is optional and hence any species in these groups may not have been counted in all sectors

ENGLISH NAME	Nov	Dec	Jan	Feb	Winter Maximum	Month of maximum	WeBS Year
Brent Goose (Dark-bellied - bernicla)	7	1	13	10	13	Jan	2016
Brent Goose (Light-bellied - hrota)	11	0	32	0	32	Jan	2016
Canada Goose	781	596	735	397	781	Nov	2016
Barnacle Goose	258	220	232	232	258	Nov	2016
Greylag Goose	77	62	264	26	264	Jan	2016
Greylag Goose (British/Irish)	0	21	0	0	21	Dec	2016
Pink-footed Goose	0	0	1	0	1	Jan	2016
White-fronted Goose (European - albifrons)	40	110	131	162	162	Feb	2016
Mute Swan	45	150	156	119	156	Jan	2016
Bewick's Swan	40	71	97	96	97	Jan	2016
Shelduck	2707	2913	2327	2647	2913	Dec	2016
Shoveler	26	283	315	173	315	Jan	2016
Gadwall	87	92	80	143	143	Feb	2016
Wigeon	6374	5753	7632	5974	7632	Jan	2016
Mallard	856	1278	847	475	1278	Dec	2016
Pintail	172	454	687	216	687	Jan	2016
Teal	5703	3200	4164	1874	5703	Nov	2016
Pochard	3	0	32	15	32	Jan	2016
Tufted Duck	197	247	389	69	389	Jan	2016
Scaup	5	7	8	0	8	Jan	2016
Eider	0	0	0	1	1	Feb	2016
Common Scoter	0	28	0	0	28	Dec	2016
Long-tailed Duck	0	1	1	0	1	Dec,Jan	2016
Goosander	2	1	13	6	13	Jan	2016
Little Grebe	47	55	53	17	55	Dec	2016
Great Crested Grebe	18	16	33	0	33	Jan	2016
Bittern	0	0	3	2	3	Jan	2016
Grey Heron	99	91	64	50	99	Nov	2016
Little Egret	51	41	20	25	51	Nov	2016
Cormorant	80	124	129	67	129	Jan	2016
Water Rail	13	16	16	5	16	Dec,Jan	2016

ENGLISH NAME	Nov	Dec	Jan	Feb	Winter Maximum	Month of maximum	WeBS Year
Moorhen	48	71	69	23	71	Dec	2016
Coot	324	457	291	93	457	Dec	2016
Oystercatcher	717	834	634	806	834	Dec	2016
Avocet	500	192	453	185	500	Nov	2016
Lapwing	2431	5668	7433	3697	7433	Jan	2016
Golden Plover	867	1988	2624	1560	2624	Jan	2016
Grey Plover	204	179	210	85	210	Jan	2016
Ringed Plover	53	56	35	22	56	Dec	2016
Curlew	1987	1598	2298	2423	2423	Feb	2016
Bar-tailed Godwit	7	14	0	1	14	Dec	2016
Black-tailed Godwit	194	213	409	178	409	Jan	2016
Turnstone	135	39	44	40	135	Nov	2016
Knot	3282	3721	1656	252	3721	Dec	2016
Ruff	10	10	0	6	10	Nov,Dec	2016
Sanderling	18	192	6	20	192	Dec	2016
Dunlin	22609	46404	36447	29502	46404	Dec	2016
Purple Sandpiper	0	0	4	3	4	Jan	2016
Jack Snipe	0	4	8	0	8	Jan	2016
Snipe	71	132	125	180	180	Feb	2016
Common Sandpiper	6	5	1	1	6	Nov	2016
Redshank	1830	2531	2549	1477	2549	Jan	2016
Spotted Redshank	0	2	0	2	2	Dec,Feb	2016
Greenshank	1	2	0	4	4	Feb	2016
Kittiwake	1	0	0	0	1	Nov	2016
Black-headed Gull	7845	8581	7232	10470	10470	Feb	2016
Mediterranean Gull	0	0	1	0	1	Jan	2016
Common Gull	753	1203	491	1467	1467	Feb	2016
Great Black-backed Gull	96	106	82	92	106	Dec	2016
Glaucous Gull	0	0	1	0	1	Jan	2016
Herring Gull	1231	1262	1708	1585	1708	Jan	2016
Yellow-legged Gull	1	2	1	0	2	Dec	2016
Lesser Black-backed Gull	454	371	360	313	454	Nov	2016
Unidentified gull	0	45	4	100	100	Feb	2016
Unidentified large gull	0	7	0	14	14	Feb	2016
Kingfisher	0	1	1	1	1	Dec,Jan,Feb	2016

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Table 2: Overall counted area per month (in hectares) for all sectors counted

WeBS Year	Sector code	Intertidal	Sub.tidal	Non.tidal	Total	Months counted
2016	BV001	41	26	0	67	Nov,Dec,Jan,Feb
2016	BV002	2	49	0	51	Nov,Dec,Jan,Feb
2016	BV003	36	32	0	68	Nov,Dec,Jan,Feb
2016	BV004	68	55	0	123	Nov,Dec,Jan,Feb
2016	BV006	96	62	0	158	Nov,Dec,Jan,Feb
2016	BV601	563	147	0	710	Nov,Dec,Jan,Feb
2016	BV602	0	0	244	244	Nov,Dec,Jan,Feb
2016	BV603	387	46	0	433	Nov,Dec,Jan,Feb
2016	BV604	228	140	0	368	,Dec,Jan,Feb
2016	BV605	166	84	0	250	Nov,Dec,Jan,Feb
2016	BV606	37	38	0	75	Nov,Dec,Jan,Feb
2016	BV607	602	180	0	782	Nov,Dec,Jan,Feb
2016	BV608	22	39	0	61	Nov,Dec,Jan,Feb
2016	BV609	120	94	17	231	Nov,Dec,Jan,Feb
2016	BV610	0	0	55	55	Nov,Jan,Feb
2016	BV611	31	9	0	40	Nov,Jan,Feb
2016	BV612	34	20	10	64	Nov,Jan,Feb
2016	BV613	656	162	0	818	Nov,Jan,Feb
2016	BV614	20	54	5	79	Nov,Dec,Jan,Feb
2016	BV615	96	202	0	298	Nov,Dec,Jan,Feb
2016	BV617	102	82	14	198	Nov,Dec,Jan,Feb
2016	BV618	386	151	0	537	Nov,Dec,Jan,Feb
2016	BV619	441	81	0	522	Nov,Dec,Jan,Feb
2016	BV620	153	209	0	362	Nov,Dec,Jan,Feb
2016	BV621	78	159	0	237	Nov,Dec,Jan,Feb
2016	BV622	147	269	79	495	Nov,Dec,Jan,Feb
2016	BV623	164	94	0	258	Nov,Dec,Jan,Feb
2016	BV624	225	82	27	334	Nov,Dec,Jan,Feb
2016	BV625	238	219	27	484	Nov,Dec,Jan,Feb
2016	BV626	60	86	0	146	Nov,Dec,Feb
2016	BV627	18	16	3	37	Nov,Dec,Jan,Feb
2016	BV628	9	6	2	17	Nov,Dec,Jan,Feb

WeBS Year	Sector code	Intertidal	Sub.tidal	Non.tidal	Total	Months counted
2016	BV629	50	56	0	106	Nov,Dec,Jan,Feb
2016	BV630	57	88	25	170	Nov,Dec,Jan,Feb
2016	BV631	13	73	0	86	Nov,Dec,Jan,Feb
2016	BV632	40	80	4	124	Nov,Dec,Jan,Feb
2016	BV633	32	122	0	154	Nov,Dec,Jan,Feb
2016	BV634	25	166	0	191	Nov,Dec,Jan,Feb
2016	BV635	11	58	0	69	Nov,Dec,Jan,Feb
2016	BV636	27	95	0	122	Nov,Dec,Jan,Feb
2016	BV637	37	64	10	111	Nov,Dec,Jan,Feb
2016	BV638	0	0	45	45	Nov,Dec,Jan,Feb
2016	BV639	29	0	5	34	Nov,Dec,Jan,Feb
2016	BV640	34	50	0	84	Nov,Dec,Jan,Feb
2016	BV641	71	0	4	75	Nov,Dec,Jan,Feb
2016	BV642	57	96	0	153	Nov,Dec,Jan,Feb
2016	BV643	0	0	40	40	,Dec,Jan,Feb
2016	BV644	19	0	0	19	,Dec,Jan,Feb
2016	BV646	38	208	0	246	Nov,Dec,Jan,Feb
2016	BV647	3	133	0	136	Nov,Dec,Jan,Feb
2016	BV648	45	202	0	247	Nov,Dec,Jan,Feb
2016	BV649	11	10	0	21	Nov,Dec,Jan,Feb
2016	BV650	91	45	0	136	Nov,Dec,Jan,Feb
2016	BV651	22	0	0	22	Nov,Dec,Jan,Feb
2016	BV652	0	0	26	26	Nov,Dec,Jan,Feb
2016	BV653	41	0	0	41	Nov,Dec,Jan,Feb
2016	BV654	77	0	0	77	Nov,Dec,Jan,Feb
2016	BV655	240	128	0	368	Nov,Dec,Jan,Feb
2016	BV656	327	170	0	497	Nov,Dec,Jan,Feb
2016	BV657	246	0	0	246	Nov,Dec,Jan,Feb
2016	BV658	103	23	16	142	Nov,Dec,Jan,Feb
2016	BV659	0	0	99	99	Nov,Dec,Jan,Feb
2016	BV660	24	0	15	39	Nov,Dec,Jan,Feb
2016	BV661	18	115	0	133	,Dec,Jan,Feb
2016	BV662	241	70	0	311	Nov,Dec,Jan,Feb
2016	BV663	247	61	0	308	Nov,Dec,Jan,Feb
2016	BV664	165	40	0	205	Nov,Dec,Jan,Feb
2016	BV665	488	113	0	601	Nov,Dec,Jan,Feb
2016	BV666	76	0	0	76	Nov,Dec,Jan,Feb
2016	BV667	382	136	0	518	Nov,Dec,Jan,Feb
2016	BV668	101	6	0	107	Nov,Dec,Jan,Feb
2016	BV669	285	101	0	386	Nov,Dec,Jan,Feb
2016	BV670	318	346	0	664	Nov,Dec,Jan,Feb
2016	BV671	44	17	0	61	Nov,Dec,Jan,Feb

WeBS Year	Sector code	Intertidal	Sub.tidal	Non.tidal	Total	Months counted
2016	BV672	103	90	0	193	Nov,Dec,Jan,Feb
2016	BV673	43	16	0	59	Nov,Dec,Jan,Feb
2016	BV674	14	9	0	23	Nov,Dec,Jan,Feb
2016	BV675	13	24	0	37	Nov,Dec,Jan,Feb
2016	BV676	27	2	11	40	Nov,Dec,Jan,Feb
2016	BV677	51	20	4	75	Nov,Dec,Jan,Feb
2016	BV678	98	34	15	147	Nov,Dec,Jan,Feb
2016	BV679	0	0	83	83	Nov,Dec,Jan,Feb
2016	BV680	75	27	7	109	Nov,Dec,Jan,Feb
2016	BV681	0	0	416	416	Nov,Dec,Jan,Feb
2016	BV682	19	15	0	34	Nov,Dec,Jan,Feb
2016	BV683	30	16	0	46	Nov,Dec,Jan,Feb
2016	BV684	29	25	0	54	Nov,Dec,Jan,Feb
2016	BV685	0	0	176	176	Nov,Dec,Jan,Feb
2016	BV686	39	12	4	55	Nov,Dec,Jan,Feb
2016	BV687	273	0	0	273	Nov,Dec,Jan,Feb
2016	BV688	348	0	0	348	Nov,Dec,Jan,Feb
2016	BV689	444	64	0	508	Nov,Dec,Jan,Feb
2016	BV690	100	307	0	407	Nov,Dec,Jan,Feb
2016	BV691	117	95	0	212	Nov,Dec,Jan,Feb
2016	BV692	212	0	0	212	Nov,Dec,Jan,Feb
2016	BV693	232	0	0	232	Nov,Dec,Jan,Feb
2016	BV694	0	0	91	91	Nov,Dec,Jan,Feb
2016	BV695	0	0	133	133	Nov,Dec,Jan,Feb
2016	BV696	152	89	0	241	Nov,Dec,Jan,Feb
2016	BV697	155	229	0	384	Nov,Dec,Jan,Feb
2016	BV698	6	202	0	208	Nov,Dec,Jan,Feb
2016	BV699	13	201	0	214	Nov,Dec,Jan,Feb
2016	BV700	60	356	0	416	Nov,Dec,Jan,Feb
2016	BV701	27	104	0	131	Nov,Dec,Jan,Feb
2016	BV702	21	60	0	81	Nov,Dec,Jan,Feb
2016	BV703	19	61	0	80	Nov,Dec,Jan,Feb
2016	BV704	0	143	0	143	Nov,Dec,Jan,Feb
2016	BV705	1	2	0	3	Nov,Dec,Jan,Feb
2016	BV706	3	10	0	13	Nov,Dec,Jan,Feb
2016	BV707	10	12	0	22	Nov,Dec,Jan,Feb
2016	BV708	112	125	0	237	Nov,Dec,Jan,Feb
2016	BV709	32	55	0	87	Nov,Dec,Jan,Feb
2016	BV726	11	23	0	34	Nov,Dec,Jan,Feb
2016	BV729	93	47	8	148	Nov,Dec,Jan,Feb
2016	BV730	116	66	14	196	Nov,Dec,Jan,Feb
2016	BV731	93	62	39	194	Nov,Dec,Jan,Feb

WeBS Year	Sector code	Intertidal	Sub.tidal	Non.tidal	Total	Months counted
2016	BV732	60	41	18	119	Nov,Dec,Jan,Feb
2016	BV733	101	0	5	106	Nov,Dec,Jan,Feb
2016	BV734	117	122	0	239	Nov,Dec,Jan,Feb
2016	BV735	124	0	22	146	Nov,Dec,Jan,Feb
2016	BV736	197	124	0	321	Nov,Dec,Jan,Feb
2016	BV737	154	49	0	203	Nov,Dec,Jan,Feb
2016	BV738	0	0	12	12	Nov,Dec,Jan,Feb
2016	BV739	12	3	10	25	Nov,Dec,Jan,Feb
2016	BV740	32	24	0	56	Nov,Dec,Jan,Feb
2016	BV741	65	18	11	94	Nov,Dec,Jan,Feb
2016	BV742	295	265	38	598	Nov,Dec,Jan,Feb
2016	BV743	0	0	89	89	Nov,Dec,Jan,Feb
2016	BV744	0	0	108	108	Nov,Dec,Jan,Feb
2016	BV747	42	281	0	323	Nov,Dec,Jan,Feb
2016	BV749	1008	1317	0	2325	Nov,Dec,Jan,Feb
2016	BV753	93	210	0	303	Nov,Dec,Jan,Feb
2016	BV754	78	126	0	204	Nov,Dec,Jan,Feb
2016	BV756	75	14	0	89	Nov,Dec,Jan,Feb
2016	BV757	65	68	0	133	Nov,Dec,Jan,Feb
2016	BV758	183	102	0	285	Nov,Dec,Jan,Feb
2016	BV761	59	14	0	73	Nov,Dec,Jan,Feb
2016	BV762	115	72	0	187	Nov,Dec,Jan,Feb
2016	BV763	179	121	0	300	Nov,Dec,Jan,Feb
2016	BV766	99	25	0	124	Nov,Dec,Jan,Feb
2016	BV767	238	59	0	297	Nov,Dec,Jan,Feb
2016	BV770	29	0	4	33	Nov,Dec,Jan,Feb
2016	BV771	117	4	0	121	Nov,Dec,Jan,Feb
2016	BV773	120	0	41	161	Nov,Dec,Jan,Feb
2016	BV774	447	0	0	447	Nov,Dec,Jan,Feb
2016	BV778	83	0	6	89	Nov,Dec,Jan,Feb
2016	BV779	277	3	0	280	Nov,Dec,Jan,Feb
2016	BV782	167	18	15	200	Nov,Dec,Jan,Feb
2016	BV783	355	80	0	435	Nov,Dec,Jan,Feb
2016	BV784	187	147	0	334	Nov,Dec,Jan,Feb
2016	BV785	15	148	0	163	Nov,Dec,Jan
2016	BV786	22	53	0	75	Nov,Dec,Jan,Feb
2016	BV787	69	164	23	256	Nov,Dec,Jan,Feb
2016	BV788	14	210	0	224	Nov,Dec,Jan,Feb
2016	BV789	31	46	11	88	Nov,Dec,Jan,Feb
2016	BV790	26	40	7	73	Nov,Dec,Jan,Feb
2016	BV791	52	79	8	139	Nov,Dec,Jan,Feb
2016	BV792	23	83	0	106	Nov,Dec,Jan,Feb

WeBS Year	Sector code	Intertidal	Sub.tidal	Non.tidal	Total	Months counted
2016	BV793	298	245	0	543	Nov,Dec,Jan,Feb
2016	BV795	39	12	0	51	Nov,Dec,Jan,Feb
2016	BV796	7	37	0	44	Nov,Dec,Jan,Feb
2016	BV797	39	59	0	98	Nov,Dec,Jan,Feb
2016	BV798	36	0	0	36	Nov,Dec,Jan,Feb
2016	BV799	94	21	5	120	Nov,Dec,Jan
2016	BV800	101	50	0	151	,Jan,Feb
2016	BV801	8	2	0	10	,Jan,Feb
2016	BV802	86	59	0	145	Nov,Dec,Jan,Feb
2016	BV803	77	66	3	146	Nov,Jan,Feb
2016	BV804	22	14	0	36	Nov,Dec,Jan,Feb
2016	BV805	30	21	0	51	Nov,Dec,Jan,Feb
2016	BV806	237	95	7	339	,Jan,Feb
2016	BV807	0	0	22	22	Nov,Dec,Jan,Feb
2016	BV808	0	0	35	35	Nov,Dec,Jan,Feb
2016	BV809	0	44	0	44	,Dec,Jan,Feb
2016	BV810	0	0	14	14	,Jan,Feb
2016	BV811	36	24	0	60	Nov,Dec,Jan,Feb
2016	BV812	66	34	19	119	Nov,Dec,Jan,Feb
2016	BV813	1873	2694	3	4570	Nov,Dec,Jan,Feb

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Table 3: Peak and mean densities for each species on requested count sections only

Areas in hectares, densities in birds per hectare.

Sector code	Species	Preferred habitat	Area of preferred habitat	Peak Count	Peak density	Mean Count	Mean density
BV739	Shelduck	All Habitats	25	45	1.80	11	0.45
BV739	Mallard	All Habitats	25	22	0.88	12	0.46
BV739	Teal	All Habitats	25	40	1.60	15	0.61
BV739	Little Egret	Intertidal & Non-tidal	22	2	0.09	0	0.02
BV739	Cormorant	All Habitats	25	8	0.32	4	0.15
BV739	Curlew	Intertidal & Non-tidal	22	6	0.27	2	0.09
BV740	Curlew	Intertidal & Non-tidal	32	2	0.06	0	0.02
BV739	Dunlin	Intertidal	12	1100	91.67	275	22.92
BV739	Redshank	Intertidal & Non-tidal	22	120	5.45	65	2.94
BV740	Redshank	Intertidal & Non-tidal	32	2	0.06	0	0.02
BV739	Black-headed Gull	All Habitats	25	64	2.56	28	1.14
BV740	Black-headed Gull	All Habitats	56	45	0.80	23	0.41
BV739	Great Black-backed Gull	All Habitats	25	20	0.80	5	0.20
BV739	Herring Gull	All Habitats	25	6	0.24	2	0.07
BV739	Lesser Black-backed Gull	All Habitats	25	1	0.04	0	0.01

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Table 4: Mean count and density for each species for the whole site

Densities in birds per hectare

Note these values are the sums of the values from Table 3 and thus take into account monthly variation in coverage

Species	Preferred habitat	Area of preferred habitat	Mean site count	Mean site density	WeBS Year
Brent Goose (Dark-bellied - bernicla)	All Habitats	501	8	0.02	2016
Brent Goose (Light-bellied - hrota)	All Habitats	241	11	0.05	2016
Canada Goose	All Habitats	4948	640	0.13	2016
Barnacle Goose	All Habitats	420	236	0.56	2016
Greylag Goose	All Habitats	362	108	0.3	2016
Greylag Goose (British/Irish)	All Habitats	61	5	0.08	2016
Pink-footed Goose	All Habitats	244	<1	<0.01	2016
White-fronted Goose (European - albifrons)	All Habitats	954	111	0.12	2016
Mute Swan	Sub-tidal	529	125	0.24	2016
Bewick's Swan	All Habitats	1505	76	0.05	2016
Shelduck	All Habitats	22694	2771	0.12	2016
Shoveler	All Habitats	3998	230	0.06	2016
Gadwall	All Habitats	1353	129	0.1	2016
Wigeon	All Habitats	16527	6616	0.4	2016
Mallard	All Habitats	13695	911	0.07	2016
Pintail	All Habitats	3660	428	0.12	2016
Teal	All Habitats	10082	3803	0.38	2016
Pochard	Sub-tidal	143	15	0.1	2016
Tufted Duck	Sub-tidal	143	300	2.1	2016
Scaup	Sub-tidal	169	6	0.04	2016
Eider	Sub-tidal	0	<1	<0.01	2016
Common Scoter	Sub-tidal	229	7	0.03	2016
Long-tailed Duck	Sub-tidal	143	1	0.01	2016
Goosander	Sub-tidal	207	7	0.03	2016
Little Grebe	Sub-tidal	143	56	0.39	2016
Great Crested Grebe	Sub-tidal	143	22	0.15	2016
Bittern	Intertidal & Non-tidal	333	1	<0.01	2016
Grey Heron	Intertidal & Non-tidal	8404	83	0.01	2016
Little Egret	Intertidal & Non-tidal	5815	36	0.01	2016
Cormorant	All Habitats	7211	125	0.02	2016

Species	Preferred habitat	Area of preferred habitat	Mean site count	Mean site density	WeBS Year
Water Rail	Intertidal & Non-tidal	1390	16	0.01	2016
Moorhen	All Habitats	1268	62	0.05	2016
Coot	Sub-tidal	143	374	2.62	2016
Oystercatcher	Intertidal	10694	806	0.08	2016
Avocet	Intertidal	519	334	0.64	2016
Lapwing	Intertidal & Non-tidal	6695	4879	0.73	2016
Golden Plover	Intertidal & Non-tidal	1593	1772	1.11	2016
Grey Plover	Intertidal	4790	172	0.04	2016
Ringed Plover	Intertidal	1439	44	0.03	2016
Curlew	Intertidal & Non-tidal	18588	2224	0.12	2016
Bar-tailed Godwit	Intertidal	995	6	0.01	2016
Black-tailed Godwit	Intertidal & Non-tidal	1503	249	0.17	2016
Turnstone	Intertidal	2165	67	0.03	2016
Knot	Intertidal	1766	2271	1.29	2016
Ruff	Intertidal & Non-tidal	244	7	0.03	2016
Sanderling	Intertidal	1049	73	0.07	2016
Dunlin	Intertidal	13023	34601	2.66	2016
Purple Sandpiper	Intertidal	155	2	0.01	2016
Jack Snipe	Intertidal & Non-tidal	261	4	0.02	2016
Snipe	Intertidal & Non-tidal	3582	140	0.04	2016
Common Sandpiper	Intertidal & Non-tidal	130	3	0.02	2016
Redshank	Intertidal & Non-tidal	13327	2257	0.17	2016
Spotted Redshank	Intertidal & Non-tidal	35	1	0.03	2016
Greenshank	Intertidal & Non-tidal	181	2	0.01	2016
Kittiwake	All Habitats	37	<1	<0.01	2016
Black-headed Gull	All Habitats	31343	9392	0.3	2016
Mediterranean Gull	All Habitats	80	<1	<0.01	2016
Common Gull	All Habitats	23033	1026	0.04	2016
Great Black-backed Gull	All Habitats	24472	108	<0.01	2016
Glaucous Gull	All Habitats	143	<1	<0.01	2016
Herring Gull	All Habitats	32847	1566	0.05	2016
Yellow-legged Gull	All Habitats	1046	2	<0.01	2016
Lesser Black-backed Gull	All Habitats	27559	431	0.02	2016
Unidentified gull	All Habitats	6478	38	0.01	2016
Unidentified large gull	All Habitats	5598	7	<0.01	2016
Kingfisher	All Habitats	183	1	0.01	2016

Data provided by the British Trust for Ornithology on behalf of The Wetland Bird Survey. These tabulations are based exclusively on data collected as part of the Low Tide Count Scheme.

The Wetland Bird Survey is a partnership jointly funded by the British Trust for Ornithology, Royal Society for the Protection of Birds and Joint Nature Conservation Committee with fieldwork conducted by volunteers and previous support from Wildfowl and Wetlands Trust

Appendix 1: WeBS Low Tide Count Data Requests: Interpretative Considerations

The following notes are provided to aid in the use and interpretation of WeBS data and to provide guidelines for their presentation. Further notes on interpretation and a national overview of non-breeding waterbirds in the UK are provided in the annual report *Waterbirds in the UK*, which summarises the results from WeBS. The WeBS Report Online also includes low tide dot density distribution maps (<https://app.bto.org/webs-reporting/lowtides.jsp>). A summary report is available to download free from the [BTO website] (<https://www.bto.org/volunteer-surveys/webs/publications>), alternatively if you wish to receive a paper copy please contact BTO.

Interpretation

Caution is necessary regarding the interpretation and application of waterbird counts. The following notes are designed to prevent, as far as possible, incorrect inferences or inappropriate analyses due to ignorance or misunderstanding of possible limitations of the data. However, since general guidelines cannot cover every possible use of the data, please contact the WeBS Office at BTO should you have any further queries.

WeBS Partners cannot accept responsibility for any misuse or misinterpretation of WeBS data.

Coverage

Unlike Core Counts which are carried out annually, the Low Tide Counts scheme aims to cover most individual estuaries about once every six years, although on some sites more frequent counts are made.

The timing of the count can also affect the numbers of birds present at a site. This is particularly true of estuaries where, in particular, the distribution of birds will vary according to the time of the tidal cycle. Most WeBS Core Counts at estuarine sites are conducted at high tide when birds are generally found at just a few locations. This usually represents the best opportunity for obtaining an accurate total of birds at the site. However, this underestimates the importance of other areas of the site used, for example, as feeding areas at other times in the tidal cycle. Low Tide Counts, therefore, are crucial in establishing key areas for waterbirds within tidal sites.

The primary purpose of the Low Tide Counts scheme is to investigate the relative distribution of species within sites, averaged over several dates, and not to determine overall population sizes. Therefore, in contrast to Core Counts, observers may take more than one day to cover all sectors within a monthly visit. Also, conditions of fog, rain or strong winds make the counting of birds on distant mudflats particularly difficult and so flexibility in count dates makes it possible to make best use of suitable counting conditions. This is justified in that if a sector is important for birds at low tide, it does not matter if a flock of Dunlin, for example, recorded there was also recorded elsewhere – the outcome is that we know both areas to be important. Consequently, those using the Low Tide Count data should be aware that the site totals presented for a species in Table 1 may include some duplication and hence the total does not necessarily represent the total number of individuals using the site.

It is also important to be aware that coverage of gulls and terns is optional and therefore any site counts for these species presented in Table 1 may not be complete, whilst any site densities presented in Table 4 should be treated with caution and may be unreliable if coverage of gulls and terns across the whole site was incomplete.

Data Presentation

WeBS Partners encourage the use of WeBS data for conservation and research. Where the use of WeBS data results in a publication, report, paper, display etc. that includes presentation of WeBS data, please bear in mind that others will then have access to these data. WeBS Partners are keen to see that the same data provided to the applicant cannot be gleaned directly from the reports etc. in which they are presented as it prevents WeBS from monitoring the use of data and also from imposing the terms and conditions of use. This may result in the use of data by other parties

contrary to the terms and conditions of the release of WeBS data, particularly where large amounts of data are presented.

Please consider presenting data in summary format, or providing only the minimum data relevant to the use. The need to present data in such a way will vary according to the audience and in some cases, very few modifications will be necessary. WeBS Partners recognise, however, that there will be cases where presentation of a significant amount of data may be desirable or necessary. Please contact the WeBS Partners before sensitive datasets are published. It is a condition of the use of WeBS data that Monthly counts are not given verbatim without prior written permission from WeBS Partners.

Appendix 2: WeBS Low Tide Count Data Requests: Format and Interpretation of Provided Data

Standard single winter synopsis

General Information

Period covered by tabulations

WeBS Low Tide Count data for a single site over a single winter (November to February) are provided to external users in a standardised manner, in order to ensure a degree of consistency of interpretation of the data. It is important to note that, unfortunately, it is not always the case that a complete dataset is obtained – certain count sections may be missed in any one month or, in some cases, the whole site may not be counted on one of the four months specified. The sometimes incomplete nature of the data is accounted for in the summarised tabulations, and in the table of site coverage.

Data are usually provided in a set of four tables. Note that a whole site summary is provided as routine, to allow comparisons of sector level bird densities with those across the whole site. Recommendations are also made to allow sensible interpretation of bird densities, according to the preferred habitat of different species. The four tables are as follows:

Table 1: Raw monthly site totals This table presents count data summarised at the whole site level, to allow comparisons with results from individual count sectors. Data are presented by species, with the total consolidated count for the site presented for each count month. The peak winter total count for the site is highlighted to show in which month peaks were recorded. Note that as low tide counts may be carried out on different days, the peak winter count does not necessarily represent the total number of individuals using the site (see 'Coverage' section in Appendix 1 for further details).

Table 2: Sector coverage and area information This table illustrates the composition of each sector for which data are requested, in terms of discrete habitat zones. Figures are presented, in hectares, for intertidal (mudflat, sandflat), sub-tidal (under water at low tide) and non-tidal (saltmarsh, inland lagoons, etc.) areas of the relevant sectors. This table lists the overall area that was covered during each month. The area of each individual count section is calculated from digitised section boundaries on a Geographical Information System (GIS) package and is thus very precise. Although Low Tide Counts usually occur once a month from November to February, sometimes counts are not complete. The list of sectors, with monthly coverage illustrated, allows assessment of count completeness in interpreting the data.

Table 3: Summarised sector data for each species This table contains the data for the count sectors that have been requested. For each sector, every species present is listed along with the peak number counted on that section over the winter and the mean number over the months during which the section was counted. Sectors not visited are not included in the table, and visits yielding no birds are presented as such. The peak and mean counts are also converted to recommended mean and peak densities, in order that the relative importance of differently sized count sections can be assessed. For each species, the preferred habitat is listed, based on knowledge of the species' behaviour, and the area covered by the appropriate habitat for each sector is presented. It is this area figure that is used to calculate recommended densities.

Species such as Brent Goose for example, may be present both above and below the low water mark, whilst predominantly aquatic birds such as Great Crested Grebe will usually be found on sub-tidal zones. In the former case, counts would be divided by the total area of the sector, whereas in the latter case only the sub-tidal area would be used. It is hoped that the recommended densities should represent the relative distribution of these species as accurately as possible, but the data are flexible enough to allow recalculation (for instance, if the project aim was to display maximum density of Brent Geese on saltmarsh within a specific sector, counts could easily be divided by solely the area of non-tidal habitat).

Finally, Table 3 does not usually include data on gulls and terns. Since counting of this group of birds is optional, it is usually not possible to assess their relative distribution accurately. If gull distribution is of particular interest, further enquiries should be made to the National Organiser at the BTO.

Table 4: Summarised count data for each species for the whole site Table 4 shows the recommended mean site total. These figures are not based on overall counts divided by total area, as some months of data may be missing, thus providing misleading results. Instead, a best estimate of the mean number of each species for the whole site is derived by summing the recommended mean numbers for every individual section counted in that winter (including any sections not requested individually). These sector means are based on the habitat preferences outlined for Table 3. The same species-specific habitat preferences are also used to calculate the total area of the site used by the species, by which the recommended mean site total is divided to obtain the recommended mean site density. Note that the mean site density is based only on the sectors in which a species has previously been recorded even if their preferred habitat category occurs in other sectors. As the habitat categories (inter-tidal, sub-tidal, non-tidal) are very broad and may include a wide variety of micro-habitats, past presence is therefore used as an indicator that the more specific habitat conditions or food resources used by a species are present within the sector.

It is suggested that mean densities from individual sections in Table 3 are compared with mean densities for the whole site from Table 4 to assess the local importance

Report tables in Excel format

The data provided in the standard five-year synopsis are also available in an excel file which can be provided on request. This file includes sheets for each of the tables included in the synopsis which contain data matching the format of the synopsis.

Dot density distribution maps

Dot density maps are now available online via www.bto.org/websreporting-lowtide for all species and years, including the facility to show any combination of site, species and year side by side for comparison.

WeBS Low Tide Count data are presented as dot density maps, with subdivision of count sections into basic habitat elements. The reason for such a subdivision is to ensure species are plotted on appropriate habitat areas and to improve the accuracy of density estimates. Each section for which a count has been made is divided into a maximum of three different habitat components:

Inter-tidal: Areas that lie between mean high water and mean low water.

Sub-tidal: Areas that lie below mean low water. In more 'open-coast'-type situations, a sub-tidal zone reaching 500 m out from the inter-tidal sections has been created arbitrarily, to indicate the approximate extent of visibility offshore from land-based counts.

Non-tidal: Areas that lie above mean high water (usually saltmarsh although some grazing marshes are also covered).

The mean count for the sector is then divided amongst a varying number of the different components, dependent on the usual habitat preferences of the species involved. For example, Dunlin dots are plotted exclusively on inter-tidal sections whereas Wigeon dots are spread across inter-tidal, sub-tidal and non-tidal areas (in proportion to the relative areas of these three components).

Currently, throughout all WeBS Low Tide Count analyses, mean low tide and mean high tide are taken from the most recent Ordnance Survey 1:25000 maps (in Scotland, the lines on the OS maps are mean low water springs and mean high water springs instead). It is recognised, unfortunately, that these maps represent the current real shape of the mudflats, water channels and saltmarshes to varying degrees of accuracy. However, in the interests of uniformity across the UK, the Ordnance Survey outlines are adhered to throughout the analyses.

The maps display the average number of birds in each count section as dots spread randomly across habitat components of count sections, thus providing an indication of both numbers and density. It is important to note that

individual dots do not represent the precise position of individual birds; dots have been assigned to habitat components proportionally and are then randomly placed within those areas. No information about the distribution of birds at a finer scale than the count sector level should be inferred from the dot density maps. For all maps in the present report, one dot is equivalent to one bird, except where stated. The size of individual dots has no relevance other than for clarity.

As most estuaries have now been covered more than once at low tide, density maps show the relative distributions between winters. It is hoped that comparative dot density distributions will lead to an easier and fuller appreciation of low tide estuarine waterbird distribution, and changes therein. The following colour conventions apply to density maps: pale blue = water; yellow = inter-tidal habitat (e.g. mudflat, sandflat); pale green = non-tidal habitat (e.g. saltmarsh, reedbed).

More detailed information concerning analysis and presentation of WeBS Low Tide Counts can be obtained from the WeBS Low Tide Counts National Organiser at lowtide@bto.org

Appendix 3: Classification of Goose Populations

Within the WeBS database several goose populations are identified according to location (and totals derived by summing counts from particular WeBS regions) where they cannot be separated in the field by appearance. Details about specific surveys covering goose populations can be found at <https://www.bto.org/our-science/projects/goose-and-swan-monitoring-programme> and further information about the classification of goose populations can be found in chapter 3.6 of the WeBS Methods document (www.bto.org/sites/default/files/webs_methods.pdf)

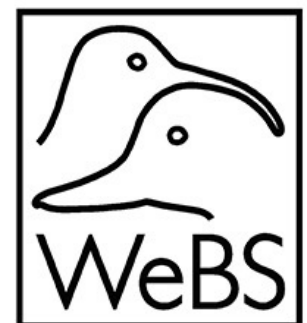


Images: Black-tailed Godwit: Dave King, Brent Geese: Les Foster, waders and gulls: Teresa Frost and Turnstone: Sarah Harris/BTO; Bar-tailed Godwit: Liz Cutting/BTO

Despite involving only a relatively small number of sites, estuaries collectively represent the most important habitat for wintering waterbirds in the UK. Since 1992/93, as part of the WeBS Low Tide Count scheme, over 80 estuarine sites have been counted. WeBS aims to cover most individual estuaries about once every six years, although on some sites more frequent counts are made.

Tabulated synopses provide the raw monthly totals from the whole site for each species in each month (November to February) along with the winter peaks for each species, the mean peak counts, and the mean density on individual sectors. These data will take into account any variation of coverage of each of the sectors.

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WeBS is a partnership jointly funded by the British Trust for Ornithology, the Royal Society for the Protection of Birds and the Joint Nature Conservation Committee, with fieldwork conducted by volunteers.